

Lambeth Local Flood Risk Management Strategy 2014 - 2020

October 2018 revision (v2.5)



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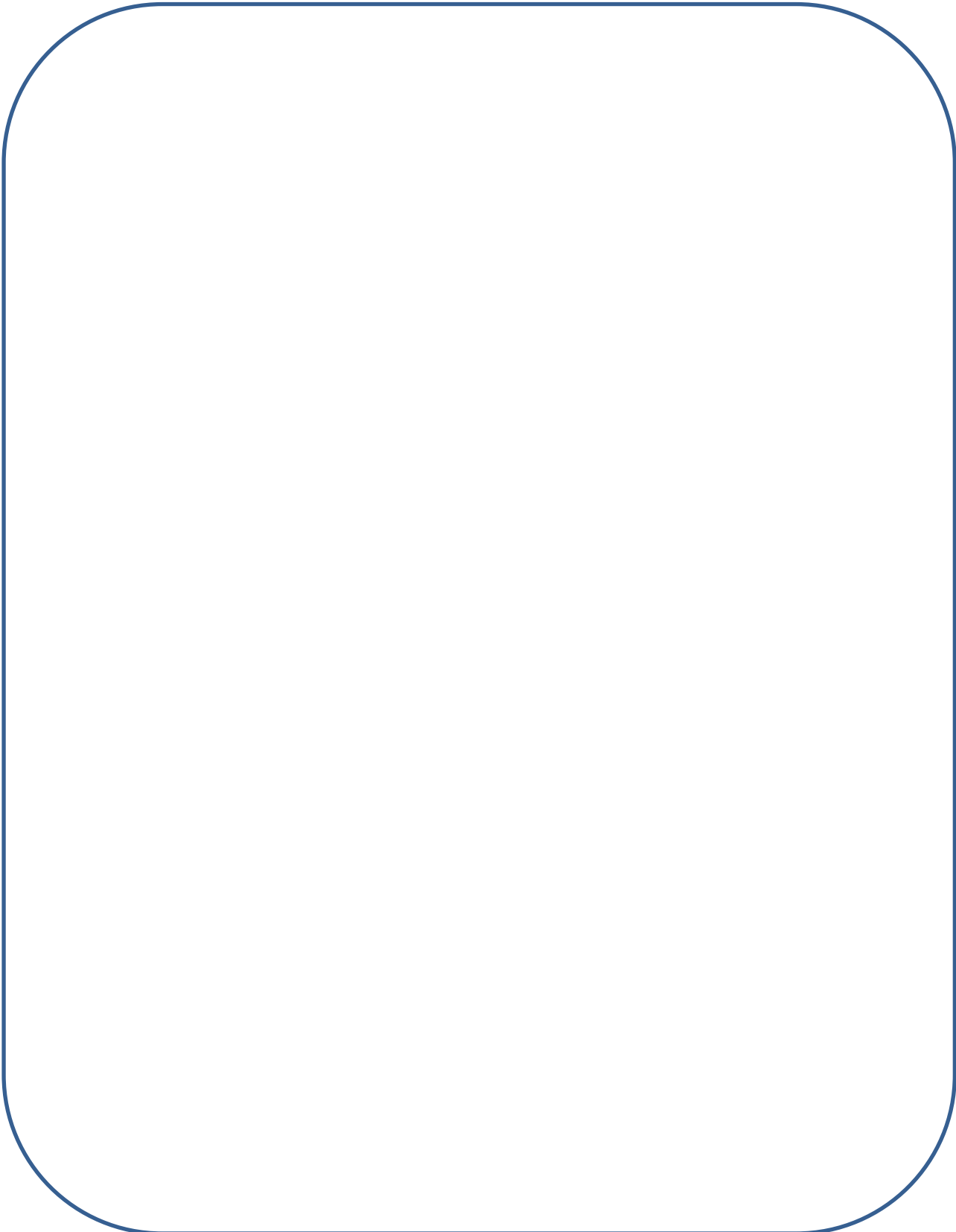


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1 INTRODUCTION

1.1 Flood Risk in Lambeth

In England, 5.2 million properties are at risk of flooding. Of these, 1.4 million are at risk from rivers or the sea, 2.8 million are at risk from surface water and 1 million are at risk from both¹. This risk was realised in many parts of the country during the summer floods of 2007, which resulted in 55,000 properties flooding, 7,000 rescues by emergency services, 13 deaths and an estimated £3 billion of damages. The severity of this event drove changes in the way flooding should be managed by local and national organisations.

As a central London borough, Lambeth is characterised by heavily urbanised areas served by an aging Victorian sewer system. There are risks of flooding from a range of sources, including surface water runoff and ponding, groundwater, sewer surcharging, rivers and tidal watercourses (the River Graveney and River Thames) and reservoirs. Often more than one of these sources can combine to cause a flood event. The borough does benefit however from a number of open green spaces that offer opportunities for flood storage and the delivery of wider environmental benefits.

Risk from fluvial and tidal flooding is well understood and has been managed at a national scale for many years by the Environment Agency. However, flood risk from more local sources, including surface water runoff and ponding, groundwater and small ditches and land drains is less well informed, being very localised, often difficult to predict, with sparse historical records available to provide supporting evidence.

Historically, Lambeth has been affected by flooding from a range of flooding sources. Historical records show that Lambeth experienced surface water flooding as early as 1911 and most recently in April 2004 in Herne Hill which impacted residential and commercial properties. Climate change and continued urbanisation are likely to increase flood risk in the future unless action is taken to mitigate or adapt to that risk.

Modelling undertaken as part of the pan-London Drain London Project in 2011 shows that the risk of surface water flooding to properties in Lambeth is significant. Up to 43,740 residential properties are at risk of flooding during a rainfall event that has a 1% chance of occurring in any given year, with much of the flood risk shared with the adjacent London boroughs of Wandsworth, Southwark and Croydon.



Flooding in Lambeth in 1914²



Flooding In Herne Hill in 2004³

1 Flooding in England: A National Assessment of Flood Risk, 2009. Environment Agency.

2 Floods in Lambeth 1911 to 1956. 1956. Lambeth Council.

3 Floods in Southwark - Report of the Investigation of Sewer Flooding in Dulwich, April 2004. London Borough of Southwark.

1.2 Flood Risk Management in Lambeth

In response to the significant flooding in summer 2007, the Government commissioned Sir Michael Pitt to undertake a review; the outcome of this, '[The Pitt Review – Learning Lessons from the 2007 Floods](#)' outlined the need for changes in the way the UK is adapting to the increased risk of flooding and the role different organisations have to deliver this function.

[The Flood and Water Management Act 2010](#), enacted by Government in response to The Pitt Review, designated Lambeth Council as a Lead Local Flood Authority (LLFA) for the London Borough of Lambeth. As a Lead Local Flood Authority, we have responsibilities to lead and co-ordinate local flood risk management. Local flood risk is defined as the risk of flooding from surface water runoff, groundwater and small ditches and watercourses, collectively known as Ordinary Watercourses.

The Act also formalised the flood risk management roles and responsibilities for other organisations including the Environment Agency, water companies and highways authorities. Further information on these in relation to their flood risk management functions in Lambeth are outlined later in this Strategy.

Since designation as a Lead Local Flood Authority in April 2011, we have been working with local communities, neighbouring boroughs and stakeholders to build an evidence base of, and deliver, local flood risk management in Lambeth. The development of this Strategy provides the first opportunity for us to formalise our longer term flood risk management priorities and actions and shape a Strategy that delivers the greatest benefit to our residents, businesses and environment.

1.3 The Lambeth Local Flood Risk Management Strategy

As a Lead Local Flood Authority, we have a statutory duty to develop, maintain, apply and monitor a strategy for local flood risk management. The Lambeth Local Flood Risk Management Strategy ("the Strategy") sets out our approach to managing flood risk from local sources in both the short and longer term, with proposals for actions that will help to manage the risk.

The Lambeth Strategy outlines:

- [assessment of flood risk](#) (including surface water, groundwater, fluvial and sewer flood risk)
- [Risk Management Authorities](#) and their functions
- [objectives](#) for managing local flood risk
- proposed [measures](#) to deliver the objectives
- [timescales](#) to implement measures
- how the measures will be paid for, identifying [costs and benefits](#)
- how the Strategy contributes to achievement of [Environmental Objectives](#)
- how and when the Strategy will be [reviewed](#).

The Strategy complements and supports the [National Strategy](#), published by the Environment Agency, which outlines a National framework for flood and coastal risk management, balancing the needs of communities, the economy and the environment.

As well as our duties under the Act, we have legal obligations under the [EU Floods Directive](#), which was transposed into UK Law through the [Flood Risk Regulations 2009](#). As part of the Greater London Flood Risk Area we have to deliver assessments, maps and plans outlining significant flood risk, receptors and consequences across Lambeth. This Strategy will form the key part of these, and has been produced to meet the requirements of the Regulations to avoid duplication of future work.

In delivering flood risk management we have the opportunity to deliver wider environmental objectives and requirements, as set out in European legislation including the [Water Framework Directive](#). Our approach to this is outlined in the Strategy under '[delivery of wider environmental objectives](#)'.

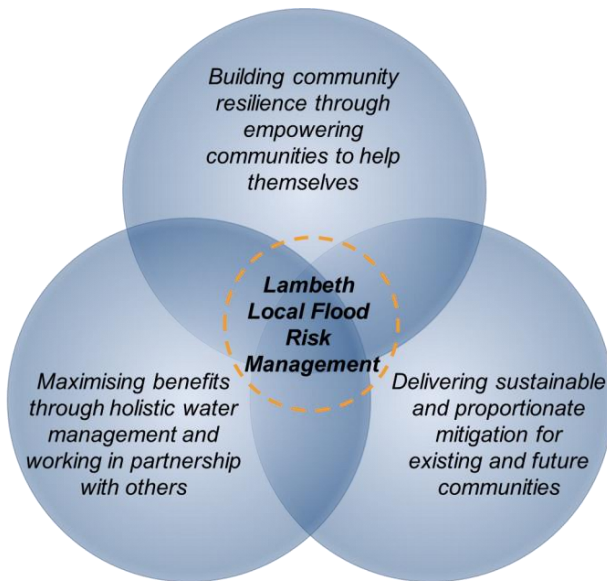
Further information on the legislative background for our flood and water management activities is provided in the [Elected Members Guidance Document](#).



Addressing Local Requirements

Flood risk in Lambeth will increase in the future; influenced predominately by climate change and the heavily urbanised nature of the borough and aging infrastructure. Funding is limited to address the increased risk through traditional flood defence or drainage capacity improvement works. Therefore we must capitalise on opportunities to mitigate risks in more affordable ways and where multiple benefits can be delivered.

It is not possible to prevent all flooding; however, over time, we will use our Strategy to increase the level of understanding of local flood risk posed to the community and to take the lead in effectively implementing measures to manage the risk where appropriate.



Guiding Principles of Local Flood Risk Management in Lambeth

This Strategy outlines the priorities for flood risk management in the borough and provides a delivery plan to manage the risk. It builds on the outcomes of the [Lambeth Surface Water Management Plan](#) and [Preliminary Flood Risk Assessment](#).

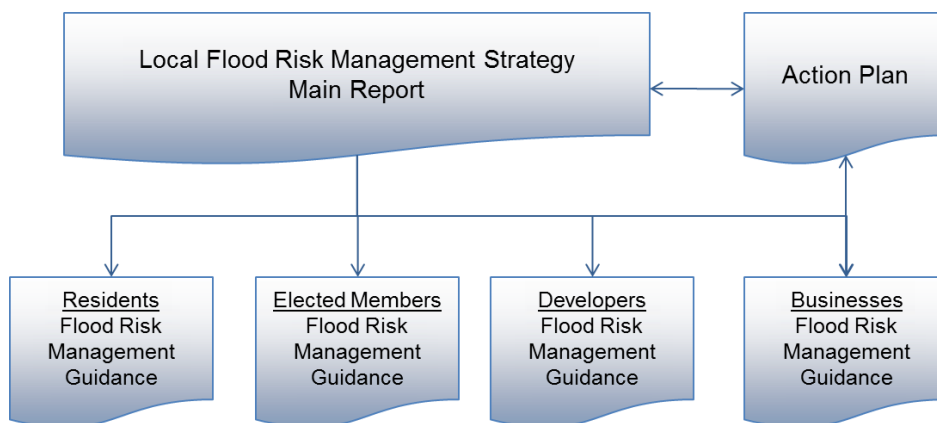
Although the Strategy’s remit is to address flooding from surface water, groundwater and ordinary watercourses, the Strategy provides guidance on other forms of flooding, such as rivers and sewers, recognising that though a responsibility of external organisations, understanding the interactions and risk posed to communities by these will allow us to deliver management measures that provide the greatest benefit and resilience to communities and businesses in Lambeth.

The Strategy is guided by three principles for the delivery of local flood risk management in Lambeth (illustrated).

Development of the Strategy

This Strategy has been developed by Lambeth Council in partnership with local communities and risk management authorities, including neighbouring London boroughs, the Environment Agency and Thames Water. As part of developing the strategy, an online survey was undertaken and a Residents Workshop was held, offering communities the opportunity to shape the development of the Strategy and future flood risk management priorities.

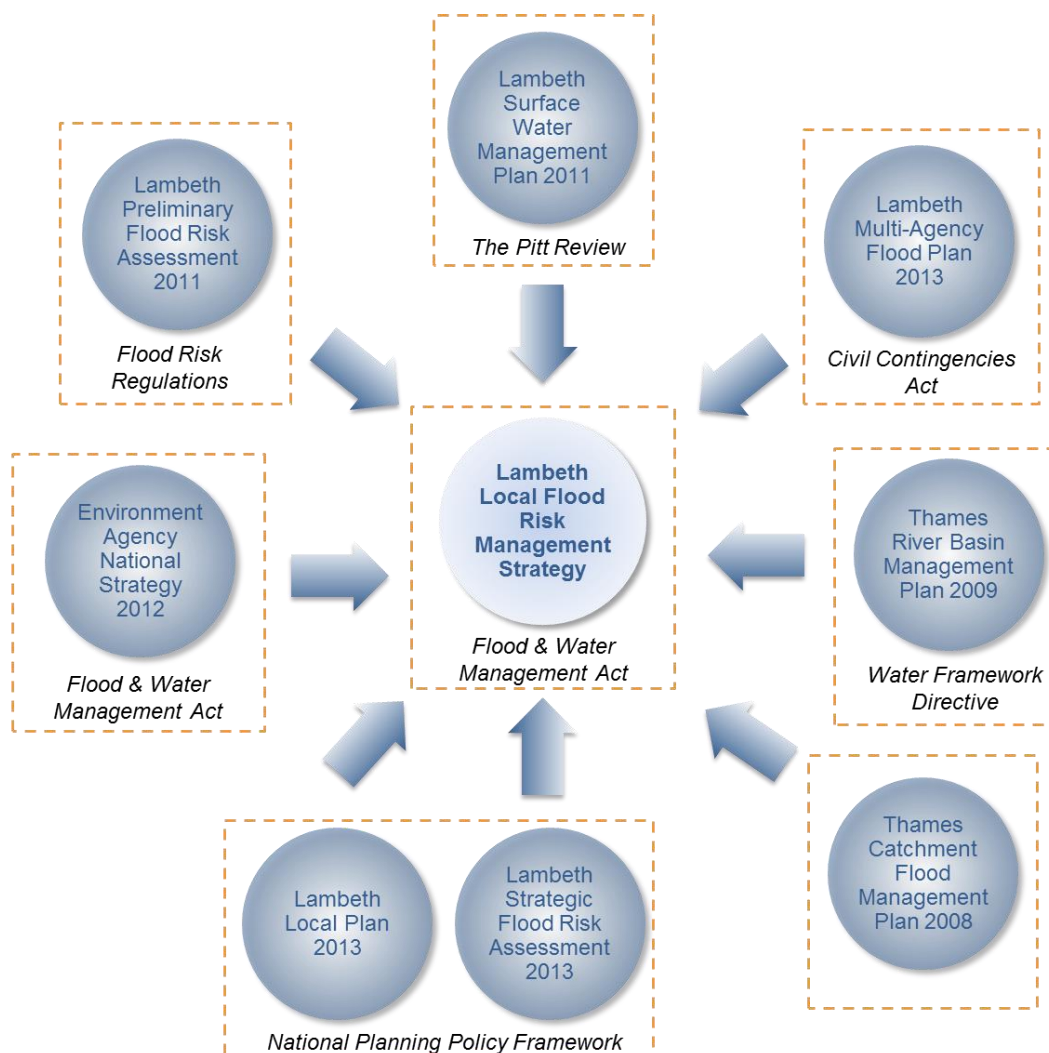
The Strategy is accompanied by four complementary guidance documents for different stakeholders in Lambeth and an Action Plan outlining how we will deliver the Strategy over the next six years.



Lambeth Local Flood Risk Management Strategy Document Structure

Complementary Existing Plans

The Strategy forms a key document in Lambeth's suite of flood risk management plans, drawing together existing flood risk studies and plans into a single document that outlines how we will manage local flood risk in the future. It links closely to existing Lambeth flood risk planning and emergency response plans and wider environmental plans across the River Thames catchment to ensure a coordinated approach to flood risk management in Lambeth.



Studies and Plans Informing the Lambeth Local Flood Risk Management Strategy

Linkages to the Flood Risk Management Plan

The Strategy has been developed in partnership with the Environment Agency to ensure consistency with the draft Thames River Basin District Flood Risk Management Plan (FRMP).

The Flood Risk Regulations implement the [European Floods Directive](#)⁴ which aims to provide a consistent approach to managing flood risk across Europe. Under the Regulations, the Environment Agency will produce a set of Flood Risk Management Plans (FRMPs) at the river basin district level. FRMPs describe the risk of flooding from rivers, the sea, surface water, groundwater and reservoirs. They set out how Risk Management Authorities will work together, with communities, to manage flood risk and are important for delivering the aims of the Environment Agency's [National Strategy](#).

⁴ European Union (2007) EU Floods Directive <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32007L0060:EN:NOT>

LLFAs in Flood Risk Areas need to prepare FRMPs covering 'local' sources of flooding and the Environment Agency need to prepare FRMPs covering flooding from main rivers, the sea and reservoirs. The first cycle of FRMPs will be published by December 2015. In addition, the Environment Agency will be updating their RBMPs to ensure they comply with the Water Framework Directive and they will go to public consultation aligning both of these plans. This will enable people to look at proposals for managing flood risk alongside issues such as water quality.

Under the requirements of the Regulations, all of the LLFAs within the London 'flood risk area' have a statutory responsibility to develop and consult on a FRMP for local flood risk and this covers the 33 London Boroughs and Surrey County Council. As part of the London Flood Risk Area, Lambeth Council, as the LLFA for the London Borough of Lambeth, is required to contribute to the preparation of a FRMP for the Thames River Basin District outlining significant flood risk, receptors and consequences across their administrative area.

The Strategy has been produced in partnership with the Environment Agency to comply with the requirements of the Regulations as well as the Act, to avoid duplication of work, and with the aim of aligning and integrating the findings of the Strategy with the wider river basin objectives. The Strategy forms the FRMP for the London Borough of Lambeth, and the findings of this will be included in the Final Thames FRMP when it is published in December 2015.

2 OVERVIEW OF FLOOD RISK IN LAMBETH

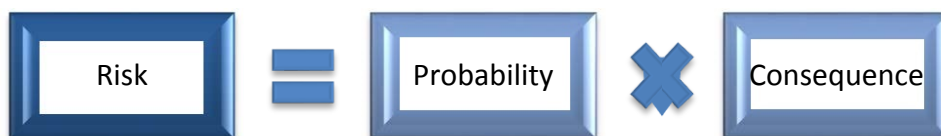
2.1 What Do We Mean by Flood Risk?

Flood risk is not just the likelihood of flooding occurring, but also the possible damage a flood will cause.

Assessing risk in quantifiable, financial terms can help us to prioritise where available funding should be directed as well as to support applications for additional external funding. However, it should also be borne in mind that the consequences of flooding can be far reaching and not always easy to value, particularly the social impacts of displacement, loss and fear of repeat events. All available information and past experiences have been considered in developing our objectives for managing future flood risk.

What is Flood Risk?

Flood Risk is the likelihood of a particular flood happening (probability) e.g. 'there is a 1 in 100 chance of flood in any given year in this location.' multiplied by the impact or consequence that will result if the flood occurs.



The evaluation of risk takes into account the severity of impacts from a flood event, which can be highly variable in terms of social, economic and environmental consequences. Consequences are often measured by number of properties flooded and level of economic damage. It will also be influenced by vulnerability (i.e. a basement flat or a key emergency service station is more vulnerable than a commercial warehouse)

There will only be a risk if there is means (pathway) of connecting the source of the flood with the people, property, land etc. (receptors). Source, pathway and receptor must all be present for there to be a risk.



2.2 Sources of Flood Risk

Lambeth is at risk of flooding from a number local sources (surface water runoff and groundwater) and other sources (fluvial, sewer, highways and reservoir).

A flood event can often be caused by a combination of factors, whilst responsibility for managing these different sources can lie with different organisations. Effective communication and partnership working between risk management authorities is essential to ensure risk to people, property and the environment remains as low as possible.

Over the last three years we have been building effective working relationships with our neighbouring boroughs and risk management authorities; we will continue to develop these over future years to deliver coordinated management of flooding in Lambeth.

Flooding from Local Sources

Source	Description
Surface Water Runoff or Ponding (also known as pluvial flooding)	<p>This usually occurs when high intensity rainfall generates runoff which flows over the surface of the ground and ponds in low lying areas, before the runoff enters a watercourse or sewer. It can be exacerbated when the soil is saturated and natural drainage channels or artificial drainage systems have insufficient capacity to cope with the additional flow.</p> <p>Surface water flooding is the most prevalent form of flooding in Lambeth with water ponding in low-lying areas such as underpasses as well as topographical low points, railway embankments and ancient river valleys, sometimes known as the 'lost' rivers of London where the watercourse has been culverted underground as a sewer.</p>
Groundwater Flooding	<p>Groundwater flooding occurs as a result of water rising up from the underlying aquifer or from water flowing from springs. This tends to occur after much longer periods of sustained high rainfall and can be sporadic in both location and time often lasting longer than a fluvial or surface water flood. High groundwater level conditions may not always lead to widespread groundwater flooding; however, they have the potential to exacerbate the risk of pluvial and fluvial flooding by reducing rainfall infiltration capacity, and to increase the risk of sewer flooding through sewer / groundwater interactions.</p> <p>Basements and other below ground level installations are particularly vulnerable to groundwater flooding although property and land above ground level can also be at risk. Instances of groundwater flooding have been reported in a number of areas within Lambeth and in particular along the 85m contour spring line that runs through the south of the borough.</p>
Flooding from Ordinary Watercourses (including small ditches and land drains)	<p>Ordinary watercourses include every river, stream, ditch, drain, cut, dyke, sluice, sewer (other than a public sewer) and passage through which water flows, above ground or culverted, which is not designated as a main river (see fluvial flood risk opposite). The responsibility for these fall to riparian owners who typically own land on either bank and therefore are deemed to own the land to the centre of the watercourse.</p> <p>There are no identified ordinary watercourses located in Lambeth.</p>

Managing flood risk from local sources is the responsibility of Lambeth Council in our role as a Lead Local Flood Authority

Other sources of flooding

Source	Description
Flooding from rivers (also known as fluvial or tidal flooding)	<p>Flooding to low lying land from the sea and tidal estuaries is caused by storm surges and high tides. Where tidal defences exist, they can be overtopped or breached during severe storms, which may become more likely with climate change. The Tidal River Thames runs along the northern boundary of Lambeth and is actively defended by raised embankments, hard defences and the Thames Barrier that protects the north of Lambeth up to a 1 in a 1000 (0.1%) annual probability event.</p> <p>River (or fluvial) flooding occurs when rivers overflow and burst their banks, due to high or intense rainfall which flows into them. A Main River is defined by the Environment Agency on its Main River Map and is usually a larger river or stream. Within Lambeth, the River Thames and River Graveney (running through Streatham to the south west of the borough) are identified as Main Rivers. The River Graveney is a tributary of the River Wandle and runs through urban areas where the natural watercourse has historically been heavily modified. Properties in south west Lambeth are located in the floodplain of the River Graveney; flooding was reported in this vicinity in 1981.</p> <p>Tidal and fluvial flood zones are split up into different probability zones for flooding ranging from Low Probability (Flood Zone 1) to High Probability (Flood Zone 3). Further information is available through the Environment Agency's website and our Strategic Flood Risk Assessment.</p>
Sewer flooding	<p>During heavy rainfall flooding from the sewer system may occur if (a) the rainfall event exceeds the capacity of the sewer system / drainage system, (b) the system becomes blocked by debris or sediment and/or (c) the system surcharges due to high water levels in receiving watercourses. Sewer flooding generally results in localised short term flooding.</p> <p>Management of sewer flooding is the responsibility of Thames Water as the sewerage undertaker in Lambeth, although it is often difficult to disassociate from surface water runoff.</p>
Artificial Sources	<p>Artificial sources include any water bodies not covered under other categories and typically include canals, lakes and reservoirs. There are two covered reservoirs located in the borough though these are not considered to be a risk to flooding. A small area in the north west of the borough is mapped by the Environment Agency to be at risk should there be a failure of the Queen Mary or Queen Mother reservoirs in Surrey.</p>

2.3 Available Evidence and Assessments of Flood Risk

A number of studies have been undertaken to inform and improve the understanding of flood risk in Lambeth. These have identified and quantified risk across the borough from different sources of flooding using best available information and modelling at the time. However, evidence and assessment methods are constantly evolving to enable improved assessment of the risk facing communities in Lambeth and we will continue to collate and use this information as appropriate to build a better understanding of flood risk across Lambeth.

Study	Summary and further links
<u>Lambeth Strategic Flood Risk Assessment (SFRA)</u>	Each local planning authority is required to produce a SFRA under the <u>National Planning Policy Framework</u> . This provides an important tool to guide planning policies and land use decisions in the borough. The SFRA provides an overview of flood risk issues in Lambeth and analyses specific locations where development is proposed in areas at risk from flooding
<u>Lambeth Preliminary Flood Risk Assessment (PFRA)</u>	PFRA's provide a high level summary of significant flood risk from surface water, ordinary watercourses and groundwater through collection of information on past (historic) and future (potential) floods. They are a requirement of the Flood Risk Regulations 2009 and must be produced every 6 years.
<u>Lambeth Surface Water Management Plan (SWMP)</u>	SWMPs were a key recommendation of The Pitt Review and Defra commissioned these in areas deemed at high risk from flooding. They assess the surface water flood risk across an area using both historical information and undertaking pluvial modelling to determine the future flood risk for a range of rainfall events. These identify the areas of significant surface water and groundwater risk, options to address the risk and an Action Plan for taking these options forward.

2.4 Historic Flooding in Lambeth

Records of historic flooding from local sources across the borough have been summarised in the [Lambeth Preliminary Flood Risk Assessment](#). Historic fragmented management of surface water flooding means that there is a little available information regarding consequences of these events. The Flood Risk Regulations require Preliminary Flood Risk Assessments to report detailed information on past flood events that had 'significant harmful consequences'. However, there is no national definition of what constitutes 'significant harmful consequences'; it is a matter for local decision based on local information collected. Based on the information available at the time of the assessment it was concluded that, although there is evidence of properties flooding in Lambeth, overall none of the events are considered to have significant harmful consequences for human health, economic activity, the environment or cultural heritage. We will continue to record and monitor flooding incidents as part of our Local Flood Risk Management activities.

Recorded Surface Water Flooding Events in Lambeth (1901 – 2013)

- 1901 – Herne Hill.
- 1901 – 1911 - borough-wide.
- 11th May 1911 and 27th July 1911 - borough-wide and Dulwich.
- 14th June 1914 - Norwood.
- 1st September 1926 - borough-wide.
- 4th July 1938 - borough-wide.
- 31st July 1951, 7th August 1952, 18th July 1953, 19th June 1956 – borough-wide.
- 9th August 2001 - borough-wide.
- 27th April 2004 - Herne Hill, Dulwich, Streatham Hill and Brixton areas.
- 29th June 2005 - Major roads in Stockwell and Oval areas.
- 20th July 2007 - Clapham Common, Kennington, Stockwell and Vauxhall railway stations.
- Regular Flooding (Surface Water) - basements in Herne Hill, West Norwood and Streatham Vale.
- Regular Flooding (Groundwater) - Central Brixton, West Norwood, Streatham, Streatham Hill, east of Clapham Common and Brixton.

2.5 Understanding Future Flood Risk

To inform the development of the Strategy, existing risk assessments and modelling outputs have been used to identify areas at greatest risk in the borough and how future flood risk may be managed. Summaries have been provided below for each of the main sources of flood risk facing the borough. The [Residents Guidance Document](#) outlines the flood risk facing individual Wards in Lambeth.

Appendix A provides figures illustrating the risk and potential receptors at risk in Lambeth.

Surface Water Flood Risk

Surface water modelling was undertaken for the [Lambeth Surface Water Management Plan](#) to identify those areas at greatest risk of flooding from surface water runoff and ponding. Those areas identified to be at greater risk were delineated into fourteen Critical Drainage Areas within or crossing the administrative boundary of Lambeth. The surface water modelling outputs provide a good indication of the areas at risk of flooding within Lambeth however, they do not provide detail on individual properties.

The chief mechanisms for surface water flooding in Lambeth can be broadly divided into the following categories:

- **River Valleys** - across the borough, the areas particularly susceptible to overland flow are formed by narrow corridors associated with topographical valleys which represent the routes of the 'lost' rivers of London including the River Effra, Falcon Brook and Clapham River. This results in large areas of deep surface water ponding in the Norwood, West Dulwich, Herne Hill, Brixton and Kennington areas.
- **Low Lying Areas** - areas such as underpasses, subways and lowered roads beneath railway lines are more susceptible to surface water flooding.
- **Railway Embankments** - discrete surface water flooding locations along the up-stream side of the raised network rail embankment (running roughly west to east through the South of the borough).
- **Topographical Low Points** – areas which are at topographical low points throughout the borough which result in small, discrete areas of deep surface water ponding.
- **Sewer Flood Risk** – areas where extensive and deep surface water flooding is likely to be the influence of sewer flooding mechanisms alongside pluvial and groundwater sources including the areas of Herne Hill, Clapham and Streatham.

The [Surface Water Management Plan](#) analysed the number of properties at risk of surface water flooding for a rainfall event with a 1 in 100 probability of occurrence in any given year (1% Annual Exceedance Probability, AEP). A review of the results demonstrate that

- **43,740 residential** properties and **2,715 non-residential** properties in Lambeth could be at risk of surface water flooding during a 1% AEP rainfall event.

Of those,

- **1,295 residential** properties and **50 non-residential** properties could be at risk of flooding to a depth of greater than 0.5m during the same modelled rainfall event.

A review of these flood risk statistics coupled with local knowledge of the study area identified that the following Critical Drainage Areas are at greatest risk of significant flooding from the 1% AEP rainfall event.

Critical Drainage Area	Flooded Receptors (>0.03m)			Flooded Receptors (>0.5m)		
	Residential	Non Residential	Total	Residential	Non Residential	Total
Brixton (Group7_033)	7,043	398	7,441	651	5	656
Herne Hill (Group7_032)	6,201	339	6,540	158	33	191
Nine Elms (Group7_028)	3,939	337	4,276	82	0	82
Streatham (Group7_026)	1,741	112	1,853	42	8	50
Clapham South (Group7_027)	3,176	154	3,330	40	5	45
East Norwood (Group7_031)	1,560	49	1,609	43	0	43

Within Lambeth, the greatest number of receptors are at risk from significant surface water flooding along the route of the 'hidden' River Effra, which runs south to north through the borough. Historic surface water flooding records support the modelling predictions in the West Dulwich and Herne Hill areas. Additionally, significant ponding of surface water is predicted to impact Norwood, Nine Elms, Brixton and Kennington. The Herne Hill, Brixton and Norwood areas are impacted from upstream surface water flows from the London boroughs of Southwark and Croydon, and it will therefore be important that the flood risk is managed at a catchment scale and in partnership by all Councils.

Surface water flooding is influenced across much of Lambeth through complex interactions between urban watercourse routes, direct surface water ponding, overland flow paths, groundwater springs and the combined sewer system.

Groundwater Flood Risk

Due to the nature of the flood risk, information on susceptibility to groundwater flooding and modelling of this is fairly sparse. Therefore, potential mechanisms for flooding are identified through a review of historic flooding incidents, geology, springs, land use and potential receptors.

The [Lambeth Surface Water Management Plan](#) assessed the potential risk of groundwater flooding in Lambeth and reported that across the majority of the borough the risk from groundwater flooding is low given that Lambeth is underlain by the impermeable London Clay. The majority of the groundwater flooding incidents recorded in Lambeth are located in close proximity to the 'lost' rivers and are thought to be related to the river terrace deposits associated with these, particularly in topographic low points where perched groundwater tables are likely to be close to ground surface so that there is an increased susceptibility to groundwater flooding. Other areas of increased susceptibility to groundwater flooding are associated with flows from groundwater springs located in the south of Lambeth.

The historical records show that many of the flooding incidents report flooding of cellars or basements, which is a common outcome of a rising water table following a period of heavy or persistent rainfall, particularly where superficial deposits, such as river terrace deposits, are present. Basements and cellars are susceptible to future groundwater flooding and use of structures such as sheet piling may exacerbate the problem if they intercept the water table.

Groundwater flooding may increase in the future as a result of climate change or changes to water management. More intense rainfall events could lead to further groundwater flooding in Lambeth due to increased groundwater levels,

Fluvial and Tidal Flood Risk

Fluvial and tidal flood risk has been modelled by the Environment Agency to assess the risk to properties.

The [Environment Agency Flood Zone maps](#) provide predictions of flood extent across Lambeth without the provision of flood defences. These Flood Zones clearly show that the north of the borough is at risk from tidal flooding from the River Thames. However, this area is defended to a 1 in 1000 year return period event by defences that are in good condition, strengthened with concrete and sheet piling and that are maintained and inspected regularly by the Environment Agency. This means that the risk of failure of the Thames Tidal Defences is very low and therefore the risk to properties in the north of the borough from tidal flooding is considered to be low. However, there is some residual risk that these defences may fail or overtop.

Properties in close proximity to the River Graveney, located in Streatham in south west Lambeth, are shown to be at risk of fluvial flooding during a rainfall event with an annual probability of less than or equal to 1 in 100 (1% AEP).

The [Strategic Flood Risk Assessment](#) provides further information on the fluvial and tidal flood risk in Lambeth.

Sewer Flood Risk

Modern sewer systems (post-1970) are typically designed to accommodate rainfall events with a 1 in 30 year return period. Therefore, rainfall events with a rainfall probability of greater than 1 in 30 years would be expected to result in surcharging of some of the sewer system. While Thames Water, as the sewerage undertaker, is concerned about the frequency of extreme events, it is not economically viable to build sewers that could cope with every extreme.

Older sewer systems were often constructed without consideration of a design standard therefore some areas of Lambeth may be served by Victorian sewers with an effective design standard of less than 1 in 30 years. Much of Lambeth's sewer network is a 'combined system' with storm and foul drainage served by a single sewer. As a result, sewer flooding events, where they occur, can often be frequent, although the scale of consequence is generally small.

For the purposes of assessing sewer flood risk for the [Surface Water Management Plan](#) and [Strategic Flood Risk Assessment](#), Thames Water provided their DG5 database which details the total number of properties at risk of sewer flooding (both externally and internally) based on historic flooding over the previous 10 years and those properties deemed to be at risk. As the DG5 dataset is provided on a four-digit postcode area, risk is assessed at this scale. It should be noted that Thames Water focus their efforts on removing properties from the DG5 register, and therefore this dataset may no longer accurately represent those properties which are currently at risk.

The DG5 Register highlights the wards of Herne Hill, Tulse Hill, Streatham and Thornton as being at greatest risk of sewer flooding. Climate change is expected to increase the potential risk from sewer flooding as summer storms become more intense and winter storms more prolonged. This combination will increase the pressure on existing sewer systems effectively reducing their design standard, leading to more frequent localised flooding incidents.

3 ROLES AND RESPONSIBILITIES FOR FLOOD RISK MANAGEMENT

3.1 Who Has Responsibility for Managing Flood Risk in Lambeth?

[The Flood and Water Management Act 2010](#) defined responsibilities for the management of flood risk by different organisations. Designated as Risk Management Authorities (RMAs), these organisations have a legal responsibility for managing flood risk. However, a number of other organisations also have a role to play in delivering local flood risk management.

As a Lead Local Flood Authority (LLFA), we have a new duty to take the lead in the management of local flood risk.

Organisations with a **legal responsibility** for managing flooding across or adjacent to Lambeth:

- Lambeth Council as the Lead Local Flood Authority
- Environment Agency
- Thames Water Utilities Ltd as the water and sewerage company
- Lambeth Council as the Highways Authority
- Transport for London as a Highways Authority
- As neighbouring Lead Local Flood Authorities:
 - Southwark Council
 - Wandsworth Council
 - Croydon Council
 - Merton Council
 - City of Westminster Council
 - Bromley Council
 - City of London Council

Groups or organisations who have **roles and functions** in flood risk management in Lambeth:

- Lambeth Council as the Local Planning Authority
- Lambeth Council as a Category 1 Emergency Responder
- Thames Regional Flood and Coastal Committee (RFCC)
- Network Rail
- London Fire Brigade
- Port of London Authority
- Greater London Authority
- Network Rail
- Land owners and land managers
- Property owners and residents
- Housing and social landlords
- Businesses
- Riparian owners

Risk Management Authorities

The specific duties relating to each Risk Management Authority are outlined overleaf. All Risk Management Authorities have a duty to cooperate with us, as the Lead Local Flood Authority, and other Risk Management Authorities when exercising their flood risk management functions.

Risk Management Authority	Roles and Responsibilities under the Flood and Water Management Act 2010	Responsibility for Managing Flood Sources
Lambeth Council as the LLFA	<ul style="list-style-type: none"> Statutory consultee to the Local Planning Authority on surface water flood risk and management for all major planning applications – <i>As set out by the House of Commons: Written Statement (HCWS161), this role is a replacement of Schedule 3 of the Flood and Water Management that would have otherwise instructed all LLFAs to become SuDS Approval Bodies, and would assess, approve, adopt and maintain surface water drainage systems for new developments.</i> Lead on local flood risk management and develop a local flood risk management strategy Maintain a register of structures and features which are likely to have a significant effect on flood risk Investigate and report on significant flood incidents Power to designate structures and features that affect flooding Responsibility for consenting and enforcement of ordinary watercourse regulation 	Responsible for managing risk from: <ul style="list-style-type: none"> Surface Water Groundwater Ordinary Watercourses
Environment Agency	<ul style="list-style-type: none"> Responsible for managing flooding from main rivers or the sea Strategic overview for all flooding sources and coastal erosion 	Responsible for managing risk from: <ul style="list-style-type: none"> Main Rivers Estuaries The Sea Reservoirs
Thames Water Utilities Ltd.	<ul style="list-style-type: none"> Responsible for maintaining, improving and extending their water mains and other pipes Duty to provide and maintain a system of public sewers so that the areas they are responsible for are effectively drained 	Responsible for managing risk from: <ul style="list-style-type: none"> Sewer Flooding
Neighbouring LLFAs (Southwark, Wandsworth, Croydon, Merton, Bromley, City of Westminster and City of London)	<ul style="list-style-type: none"> Mutual duty to co-operate with Lambeth LLFA as a neighbouring RMA in the undertaking of flood risk management functions Must work in partnership with Lambeth LLFA to address cross boundary Flood management issues Carry out duties under FWMA within their own borough boundaries 	Responsible for managing risk from: <ul style="list-style-type: none"> Surface Water Groundwater Ordinary Watercourses
Transport for London (TfL)	<ul style="list-style-type: none"> Responsible for maintaining any drainage and ditches associated with Red Routes in London 	Responsible for managing risk from: <ul style="list-style-type: none"> Surface Water drainage from TfL adopted roads and red routes Gully maintenance
Lambeth Council as the Highways Authority	<ul style="list-style-type: none"> Responsible for maintenance of all public roads Under Highways Act 1980, responsible for provision and maintenance of highways drainage and ditches 	Responsible for managing risk from: <ul style="list-style-type: none"> Surface Water drainage of highways not covered by TfL Gully maintenance

Property Owners and Residents

It is the responsibility of householders and businesses to look after their property, including protecting it from flooding. It is important that householders, whose homes are at risk of flooding, take steps to ensure that their home is protected. Information on how householders can protect their properties can be found in the [Resident's Guidance Document](#).

Riparian Owners

If you own land which is adjacent to a watercourse or land which has a watercourse running through it, you are a riparian owner and you have certain legal responsibilities to maintain the watercourse. Where a watercourse marks the boundary between adjoining properties, it is normally presumed the riparian owner owns the land up to the centre line of the watercourse.

Risk Management Authorities have powers and responsibilities to manage flood risk and work with others to improve river environments. This may often affect riparian owners, who must also adhere to certain responsibilities including:

- To maintain the watercourse and to clear any obstructions (natural or otherwise) so the normal flow of water is not impeded.
- To maintain the banks and bed of the watercourse and any flood defences that exist on it.
- To accept the natural flow from you upstream neighbour and transfer it downstream without obstruction, pollution or diversion.
- To maintain any structures on your stretch of watercourse including culverts, weirs and mill gates.

Further information is available in the Environment Agency's ['Living on the Edge'](#).

Responsible organisations for drainage of surface water

The Highways Authority (Lambeth Council and Transport for London (TfL) in the case of red routes) are responsible for the effectual drainage of surface water from adopted roads insofar as ensuring that drains, including kerbs, road gullies and the pipe network which connect to the sewers, are maintained.

Thames Water, as the sewerage undertaker, is responsible for surface water drainage from development via adopted sewers and are responsible for maintaining public sewers into which much of our and TfL's highway drainage connects.

In October 2011 water and sewerage companies in England and Wales became responsible for private sewers which were previously the responsibility of property owners. However, not all private sewers were included; there are some cases where the property owners remain responsible for the sections of pipe between the property / building and the transferred private sewer. Further information is available via [Thames Water's website](#).

3.2 Our Role in Managing Flooding...

...as a Lead Local Flood Authority

Under the Flood and Water Management Act, we have a number of new duties which we must legally implement as outlined in Section 3 of this document. We have also been given certain powers to enforce local flood risk management practices in Lambeth.

...as a Category 1 Responder (Emergency Planning)

We have a statutory duty under the Civil Contingencies Act 2004 to prepare for risks and respond to any incidents resulting from them in the most effective ways possible. We have prepared a [Multi-Agency Flood Plan](#) for Category 1 responders should a serious flood event occur affecting any part of Lambeth.

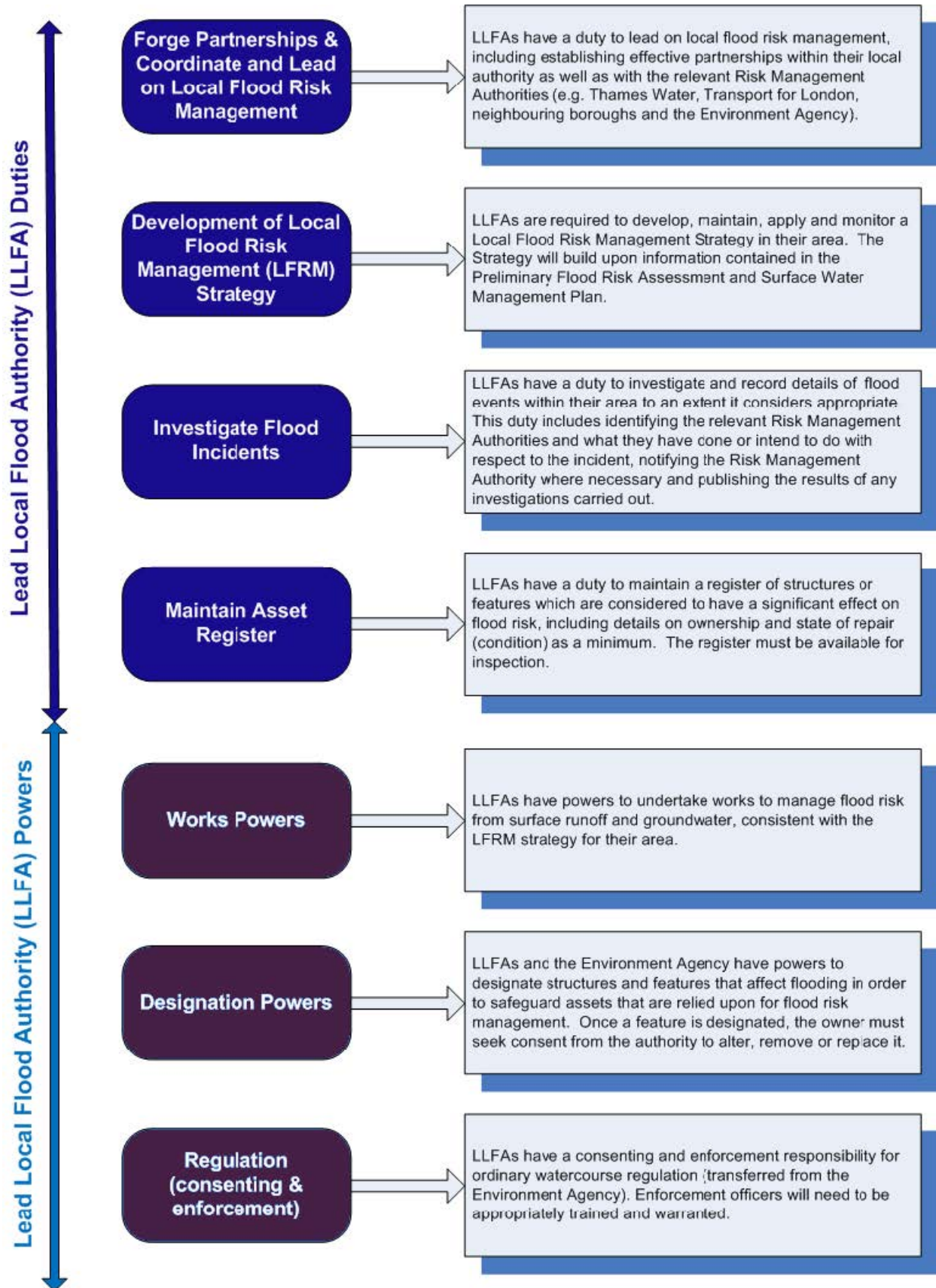
...as the Highways Authority

We have a duty to maintain the public highway network; excluding red routes which are managed by Transport for London (TfL). The highway drainage system is integral in the management and behaviour of surface water during heavy rainfall events. The [Highways Act 1980](#) requires us, as the Highways Authority, to ensure that highways are drained of surface water and where necessary maintain all drainage systems.

...as the Planning Authority

As the Planning Authority for the London Borough of Lambeth, we have a responsibility to;

- [Consider flood risk in Local Plans](#) - We must prepare, publish and use a Local Plan, which directs how land can be used. The National Planning Policy Framework (NPPF) and supporting guidance require Local Planning Authorities to undertake Strategic Flood Risk Assessments and to use their findings, and those of other studies, to inform strategic land use planning including the application of the Sequential Test which seeks to steer development towards areas of lowest flood risk prior to consideration of areas of greater risk. The [Lambeth Strategic Flood Risk Assessment](#) was updated in 2013 to support the [Lambeth Local Plan](#).
- [Consider flood risk when assessing applications for development](#) - Site-specific flood risk assessments are a requirement of the NPPF. Local requirements for these are outlined in the [Lambeth Strategic Flood Risk Assessment](#). Further guidance for developers is included in the [Developers Guidance Document](#).
- [Consult the statutory consultees for surface water flood risk and management when assessing planning applications for development](#) – As instructed by the House of Commons: Written statement ([HCWS161](#)), From April 2015. Local Planning Authorities are required to consult LLFAs from April 2015 on all major planning applications (developments of 10 dwellings or more; or equivalent non-residential or mixed development (as set out in Article 2(1) of the Town and Country Planning (Development Management Procedure) (England) Order 2010) to ensure that sustainable drainage systems for the management of run-off are put in place, unless demonstrated to be inappropriate. Developers are expected to use the Non-statutory Technical Standards for Sustainable Drainage Systems, London Plan, Lambeth Local Plan and CIRIA's SuDS Manual when drawing up drainage strategies to satisfy the requirements of the NPPF to not increase flood risk to the site and elsewhere, demonstrate the site's water quality will not be reduced as a result of the development and provide net gains to biodiversity where possible.



Lead Local Flood Authority Duties and Powers under the Flood and Water Management Act 2010, in line with Government proposals as of October 2014

3.3 How Are We Working with Others to Deliver Local Flood Risk Management?

Lambeth Residents

As a **Cooperative Council**, we aspire to do more with local people and involve the community in the development of new initiatives. A number of flood risk management and awareness activities involving community groups are already underway to deliver multiple benefits for water management and the wider environment in Lambeth, including hosting a Water Summit in September 2012 and working with residents to depave their front gardens (see Case Study below) and install green roofs. Further information on initiatives we have recently undertaken is provided later in the Strategy under [‘How is local flood risk management currently being delivered’](#).

As part of Strategy development, we undertook an online questionnaire and held an evening workshop to seek input and feedback from residents on how they would like to see local flood risk managed in Lambeth.

Case Study - Kennington Depave Retrofit

We have been working with residents to encourage and assist them in de-paving their front gardens to reduce hard standing areas and return driveways and gardens to permeable surfaces that can help to reduce and slow surface water runoff, providing local flood risk benefits.

In September 2012, we undertook a workshop with residents in worth Street where two paved front gardens had 40% hard surface removed and permeable and planting areas were introduced.

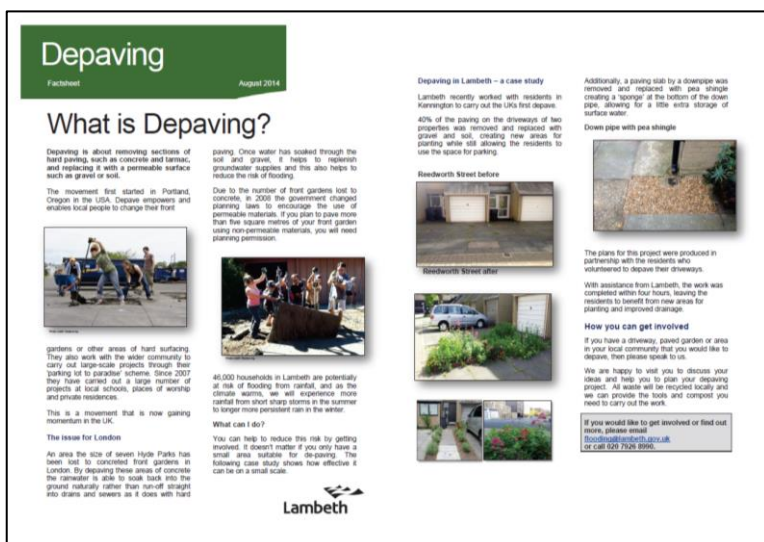
We have produced a leaflet explaining how residents can depave their front gardens. This is available from Lambeth Council officers and via the Lambeth website.



Reedworth Street before Depave Retrofit



Reedworth Street after Depave Retrofit



Depaving
Factbook August 2014

What is Depaving?

Depaving is about removing sections of hard paving, such as concrete and tarmac, and replacing it with a permeable surface such as gravel or soil.

The movement first started in Portland, Oregon in the USA. Depave engineers and engineers local people to change their front gardens or other areas of hard surfacing. They also work with the wider community to carry out large-scale projects through their banking of gardeners' projects. Since 2007 they have carried out a large number of projects at local schools, places of worship and private residences.

This is a movement that is now gaining momentum in the UK.

The reason for London

As the size of urban Hyde Parks has been lost to concrete front gardens in London, by depaving these areas of concrete the rainwater is able to soak back into the ground naturally rather than run-off straight into drains and sewers as it does with hard paving. Once water has soaked through the soil and gravel, it helps to replenish groundwater supplies and this also helps to reduce the risk of flooding.

Due to the number of front gardens lost to concrete, in 2008 the government changed planning laws to encourage the 'change of permeable material'. If you plan to pave more than five square metres of your front garden using non-permeable materials, you will need planning permission.

46,000 households in Lambeth are potentially at risk of flooding from rainwater, and as the climate warms, we will experience more rainfall from short sharp storms in the summer to longer more persistent rain in the winter.

What can I do?

You can help to reduce this risk by getting involved. It doesn't matter if you only have a small area suitable for 'depaving'. The following case study shows how effective it can be on a small scale.

Depaving in Lambeth - a case study
Lambeth recently worked with residents in Kennington to carry out the UK's first depave.

40% of the paving on the driveways of two properties was removed and replaced with gravel and soil, creating new areas for planting which still allowing the residents to use the space for parking.

Reedworth Street before

Reedworth Street after

Additionally, a paving slab by a downpipe was removed and replaced with pea shingle creating a 'sponge' at the bottom of the down pipe, allowing for a little extra storage of surface water.

Down pipe with pea shingle

The plans for this project were produced in partnership with the residents who volunteered to depave their driveways.

With assistance from Lambeth, the work was completed within four hours, leaving the residents to benefit from new areas for planting and improved drainage.

How you can get involved

If you have a driveway, paved garden or area in your local community that you would like to depave, then please speak to us.

We are happy to visit you to discuss your ideas and help you to plan your depaving project. All waste will be recycled locally and we can provide the tools and compost you need to carry out the work.

If you would like to get involved or find out more, please email depaving@lambeth.gov.uk or call 020 7526 8950.

Lambeth

Depaving Guidance Sheet (Lambeth Council)

The scheme has been published as a case study on the Susdrain website.

Further information is available here: [Kennington depave retrofit](#)

Neighbouring Boroughs and other Risk Management Authorities

We are working closely with our neighbouring boroughs, the Environment Agency, Thames Water and other Risk Management Authorities to forge partnerships and take forward local flood risk management initiatives. Workshops have been held with neighbouring boroughs and Risk Management Authorities through the course of producing this Strategy to ensure management approaches are aligned where interests crossover, best practice is shared and relationships are developed.

South Central London Flood Risk Management Partnership

Surface water flood risk in Lambeth is a widespread problem, shared along much of its eastern border with the London Borough of Southwark. As such, in partnership with the London Borough of Southwark, we have formed the South Central London Flood Risk Management Partnership, comprised of Lambeth and Southwark Lead Local Flood Authorities and other Risk Management Authorities including the Environment Agency and Thames Water. The Partnership reports to the Thames Regional Flood and Coastal Committee through the Partnership's Councillor representative. Further information is provided in the [Elected Members Guidance Document](#).

Elected Members in Lambeth

Community leadership and local government are central in developing effective flood risk management. Members have a key role in achieving effective outcomes, helping bring service areas together and securing budget priorities as well as promoting Lambeth through the Thames Regional Flood and Coastal Committee. Elected Members in Lambeth have been engaged through the development of this Strategy and consulted on the greatest concerns of their constituents. Further information on Elected Members duties and the legislative context for the Strategy are outlined in the [Elected Members Guidance Document](#).

4 OBJECTIVES FOR MANAGING LOCAL FLOOD RISK

4.1 Guiding Principles for Setting Objectives

The objectives for future local flood risk management in Lambeth have been developed taking into account the historic and predicted flood risk across the borough, the overall aims for local flood risk management in Lambeth, the Environment Agency's national objectives for flood risk management, objectives and aims set out in complementary plans and strategies and in consultation with local residents, businesses, Risk Management Authorities and Elected Members.

National Flood Risk Management Objectives

The objectives for the Lambeth Local Strategy have been developed in line with the Environment Agency's [Flood and Coastal Erosion Risk Management Strategy for England](#). This sets out the following National objectives for flood risk management;

- **Understand the risks** - understanding the risks of flooding and coastal erosion, working together to put in place long-term plans to manage these risks and making sure that other plans take account of them.
- **Prevent inappropriate development** - avoiding inappropriate development in areas of flood and coastal erosion risk and being careful to manage land elsewhere to avoid increasing risks.
- **Manage the likelihood of flooding** - building, maintaining and improving flood and coastal erosion management infrastructure and systems to reduce the likelihood of harm to people and damage to the economy, environment and society.
- **Help people to manage their own risk** - increasing public awareness of the risk that remains and engaging with people at risk to encourage them to take action to manage the risks that they face and to make their property more resilient.
- **Improve flood prediction, warning and post-flood recovery and the risks** - improving the detection, forecasting and issue of warnings of flooding, planning for and co-ordinating a rapid response to flood emergencies and promoting faster recovery from flooding.

Complementary Plans and Strategies

A number of plans and strategies are already in existence which outline how flood risk management and the achievement of wider environmental objectives will be delivered in Lambeth. We have considered the objectives set out in each of these to ensure that our Strategy complements and seeks to deliver these through local flood risk management. A summary of the key plans and strategies influencing the Strategy are provided below.

Plan / Strategy	Main Objectives
National FCERM Strategy for England	Sets out the Environment Agency's overview role in Flood and Coastal Erosion Management (FCERM) encouraging more effective partnership working between national and local agencies and local communities.
Lambeth Strategic Flood Risk Assessment	Provides a general assessment of flood risk across Lambeth, focussing on risk from the River Thames and River Graveney. The Strategic Flood Risk Assessment is a tool to help direct planned development towards those areas of lowest flood risk.
Thames River Basin Management Plan	The delivery mechanism for Water Framework Directive objectives. The plan focuses on the protection, improvement and sustainable use of the water environment in the Thames River Basin District.
Thames Catchment Flood Management Plan	Produced by the Environment Agency, proposing catchment-wide, long-term measures, the Catchment Flood Management Plan considers all types of flooding and sets the context and direction for more local, delivered plans.
Lambeth Surface Water Management Plan	An evidence plan for the reduction of risk from surface water and groundwater flooding across the borough
Lambeth Preliminary Flood Risk Assessment	Required under the Flood Risk Regulations 2009. Quantifies the level of flood risk from all sources across the borough, highlighting areas of significant risk.
Lambeth Multi-Agency Flood Plan	Outlines the multi-agency response to flood incidents in Lambeth, including a community-level assessment of flood risk from rivers, defence failures and extreme rainfall events



Plan / Strategy	Main Objectives
<u>Lambeth Open Spaces Strategy</u>	Identifies open spaces in Lambeth with the most need for improvement that should be prioritised for management actions.
<u>The Lambeth Local Plan</u>	The Lambeth Local Plan sets out the council’s spatial strategy, policies and site proposals for the development and other use of land. The Local Plan contains two policies of particular relevance to flood risk management in Lambeth, and all new development in Lambeth will be required to accord with these: <ul style="list-style-type: none"> • <i>Policy EN5 – Flood Risk</i> • <i>Policy EN6 – Sustainable Drainage Systems and Water Management</i>
<u>Lambeth Sustainability Charter</u>	The overall aim of the Council’s Sustainability Charter is to improve the sustainability performance of the council steadily over time, to minimise resource use, minimise waste and reduce carbon emissions.
<u>The Thames Estuary 2100 (TE2100) Project</u>	Sets out a tidal flood risk management plan for the Thames Estuary until the end of the century. The plan recommends the required flood risk management measures and when and where these will be needed, based on climate changes and sea level rises.
<u>The Mayor’s Water Strategy</u>	The Strategy identifies ways in which present water resources could be used more effectively in order to tackle problems such as water supply, waste water generation and flood risk.
<u>The Mayor’s London Environment Strategy</u>	The strategy sets out the vision to improve the environment for Londoners, and provides a holistic plan for tackling the City’s environmental challenges.
<u>The London Plan: Spatial Strategy for Greater London</u>	The London Plan is the overall strategic plan for London, and sets out a fully integrated economic, environmental, transport and social framework for the development of London to 2031.

Public Expectations of Flood Risk Management

A consultation exercise with residents and businesses gave an indication as to their understanding of flood risk and their preferences and priorities for Flood Risk Management actions. An online questionnaire, promoted through the Council website, sought the opinions of Lambeth residents on their experience and perceptions of flood risk, their priorities for how to manage the risk and their preferred measures to achieve those priorities, as well as seeking their opinion on how they would like to be communicated with in the future. Additionally, a workshop was held with residents to inform the development of objectives for local flood risk management and to guide the development of the Residents Guidance. Feedback from the online consultation and workshop has been fed into the objectives for this strategy as well as the [Residents Guidance Document](#) which addresses communities’ concerns in greater detail.

The Residents and Businesses Survey (January - March 2013) identified strong support among residents for:

- Better information about the risks in their areas.
- Delivery of sustainable water management measures such as rain gardens and greening of the streetscape, and restrictions on concreting over gardens and green space.
- Better information about what residents can do to minimise their own risk.
- Improving communications with Thames Water to help manage sewer related floods.
- Improving Lambeth’s road drainage network.

Lambeth Local Flood Risk Guiding Principles

As set out in the introduction to this Strategy, we have developed three guiding principles for the long term management of local flood risk management in Lambeth;

- **Building community resilience through empowering residents to help themselves** - this was a key outcome of the consultation exercise with residents and businesses.
- **Maximising benefits through holistic water management and working in partnership with others** - this recognises the inter-relationships between managing water use, water pollution and flooding, and the importance of open communications between managing authorities, communities and businesses.
- **Delivering sustainable and proportionate mitigation for existing and future communities** – recognising the importance of mitigating and adapting for the impacts of Climate Change in planning decisions whilst providing mitigation that is proportionate and risk based to ensure that funding is targeted to those areas of greatest benefit.

4.2 Lambeth's Local Flood Risk Management Objectives

Our objectives for managing local flood risk in Lambeth are set out below.

Building community resilience through empowering residents to help themselves

- **Improve knowledge and understanding** of local flood risk in Lambeth.
- Work with local **communities, businesses** and landowners to increase public **awareness** of flood risk and promote individual and community level **resilience** by making risk and benefits more meaningful to people.
- Use available information on local flood risk to identify communities at risk, in order to inform emergency planning and emergency response priorities and support community level flood **response** and **recovery**.
- Use available information on flood risk as a tool for **flood prediction** and **warning**.

Maximising benefits through holistic water management and working in partnership with others

- Work in **partnership** with Risk Management Authorities, communities and businesses to deliver local flood risk management, including sharing of information and management plans.
- Seek opportunities for delivering **multi-beneficial** measures that deliver social, economic and environmental benefits whilst addressing the impacts of **climate change** and enhancing the Natural Environment.
- Seek opportunities where future **cross-council infrastructure works or improvements** (such as highways and public realm works) could be used to deliver local flood risk management benefits.
- Adopt a **holistic** approach to **water management** which addresses the need to slow surface runoff, lower threats to water pollution and ease pressure on water resource consumption.

Delivering sustainable and proportionate mitigation for existing and future communities

- **Maintain**, and improve where necessary, local flood risk management infrastructure and systems to reduce risk as part of an agreed maintenance programme.
- Proactively **encourage and implement sustainable drainage solutions** to protect the water environment and manage flood risk.
- Adopt a **proportionate, risk-based** approach to **investment** in new infrastructure, seeking contributions from national, regional and local **funding sources** to deliver identified flood risk management interventions.
- Ensure planning and allocation of land avoids **development** in inappropriate locations, accounts for the cumulative impact of development and climate change, and has a positive or nil effect on flood risk.

5 DELIVERY OF LOCAL FLOOD RISK MANAGEMENT OBJECTIVES

5.1 How is Local Flood Risk Management Currently Being Delivered?

Since becoming a Lead Local Flood Authority in April 2011, we have been working with communities, businesses, neighbouring boroughs and Risk Management Authorities to deliver local flood risk management for Lambeth. This Strategy provides the first opportunity for us to outline our ongoing and future local flood risk management activities. We will eventually provide a rolling programme of affordable, funded schemes and initiatives which will help to reduce flood risk in Lambeth.

We have provided a summary of schemes and activities that we have recently completed or are in progress. For the up to date status of these, please consult the [Action Plan](#).

Flood and Water Management Act 2010 Duties

Under the Flood and Water Management Act 2010, we have a range of new responsibilities in our role as a Lead Local Flood Authority. Progress on these responsibilities is being tracked in the [Action Plan](#) and our progress is summarised below.

Lambeth LLFA Delivery of Flood and Water Management Act 2010 Duties (as of June 2013)

- **Forge Partnerships and Coordinate and Lead on Local Flood Risk Management** - we are actively working with other Risk Management Authorities to manage local flood risk, attending the South Central London Flood Risk Management Partnership meetings quarterly, and plans are in place to form a cross-council Lambeth Flood Risk Management Group in 2013, who will also meet on a quarterly basis.
- **Investigation of flooding incidents** - we have developed a protocol which sets out basic information to be captured, and this will be developed further.
- **Asset Management** - at present, there are not considered to be any significant assets to record in the Lambeth Asset Register. We are continuing to monitor and review existing assets and will update the Register as required.
- **Designation of Features** - at present, no assets or features have been identified as posing a significant influence on local flood risk such that they should be formally designated to control any future alterations. We will continue to monitor and review this as more information on local flood risk is made available.
- **Regulation of ordinary watercourses** – as we have no identified ordinary watercourses, there is currently not a requirement for us to undertake consenting or regulation duties for these.

Flood Risk Regulations 2009

Under the Flood Risk Regulations we are required to produce the following:

- **Preliminary Flood Risk Assessment** - we completed our first Preliminary Flood Risk Assessment in June 2011 and it was published by the Environment Agency in December 2011. This is due for review and update by June 2017.
- **Flood Risk and Hazard Maps** – published by the Environment Agency in December 2013. As part of the development of these maps we have had an opportunity to review the initial outputs and provide comments on how well we consider these represent surface water flood risk and hazard in Lambeth.
- **Flood Risk Management Plan** – this must be prepared for each flood risk area to detail the management of significant flood risk by June 2015. This will use the outcomes of this Strategy to report our priorities and progress in delivering those for local flood risk management in Lambeth.

In December 2013 the Environment Agency published a national dataset of surface water flood risk. We will use this alongside our existing local pluvial modelling outputs from the Surface Water Management Plan to inform our assessments on local flood risk and identify areas to investigate in further detail.

Working with communities to build resilience and empower them to help themselves

Case Study – Ardlui Road and Chatsworth Way



'On-Street' Community Engagement at Ardlui Road and Chatsworth Way (October 2012)

Ardlui Road and Chatsworth Way, located in Thurlow Park, are identified as an area of higher risk in Lambeth's Surface Water Management Plan (SWMP).

Building on options identified through the SWMP, we are looking to improve surface water management, deliver green infrastructure and improve the local streetscape in and around Ardlui Road and Chatsworth Way. The scheme includes introducing rainwater gardens into the public highway using the Sustrans DIY Streets approach to community engagement.

The scheme is being taken forward through a series of community engagement 'On-Street' events with residents to gain their input and buy-in to the proposed designs whilst raising awareness of flood risk and resilience measures with residents.



Public Involvement in Decision Making for Ardlui Road and Chatsworth Way (November 2012)

Further information is available [on the Susdrain website](#).

Maximising benefits through holistic water management and working in partnership with others

Case Study - Streatham Common South SuDS

Streatham Common South, located in Streatham South, falls within the Streatham Common Critical Drainage Area identified in the Lambeth Surface Water Management Plan.

We have implemented a SuDS scheme in Streatham Common South through standard maintenance works, seeking opportunities to deliver multi-beneficial flood risk management schemes that 'green the grey' and provide mitigation benefits.

The scheme includes installation of:

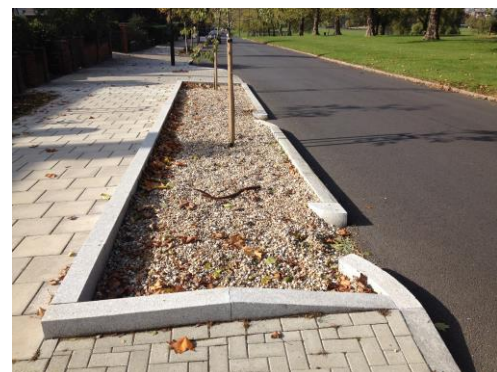
- A rainwater garden on the existing build out of Streatham Common South
- Grass verges at the back of the footpath to deliver benefits to slow down surface water runoff and provide amenity improvements
- Permeable paving on the footway.

Modelling undertaken as part of the project has demonstrated that the schemes could deliver significant local benefits for surface water management, attenuating or intercepting up to 100% of runoff entering the SuDS feature during normal rainfall events (up to the 1 in 2 year rainfall event).

During more extreme events the performance of the schemes will reduce; however, a 30% reduction in volume of water entering the sewer compared to volume of runoff entering the rainwater garden feature could still be achieved and the grass verges will still contribute to reducing volumes of overland flow and provide local benefits.



Streatham Common South before SuDS Scheme



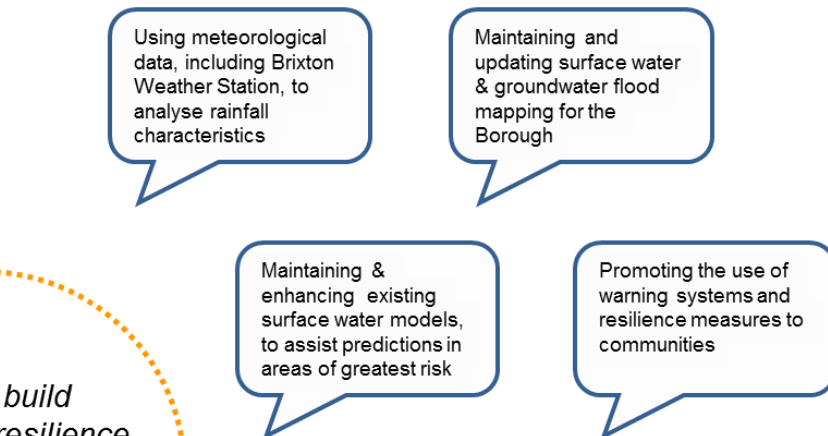
Streatham Common South after SuDS Scheme



Improving knowledge and understanding of local flood risk in Lambeth



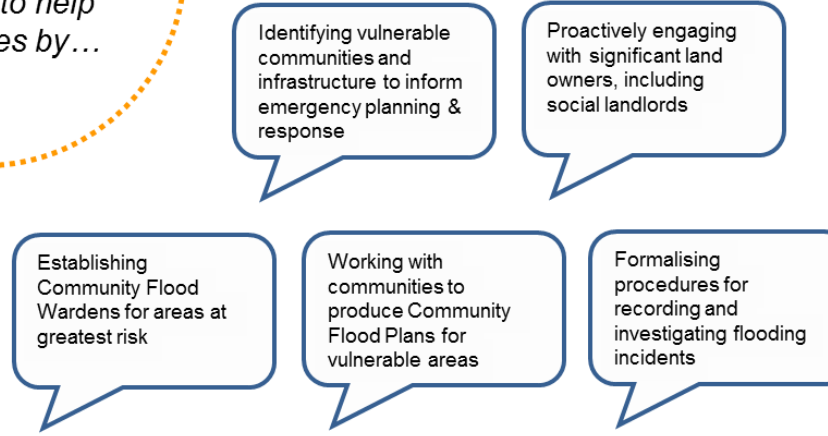
Using available information on flood risk as a tool for flood prediction and warning



We will build community resilience through empowering residents to help themselves by...



Increasing public awareness of flood risk and promoting individual and community level resilience



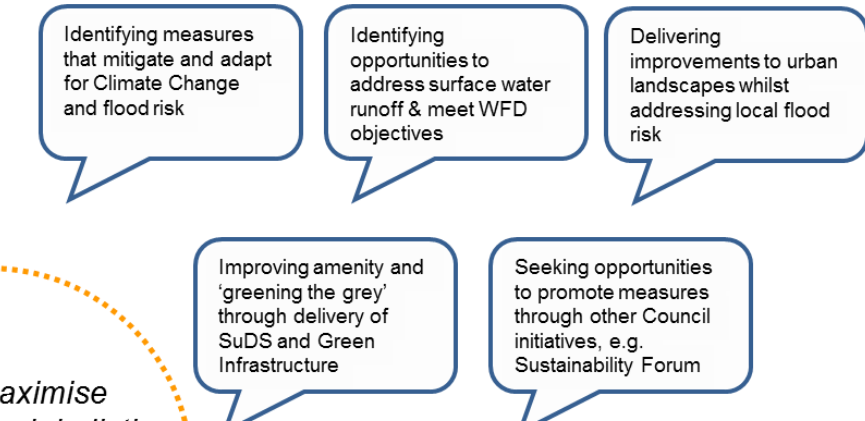
Using available information to identify communities at risk to inform emergency and community level response



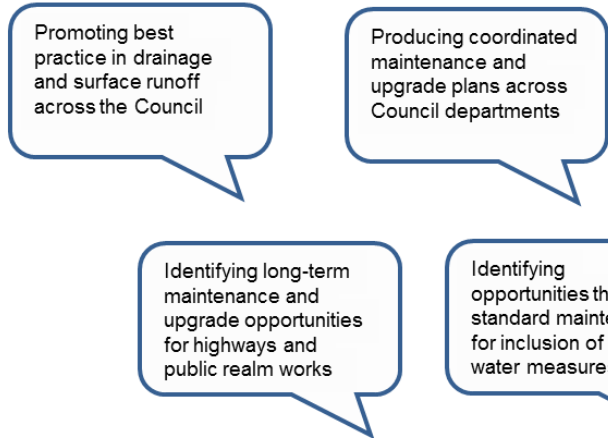
Working in partnership with Risk Management Authorities, communities and businesses



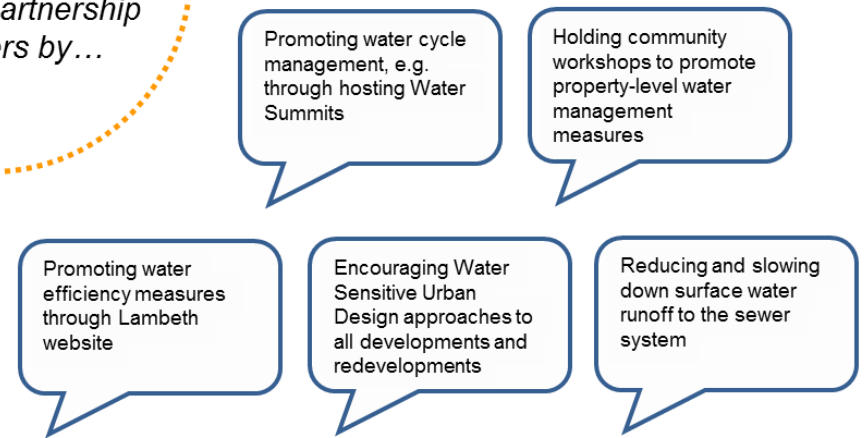
Seeking opportunities for delivering multi-beneficial measures



We will maximise benefits through holistic water management and working in partnership with others by...



Seeking opportunities where cross-council infrastructure works could deliver local flood risk management benefits



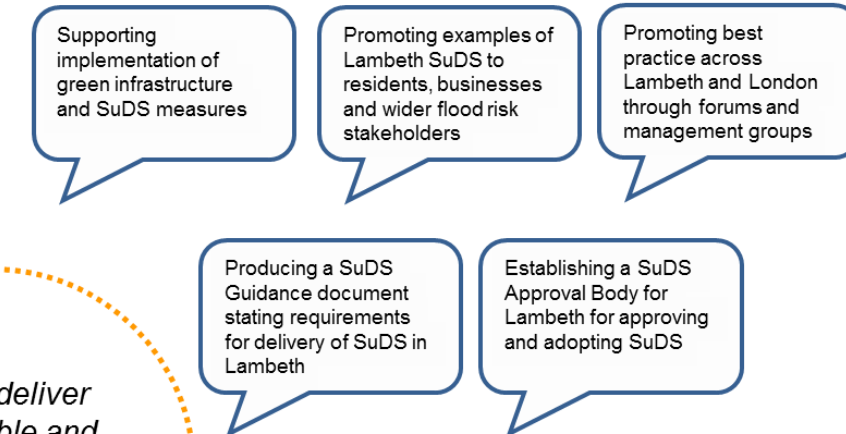
Adopting a holistic approach to water management which addresses the need to slow and reduce surface runoff



Maintaining and improving local flood risk management infrastructure and systems to reduce risk



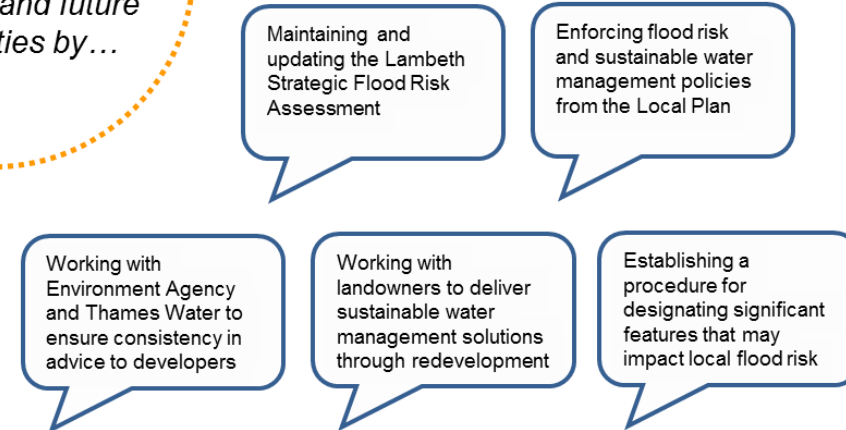
Proactively encouraging and implementing sustainable drainage solutions to protect the water environment



We will deliver sustainable and proportionate mitigation for existing and future communities by...



Adopting a proportionate, risk-based approach to investment in new infrastructure & seeking contributions



Ensuring planning avoids inappropriate development and has a positive or nil effect on flood risk

5.3 How Will We Prioritise Flood Risk Management Activities?

To ensure resources and funding are targeted to those areas and activities of highest importance we will prioritise our activities based on the following, where:

- there is a historic and ongoing flood risk from local flooding sources (surface water and groundwater)
- funding is available
- there is an identified benefit to properties, communities, businesses and / or infrastructure
- funding is made available by partners, where perhaps traditional funding sources are not available, or cannot fully fund the cost of the measure
- there is strong community engagement for delivery of mitigation measures
- the scheme delivers benefit and mitigation to areas identified as being at risk through Lambeth's Surface Water Management Plan, Strategic Flood Risk Assessment or Preliminary Flood Risk Assessment
- schemes deliver multiple benefits, including wider environmental benefits.

5.4 How Will These Activities be Funded?

The Government has committed funding annually to support Lead Local Flood Authorities in their new flood management roles up to 2015. These 'Area Based Grants' have been allocated by the Department for Environment and Rural Affairs (Defra) based on the individual risk each local authority faces.

There are many types of actions which could be implemented to address flood management objectives. A key aspiration for us is to maximise multi-beneficial outcomes of new schemes or activities. This could open up more avenues of internal revenue than purely flood risk management, particularly where measures address existing core activities for the Council.

In taking forward flood risk management activities we will need to secure funding from alternate sources, including central Government, other risk management authorities and stakeholders and private beneficiaries.

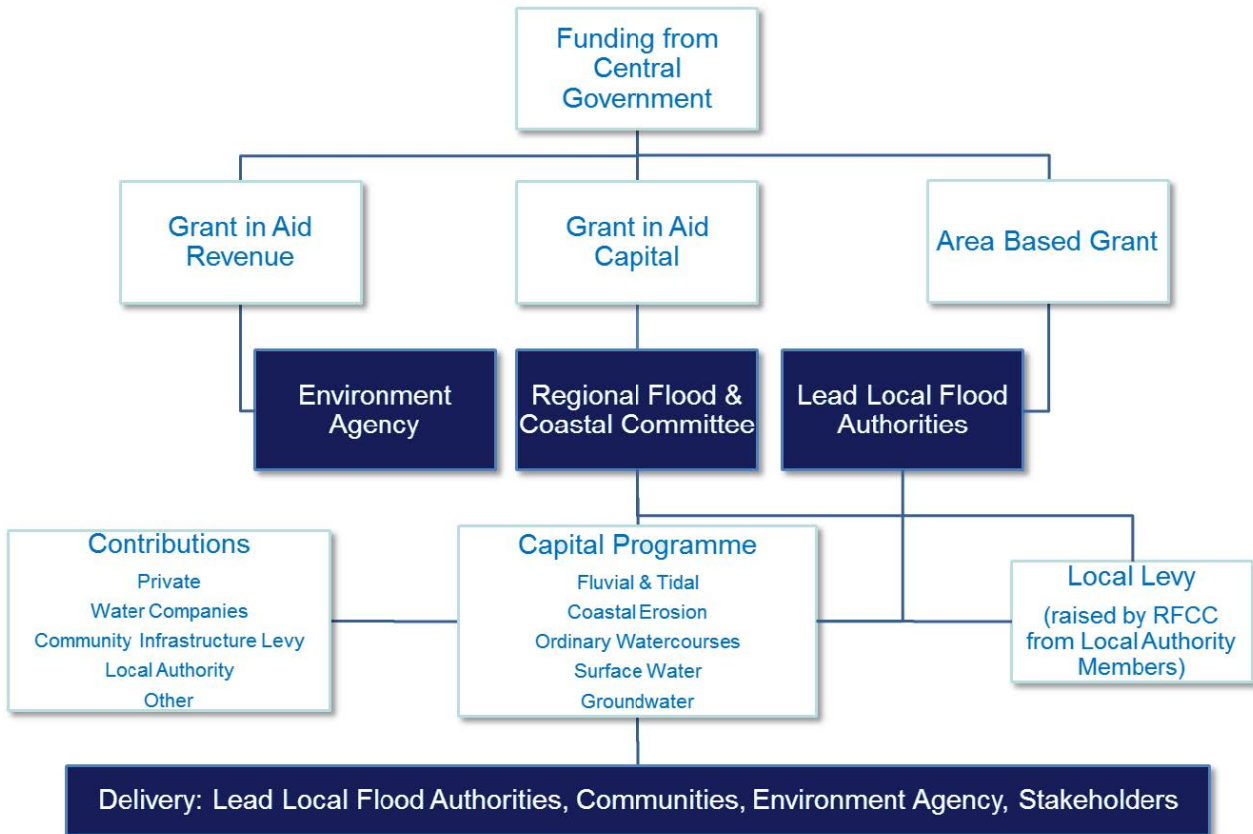
Sources of Funding for Flood Risk Management

There are a number of routes through which central government funding may contribute towards flood risk management activities. Different sources of funding are detailed in the figure and table overleaf. Timescales for accessing required funding sources will strongly influence decisions to implement measures as well as the viability and timing of certain options. Certain types of funding will also require engagement of additional partners to maximise the likelihood of accessing them.

Thames Regional Flood and Coastal Committee (RFCC)

The [Thames Regional Flood and Coastal Committee](#) was established under the Flood and Water Management Act 2010 and is composed of elected members appointed by each Lead Local Flood Authority and independent members appointed by the Environment Agency with relevant experience in the Thames Region. The Committee have three primary functions:

- To ensure there are coherent plans for identifying, communicating and managing flood and coastal erosion risks across catchments.
- 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.
- To provide a link between the Environment Agency, Lead Local Flood Authorities, other Risk Management Authorities, and other relevant bodies to engender mutual understanding of flood and coastal erosion risks in its area.



Summary of Lead Local Flood Authority Funding Stream

Funding Source	Description	Most appropriate for
<u>Flood and Coastal Erosion Risk Management Grant in Aid (FCRM GiA)</u>	Funding raised through general taxation for flood and coastal erosion risk management projects	All types of project, large and small
Local Levy	Money raised from LLFAs for additional flood risk and coastal erosion management priorities not funded by FCRM GiA. Administered by the Regional Flood and Coastal Committee.	Supporting projects where FCRM GiA (full or partial amount) not available or more difficult to access.
Defra Area Based Grant	Grant provided to LLFAs annually to support them in delivering their new roles under the Flood and Water Management Act 2010.	Supporting local flood risk management duties.
Private beneficiary investment ('beneficiary pays')	Voluntary contributions from private beneficiaries of flood risk management. Could include local businesses and landlords.	Projects that deliver tangible reductions in future risk to major local business interests or landowners.
Water Company investment	Funds raised through the price review process. Water companies are able to invest in some types of surface water management, and increased resilience for their assets.	Projects providing increased surface water drainage capacity, which can be shown to offer tangible benefits to water company customers.
<u>Community Infrastructure Levy</u>	A locally set general charge which authorities can choose to implement. Levied on developers, per m2 of most new development across an authority's area.	Long-term approaches to flood alleviation and regeneration, hand in hand
Local Authority fees and charges	Money raised from specific beneficiaries of defences	Projects that protect small numbers of easily identifiable properties, where there is strong support for the project.
Other	There are a multitude of alternative funding sources available depending on the type of activity or scheme being proposed. These could include delivery of Water Framework Directive objectives.	This will be dependent on the activity or scheme seeking funding. See Defra's ' Partnership Funding and Collaborative delivery of local flood risk management ' guidance for further information.

5.5 When Will These Actions be Taken Forward?

Timeframes for measures have been proposed in the [Action Plan](#) but the programme will remain dynamic so that available resources can be used for maximum benefit to the community. The Action Plan outlines an initial timeline for delivery of measures over the next six years and mechanisms for these to be monitored and reviewed.

Lambeth Local Flood Risk Management Strategy Action Plan

The Action Plan outlines:

- The actions identified through this Strategy and how we will deliver these.
- The location of each scheme or action, including geo reference, Ward and Critical Drainage Area (if applicable).
- Who is leading on the delivery of each action and any partners involved in these.
- The timeframes for delivery, including financial year, start and end date.
- The review date for each action.
- The estimated costs, source and status of funding (i.e. secured, allocated, requested or to be confirmed).
- The benefits each action delivers in terms of meeting the objectives of our long-term vision for local flood risk management.
- If applicable, how each action links to those identified through the Surface Water Management Plan.
- Links to published case studies, where available.

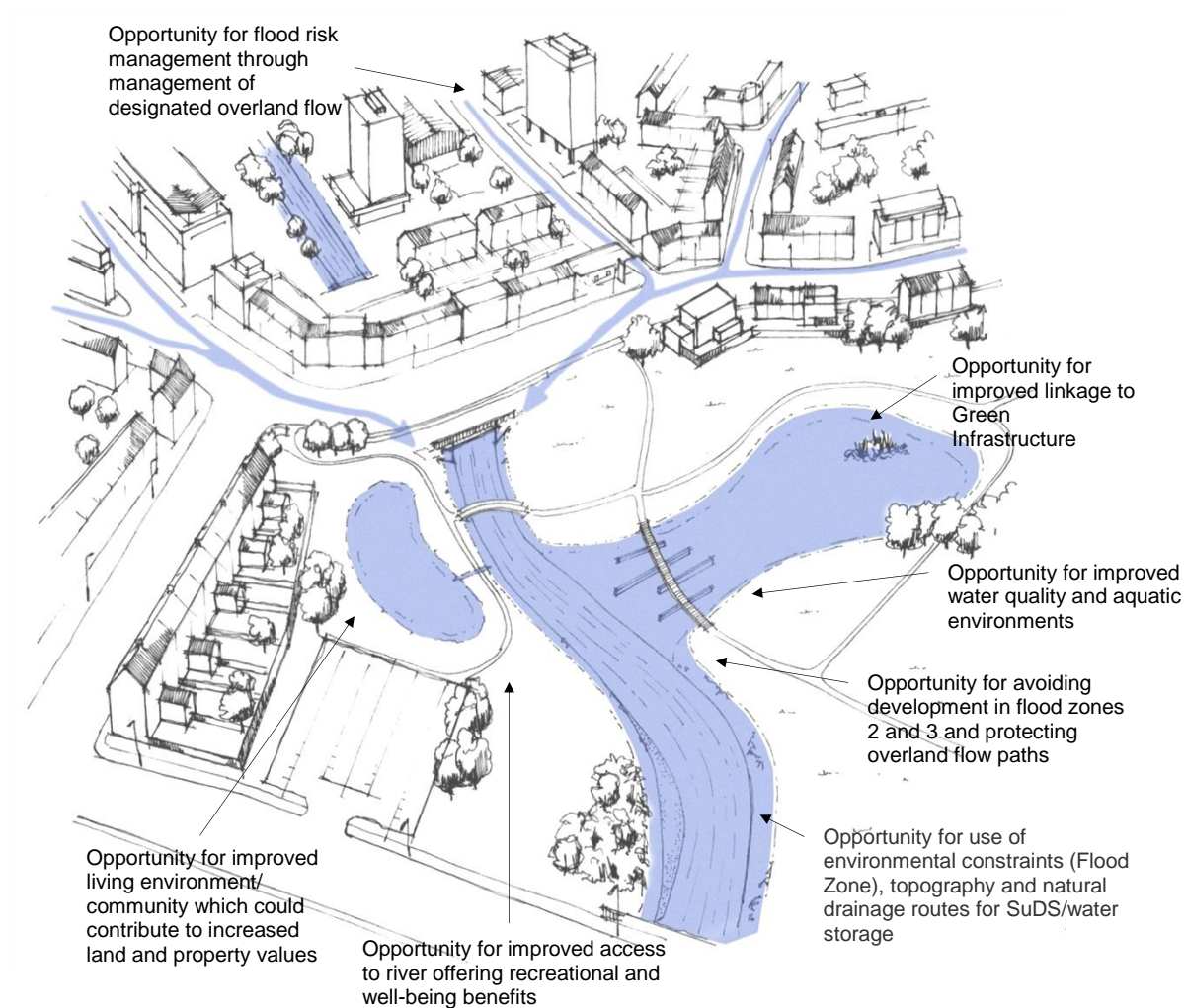
The outcomes of each action are linked to the objectives of our Strategy so that we can monitor how we are delivering our local flood risk management activities against our agreed Strategy. These are set out in the supporting guidance for the Action Plan.

6 DELIVERY OF WIDER ENVIRONMENTAL OBJECTIVES

6.1 Identification of Environmental Opportunities

Delivery of Wider Benefits

Flood Risk Management offers the opportunity to deliver wider benefits to improve the environment, amenity and social wellbeing of communities. Defra's Developing Urban Blue Corridors study identified how management of local flood risk offers opportunities to enhance the local environment.



Delivery of Multiple Benefits through Flood Risk Management (Developing Urban Blue Corridors)

Wherever possible, we will seek to deliver wider social and environmental benefits through the implementation of our flood risk management activities through:

- providing a reduction in the volume of water returning to the sewer network
- improvement in amenity and aesthetics
- improvement in health and wellbeing
- reduction in urban heat island effect, as part of climate change adaptation
- increase in biodiversity
- increase and improvement in place and space, making public realm for all to enjoy
- reduction in pollution, helping to deliver objectives of the Water Framework Directive.

Environmental Sites in Lambeth

Though Lambeth has no designated European environmental sites or Sites of Special Scientific Interest (SSSI), we do have a number of parks, open spaces and Borough and Local Grade Sites of Importance for Nature Conservation (SINC) that are rich in wildlife.

Borough Grade SINC and Local Grade SINC are sites that have value for wildlife conservation and biodiversity, as well as being close to communities with a genuine need for access to natural open space. Within Lambeth these include:

- Streatham Common Borough SINC,
- Eardley Road Sidings Borough SINC,
- Brockwell Park Borough SINC,
- Knight's Hill Wood Local SINC,
- Palace Road Nature Garden Borough SINC, and
- Unigate Wood Borough SINC.

Parks and open spaces play a critical role in mitigating for climate change as well as acting as sinks for carbon capture and reduction. They also play a pivotal role in flood management and providing opportunities for both passive and active storage of surface water runoff.

6.2 Complementary Environmental Plans and Strategies

A number of environmental plans and strategies exist that we will draw on through the delivery of local flood risk management to ensure consistency with and achievement of wider environmental objectives in the borough. These have formed a key part in developing the objectives and measures for managing local flood risk over the coming years as part of the Strategy.

6.3 Delivery of Wider Environmental Objectives

The primary focus of the Strategy is to reduce flood risk from local sources where it threatens public and private property and local infrastructure. We are committed to maximising opportunities to carry out sustainable flood risk reduction in ways which complement national and council environmental priorities, are affordable and recognise social demographic differences across the borough, delivering flood risk reduction across all vulnerable communities.

We will seek to adopt a sustainable approach and wider benefits for all measures we deliver through local flood risk activities and in particular seek to deliver wider environmental objectives as identified through both existing and emerging environmental plans and strategies.

To achieve this we will:

- manage and mitigate for the impacts of Climate Change
- maintain and improve the quality of water bodies in Lambeth
- reduce water consumption
- conserve and improve biodiversity and enhance the natural environment
- promote sustainable development, including water sensitive urban design.

The table overleaf sets out how we will contribute to the delivery of wider environmental objectives through delivery of our Local Flood Risk Management Strategy.

Strategy Environmental Objectives	Context	European or National Legislation	Local Relevant Plans	Delivery of objectives through the Local Flood Risk Management Strategy
Manage and mitigate for the impacts of Climate Change	Current projections of future rainfall indicate that we should expect increasing numbers of severe and extreme weather events in the future. Intense storms are the main cause of surface water flooding, which would also increase in frequency. It is predicted that the frequency of heavy rainfall events could double by the 2080s according to the UK Climate Impacts Assessment 2009. Consequently, the number of properties, business and critical infrastructure at risk will also increase.	<p><u>Climate Change Act 2008</u> <i>Requires a UK-wide climate change risk assessment every five years, accompanied by a national adaptation programme that is also reviewed every five years. The Act has given the Government powers to require public bodies and statutory organisations such as water companies to report on how they are adapting to climate change.</i></p> <p><u>National Planning Policy Framework 2012</u> <i>Sets out the Government's planning policies for England and how these are expected to be applied. The key theme is the contribution to the achievement of sustainable development.</i></p>	<p><u>Lambeth Strategic Flood Risk Assessment</u></p> <p><u>Lambeth Preliminary Flood Risk Assessment</u></p> <p><u>Lambeth Surface Water Management Plan</u></p> <p><u>Thames Catchment Flood Management Plan</u></p> <p><u>Thames River Basin Management Plan</u></p>	<p>Existing studies and plans, covering Lambeth and the wider catchment, have assessed the impacts of climate change and flood risk in the borough and provide the evidence base for understanding how this may impact current and future communities and businesses.</p> <p>The Strategy has taken a flexible approach to allow changes in approach and adaptation dependent on the eventual degree of climate change that occurs. We will seek to use the best available information and evidence on climate change to inform our ongoing local flood risk management.</p> <p>In taking forward local flood risk management measures over the coming years we will:</p> <ul style="list-style-type: none"> • Seek to understand how climate change might impact flood risk to communities and businesses, • Assess how climate change impacts on flood risk may affect our objectives for managing flooding over the longer term, and • Explore what options could be used to manage those impacts of climate change on flood risk.
Maintain and improve the quality of water bodies in Lambeth	As a Lead Local Flood Authority we have a role to play in delivering the Water Framework Directive on the ground and ensuring that any activities we undertake do not cause the deterioration of any water body and/or prevent the achievement of water body objectives. In particular, through our local flood risk management activities we can reduce and treat surface runoff to protect water bodies from diffuse pollution in urban environments.	<p><u>Water Framework Directive 2000/60/EC</u> <i>Requires all countries throughout the European Union to manage the water environment to consistent standards to achieve 'good ecological status'.</i></p> <p><u>Water White Paper 'Water for Life' 2011</u> <i>Outlines how the Government will work with others to drive change, support growth and protect the environment to deliver benefits across society through an ambitious agenda for improving water quality, working with local communities to make early improvements in the health of our rivers by reducing pollution and tackling unsustainable abstraction.</i></p>	<p><u>Thames River Basin Management Plan</u></p>	<p>Through our flood risk management activities we will seek to deliver the overall requirements of the Water Framework Directive and the local requirements of the Thames River Basin Management Plan, by:</p> <ul style="list-style-type: none"> • Improving water environments through better land management, • Protecting water environments from diffuse pollution in urban areas, • Promoting wiser, sustainable use of water as a natural resource, • Creating better habitats for wildlife that lives in and around water; and • Creating a better quality of life for everyone. <p>Our target to reduce surface runoff to the sewer system by 5% will assist in the delivery of Water Framework Directive targets, recognising that highway surface water runoff is one of the largest polluters of urban water bodies.</p>

Strategy Environmental Objectives	Context	European or National Legislation	Local Relevant Plans	Delivery of objectives through the Local Flood Risk Management Strategy
Reduce water consumption	Water use is likely to increase across Lambeth in future years as a result of new development and changing customer behaviour. As well as reducing water use to ensure water availability for future generations, managing and reducing water use can deliver a reduction in the wastewater entering the sewer system to provide an increased level of capacity in the sewer system to mitigate surface water flooding.	Water White Paper 'Water for Life' 2011 <i>Outlines the Government's vision for future water management in which "the water sector is resilient, in which water companies are more efficient and customer focused, and in which water is valued as the precious and finite resource it is".</i>	Mayor's Water Strategy for London <i>Action 18 encourages the use of green roofs, rainwater harvesting, grey water recycling and sustainable drainage to relieve the pressures on the drainage systems, thereby reducing flood risk and water demand.</i> Efficient Water Management in London <i>Outlines water efficient management approaches for London.</i>	Reduction in water consumption will be delivered through local flood risk management activities by: <ul style="list-style-type: none"> Promoting water cycle management and raising awareness of future water demand through council-led initiatives such as Water Summits, Holding community workshops to promote property-level water management measures, including water efficiency, Promoting water efficiency measures through the Lambeth website, and Encouraging Water Sensitive Urban Design approaches to all developments to implement water efficient fixtures, fittings and practices.
Conserve and improve biodiversity and enhance the natural environment	Urban areas can support many Biodiversity Action Plan habitats and species, contributing to national and local targets. Local flood risk management can support and enhance this capacity; for example, maintaining and creating wetlands and providing connectivity to reduce / reverse fragmentation.	The Natural Environment and Rural Communities Act 2006 <i>Recognises that biodiversity is core to sustainable communities and that public bodies have a statutory duty that states that "every public authority must, in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity"</i> The Habitats Directive 92/44/EEC and Conservation of Habitats and Species Regulations 2010 <i>Promotes the maintenance of biodiversity taking account of social, economic, cultural and regional requirements and requires the assessment of projects and plans likely to have a significant effect on an internationally designated wildlife site.</i>	Lambeth Biodiversity Action Plan (2006) <i>Our commitment to protect Lambeth's wildlife and biodiversity.</i> Lambeth Sustainability Charter <i>The Charter aims:</i> <ul style="list-style-type: none"> To protect, improve and enhance the biological diversity of Lambeth To protect, create, extend and improve access to and quality of Lambeth's parks and open spaces To protect, increase and improve Lambeth's tree stock within the public realm 	We will seek to maintain and improve biodiversity in Lambeth through enhancing the natural environment through our local flood risk management activities by: <ul style="list-style-type: none"> Delivering improvements (amenity and biodiversity) to urban landscapes whilst addressing local flood risk, Improving amenity and 'greening the grey' through delivery of SuDS and Green Infrastructure, Identifying opportunities to address surface water runoff and meet Water Framework Directive objectives, which include creating better habitats for wildlife that lives in and around water, and Implementation of 'natural' SuDS measures such as swales that can attenuate surface water runoff and provide deep porous soils that are important to wildlife habitats.

Strategy Environmental Objectives	Context	European or National Legislation	Local Relevant Plans	Delivery of objectives through the Local Flood Risk Management Strategy
<p>Promote sustainable development, including water sensitive urban design</p>	<p>Sustainable development is defined as meeting the needs of the present without compromising the ability of future generations to meet their own needs. In relation to water management this means ensuring that activities undertaken today address current and future water issues across the water cycle, from water availability to discharge and disposal and flood risk.</p> <p>Water Sensitive Urban Design can assist in sustainable development through integrating water cycle management with the built environment through planning and urban design.</p>	<p><u>Future Water, 2008</u> <i>Sets the Government's vision for water in England to 2030. The strategy sets out an integrated approach to the sustainable management of all aspects of the water cycle, from rainfall and drainage, through to treatment and discharge, focusing on practical ways to achieve the vision to ensure sustainable use of water.</i></p> <p><u>National Planning Policy Framework 2012</u> <i>The key theme is the contribution to the achievement of sustainable development, across economic, social and environmental dimensions.</i></p> <p><u>Water Act 2014</u> <i>Reforms the water industry to promote an innovative, responsive approach to customers and also to increase the resilience of water supplies. Brings forward measures to address affordability of insurance for homes at high flooding risk.</i></p> <p><u>Water Resources Act 1991</u> <i>Protection of the quantity and quality of water resources and aquatic habitats.</i></p>	<p><u>Lambeth Local Plan</u></p> <ul style="list-style-type: none"> • Policy EN5 - Flood Risk • Policy EN6 - Sustainable Drainage Systems and Water Management <p><u>Lambeth Strategic Flood Risk Assessment</u></p> <p><u>Lambeth Surface Water Management Plan</u></p>	<p>Delivery of sustainable development will be achieved by working in partnership cross-Council and with Risk Management Authorities, to ensure that consideration is given to all aspects of water management and the wider social and environmental benefits flood risk mitigation and new or redevelopment can achieve.</p> <p>Our evidence base sets out the current and future flood risk across Lambeth, and coupled with our Local Plan, will guide development over future years.</p> <p>To promote and enforce sustainable development we will:</p> <ul style="list-style-type: none"> • Work with landowners to deliver sustainable water management solutions through redevelopment, • Support implementation of green infrastructure and SuDS measures, • Produce a SuDS Guidance document stating our requirement for delivery of SuDS in Lambeth, and • Establish a SuDS Approval Board for approving and adopting SuDS (when legislation is enacted by Government).

7 IMPLEMENTATION, MONITORING AND REVIEW OF THE STRATEGY

7.1 How Will the Strategy be Implemented?

The Strategy is based on the latest information available at the time of its preparation. It will be updated, in consultation with other organisations and individuals in managing flood risk, and should be considered a 'live' document which will evolve over time as new information becomes available and flood events occur.

We will work in partnership with stakeholders, including local communities and businesses, to deliver the objectives of this Strategy. Through continuing to work with our partners to build relationships and deliver the actions identified, we will ensure that measures promoted achieve social, economic and environmental benefits for the community, and seek to meet future climate conditions.

The Strategy will provide the framework for the Council's delivery of its flood risk management responsibilities. It will be formally approved by the Council's cabinet and adopted as a Council Strategy. It is a 'living document' that will develop as new information, expertise and resources influence the delivery of the actions outlined in the Strategy.

7.2 How Will the Strategy be Monitored?

We will review the Strategy against its objectives annually and present a monitoring report to the Lambeth Flood Risk Management Group. This will be published on the Lambeth Council website. We will also continue to gather information and investigate significant flood events as appropriate.

The Strategy will be monitored by officers at the regular Lambeth Flood Group Meeting and the South Central London Partnership Meetings where progress against measures will be assessed. All actions undertaken and any proposed actions will be reported to the Cabinet Member for Environment and Sustainability on a quarterly basis.

7.3 How will the Strategy be reviewed?

The Strategy and the supporting Action Plan will remain live documents over the Strategy period, and will be reviewed as understanding of risk increases to ensure they are still appropriate.

A full update of the Strategy is planned for 2018, following the review of the Lambeth Preliminary Flood Risk Assessment. However the Strategy may need to be updated within this period if:

- there are significant flood events that challenge the conclusions of the risk assessment
- there are significant changes to any of the datasets that underpin the risk assessment
- there are significant policy changes that amend the roles and responsibilities of the Risk Management Authorities
- the annual monitoring identifies that the Strategy is not achieving its objectives
- there is a change in funding availability which has a significant effect on the actions proposed in this Strategy.

The Action Plan will be reviewed every six months. The review of the Action Plan will:

- Assess if measures have been delivered that mitigate risk.
- Assess if there have been any material impact that changes the prioritisation of activities.

The Strategy has been developed to deliver a short to medium term (5-year) improvement plan to establish a sound evidence and knowledge base to develop a longer-term investment programme for flood risk management activities across the borough.

7.4 Consultation

The Strategy has undergone a formal consultation in 2014 with the public, businesses and risk management stakeholders. The Strategy has been updated following review of comments received.

GLOSSARY

Term	Definition
Attenuation	In the context of this report - the storing of water to reduce peak discharge of water.
Breach	An opening – For example in the sea defences.
Catchment Flood Management Plan	A high-level planning strategy through which the Environment Agency works with their key decision makers within a river catchment to identify and agree policies to secure the long-term sustainable management of flood risk.
Category 1 Responders	As defined under Schedule 1 of the Civil Contingencies Act, Category 1 responders are "core responders" in the event of an emergency and include emergency services, local authorities, health bodies and Government agencies including the Environment Agency.
Civil Contingencies Act 2004	Aims to deliver a single framework for civil protection in the UK and sets out the actions that need to be taken in the event of a flood. The Civil Contingencies Act is separated into two substantive parts: local arrangements for civil protection (Part 1) and emergency powers (Part 2)
Critical Drainage Area	A discrete geographic area (usually a hydrological catchment) where multiple and interlinked sources of flood risk (surface water, groundwater, sewer, main river and/or tidal) cause flooding during severe weather thereby affecting people, property or local infrastructure.
Culvert / culverted	A channel or pipe that carries water below the level of the ground.
Drain London Project	The Drain London Project was commenced in 2010 by the Greater London Authority to bring together all London boroughs and risk management authorities to help manage and reduce surface water flood risk, through development of Surface Water Management Plans and Preliminary Flood Risk Assessments for each borough and delivery of further investigations for areas at greatest risk across London.
DG5 Register	A water-company held register of properties which have experienced sewer flooding due to hydraulic overload, or properties which are 'at risk' of sewer flooding more frequently than once in 20 years.
Flood Zone 1	Low probability of flooding , as defined by the Environment Agency.
Flood Zone 2	Medium probability of flooding. Probability of fluvial flooding is 0.1 – 1%. Probability of tidal flooding is 0.1 – 0.5 %, as defined by the Environment Agency.
Flood Zone 3a	High probability of flooding. Probability of fluvial flooding is 1% (1 in 100 years) or greater. Probability of tidal flooding is 0.5%(1 in 200 years), as defined by the Environment Agency.
Flood Zone 3b	Functional floodplain, as defined by the Environment Agency.
Environment Agency	Environment regulator for England and Wales. Risk Management Authority responsible for management of flood risk from fluvial (main rivers), tidal and coastal sources of flooding and Reservoirs.
Flood Defence	Infrastructure used to protect an area against floods as floodwalls and embankments; they are designed to a specific standard of protection (design standard).
Floodplain	Area adjacent to river, coast or estuary that is naturally susceptible to flooding.
Flood Resilience	Resistance strategies/measures aimed at reducing the risk of flooding or provide resilience to flooding, see https://www.gov.uk/government/publications/flood-resilient-construction-of-new-buildings

Term	Definition
Flood Risk	The level of flood risk is the product of the frequency or likelihood of the flood events and their consequences (such as loss, damage, harm, distress and disruption)
Flood Risk Assessment	Considerations of the flood risks inherent in a project, leading to the development actions to control, mitigate or accept them.
Flood Storage	A temporary area that stores excess runoff or river flow often ponds or reservoirs.
Flood Zone	The extent of how far flood waters are expected to reach.
Fluvial	Relating to the actions, processes and behaviour of a water course (river or stream)
Fluvial flooding	Flooding by a river or a watercourse.
Functional Floodplain	Land where water has to flow or be stored in times of flood.
Greenfield	Previously undeveloped land.
Groundwater	Water that is in the ground, this is usually referring to water in the saturated zone below the water table.
Highways Act 1980	Sets out the main duties (management and operation of the road network) of highways authorities in England and Wales. The Act contains powers to carry out functions / tasks on or within the highways such as improvements, drainage, acquiring land etc.
Hydraulic Modelling	A mathematical representation of a watercourse, sewer, pipe and/or floodplain to simulate water flows to estimate water levels and flood extents.
Infiltration	The penetration of water through the grounds surface.
Infrastructure	Physical structures that form the foundation for development.
Land Drainage Act 1991	Sets out the statutory roles and responsibilities of key organisations such as Internal Drainage Boards, local authorities, the Environment Agency and Riparian owners with jurisdiction over watercourses and land drainage infrastructure. Parts of the Act have been amended by the Flood and Water Management Act 2010.
Local Flood Risk	Defined in the Flood and Water Management Act as flooding from surface runoff, ordinary watercourses and groundwater
Lead Local Flood Authority (LLFA)	The statutory body defined under the Flood and Water Management Act responsible for the management of local flood risk, namely surface water runoff, groundwater and ordinary watercourses.
Local Planning Authority	Body that is responsible for controlling planning and development through the planning system.
Main River	Watercourse defined on a 'Main River Map' designated by DEFRA. The environment Agency has permissive powers to carry out flood defence works, maintenance and operational activities for Main Rivers only.
Mitigation Measure	A feature or structure used to manage or control flood water to reduce the risk of flood risk to an individual property/building or group of properties/buildings. Mitigation measures can be installed/constructed in new or existing developments.
National Strategy	National Flood and Coastal Erosion Risk Management (FCERM) Strategy for England, developed by the Environment Agency.
Ordinary Watercourse	A watercourse that does not form part of a Main River. This includes "all rivers and streams and all ditches, drains, cuts, culverts, dikes, sluices (other than public sewers within the meaning of the Water Industry Act 1991) and passages, through which water flows" according to the Land Drainage Act 1991.

Term	Definition
Overland Flow	Flooding caused when intense rainfall exceeds the capacity of the drainage systems or when, during prolonged periods of wet weather, the soil is so saturated such that it cannot accept any more water. Overland flooding is also referred to as pluvial flow or surface water flow.
Overtop	Water carried over the top of a defence structure due to the wave height or water level exceeding the crest height of the defence.
Residual Flood Risk	The remaining flood risk after risk reduction measures have been taken into account.
Return Period	The average time period between rainfall or flood events with the same intensity and effect. Usually represented as the probability of the rainfall or flooding occurring in any one year (e.g. 1 in 100 or 1%). Return periods are formally known as the Annual Exceedance Percentage (AEP).
Riparian Owner	Anyone who owns land or property where a river is situated on or below the surface of the land, or on the boundary of their land up to its centre line. A Riparian Owner is responsible for maintaining river beds/banks and allowing flow of water to pass without obstruction.
Risk	The combination of the probability and consequence of an event occurring.
River Catchment	The areas drained by a river.
Sewer Flooding	Flooding caused by a blockage or overflowing in a sewer or urban drainage system.
Standard of Protection	The flood event return period above which significant damage and possible failure of the flood defences could occur.
Sustainability	To preserve /maintain a state or process for future generations.
Sustainable Drainage System (SuDS)	Methods of management practices and control structures that are designed to drain surface water in a more sustainable manner than some conventional techniques.
Sustainable Development	Development that meets the needs of the present without compromising the ability of future generations meeting their own needs.
The Thames Estuary 2100 (TE2100) Project	An Environment Agency run project with the aim of developing a tidal flood risk management plan for the Thames estuary until the end of the century. The plan will recommend the flood risk management measures required in the estuary, when these will be needed and where they will be needed. This will be based on climate changes and sea level rises.
Tidal	Relating to the actions or processes caused by tides.
Tributary	A body of water, flowing into a larger body of water, such as a smaller stream joining a larger stream.
1 in 100 year event	Event that on average will occur once every 100 years. Also expressed as an event, which has a 1% probability of occurring in any one year.

REFERENCES

	Reference	Date	Author	Web Link
Legislation	Sir Michael Pitt Report 'Learning Lessons from the 2007 Floods'	2008	Cabinet Office	http://webarchive.nationalarchives.gov.uk/20140328111427/http://www.environment-agency.gov.uk/research/library/publications/33889.aspx
	National Planning Policy Framework	2012	Communities and Local Government	https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/6077/2116950.pdf
	Planning Practice Guidance	2014	Communities and Local Government	http://planningguidance.planningportal.gov.uk/
	The Flood and Water Management Act	2010	HM Government	http://www.legislation.gov.uk/ukpga/2010/29/contents
	The Flood Risk Regulations	2009	HM Government	http://www.legislation.gov.uk/uksi/2009/3042/contents/made
	Land Drainage Act	1991	HM Government	http://www.legislation.gov.uk/ukpga/1991/59/contents
	The Highways Act	1980	HM Government	http://www.legislation.gov.uk/ukpga/1980/66/contents
	EU Flood Directive	2007	European Union	http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32007L0060:EN:NOT
	The Water Framework Directive	2000	European Union	http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32000L0060:EN:NOT
	The Climate Change Act	2008	HM Government	http://www.legislation.gov.uk/ukpga/2008/27/contents
	The Natural Environment and Rural Communities Act	2006	HM Government	http://www.legislation.gov.uk/ukpga/2006/16/pdfs/ukpga_20060016_en.pdf
	The Habitats Directive	1992	European Union	http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31992L0043:EN:NOT
	Conservation of Habitats and Species Regulations	2010	HM Government	http://www.legislation.gov.uk/uksi/2010/490/contents/made
	The Water Act	2003	HM Government	http://www.legislation.gov.uk/ukpga/2003/37/contents
	Water Resources Act	1991	HM Government	http://www.legislation.gov.uk/ukpga/1991/57/contents
	Water White Paper 'Water for Life'	2011	HM Government	http://www.official-documents.gov.uk/document/cm82/8230/8230.pdf
Future Water	2008	HM Government	https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69346/pb13562-future-water-080204.pdf	
Guidance / Information	Living on the Edge	2012	Environment Agency	https://www.gov.uk/guidance/owning-a-watercourse
	Private Sewers Information	2013	Thames Water Website	http://www.thameswater.co.uk/help-and-advice/8654.htm
	Developing Urban Blue Corridors – Scoping Study (FD2619)	2011	URS, Kingston University London and Croydon Council for Defra	http://randd.defra.gov.uk/Document.aspx?Document=FD2619_10152_FRP.pdf
	The SuDS Manual (C753)	2015	Construction Industry Research and Information Association (CIRIA)	https://www.ciria.org/Resources/Free_publications/SuDS_manual_C753.aspx

Catchment or National Assessment and Plans	Water Matters - Efficient Water Management in London	2012	Greater London Authority	http://www.london.gov.uk/sites/default/files/Water%20management%20report%20pdf.pdf
	The Mayor's Water Strategy	2011	Greater London Authority	http://www.london.gov.uk/sites/default/files/water-strategy-oct11.pdf
	The London Plan	2011	Greater London Authority	http://www.london.gov.uk/priorities/planning/london-plan
	Thames River Basin District River Basin Management Plan	2009	Environment Agency	https://www.gov.uk/government/publications/thames-river-basin-management-plan
	Thames Catchment Flood Management Plan	2009	Environment Agency	http://www.environment-agency.gov.uk/research/planning/127387.aspx
	Thames Estuary 2100 Plan (TE2100)	2012	Environment Agency	http://www.environment-agency.gov.uk/homeandleisure/floods/125045.aspx
	National Flood and Coastal Erosion Risk Management Strategy	2012	Environment Agency	http://www.environment-agency.gov.uk/research/policy/130073.aspx
	Flooding in England: A National Assessment of Flood Risk	2009	Environment Agency	http://a0768b4a8a31e106d8b0-50dc802554eb38a24458b98ff72d550b.r19.cf3.rackcdn.com/geho0609bgds-e-e.pdf
	Drain London Project	2010 - 2013	Greater London Authority Website	http://www.london.gov.uk/priorities/environment/looking-after-londons-water/drain-london
	Updated Flood Map for Surface Water	2013	Environment Agency Website	https://flood-warning-information.service.gov.uk/long-term-flood-risk
Lambeth Assessments and Plans	Lambeth Surface Water Management Plan	2011	Capita Symonds / URS for Lambeth Council	https://www.lambeth.gov.uk/community-safety-and-anti-social-behaviour/flood-risk-assessment
	Lambeth Preliminary Flood Risk Assessment	2011	Capita Symonds / URS for Lambeth Council	https://www.lambeth.gov.uk/community-safety-and-anti-social-behaviour/flood-risk-assessment
	Lambeth Strategic Flood Risk Assessment	2013	URS for Lambeth Council	https://www.lambeth.gov.uk/planning-and-building-control/planning-policy-evidence-base
	Lambeth Local Plan	2013	Lambeth Council	http://www.lambeth.gov.uk/planning-and-building-control/local-plan
	Lambeth Multi-Agency Flood Plan	2011	Lambeth Council	Available to Category 1 and Category 2 responders under the Civil Contingencies Act and key voluntary response organisations who operate in Lambeth.
	Lambeth Biodiversity Action Plan	2006	Lambeth Council and the Lambeth Biodiversity Partnership	http://www.lambeth.gov.uk
	Lambeth Open Spaces Strategy	2013	Lambeth Council	http://www.lambeth.gov.uk
	Lambeth Sustainability Charter	2013	Lambeth Council	http://www.lambeth.gov.uk
	Lambeth Local Flood Risk Management Strategy Supporting Documents	2014	Lambeth Council	http://www.lambeth.gov.uk
	Floods in Lambeth 1911 to 1956'	1956	Lambeth Council	Available via Lambeth Council Archives.
Floods in Southwark - Report of the Investigation of Sewer Flooding in Dulwich	2004	Southwark Council	Not available.	

Case Studies	Lambeth Community Engagement 'On-Street' Events	2013	Susdrain Website	http://www.susdrain.org/community/blog/59/ http://www.susdrain.org/community/blog/doing-the-lambeth-walk-delivering-green-streets-in-lambeth-no-2/ http://www.susdrain.org/community/blog/doing-the-lambeth-walk-delivering-green-streets-in-lambeth-no-3/ http://www.susdrain.org/community/blog/doing-the-lambeth-walk-delivering-green-streets-in-lambeth-no-4/
	Central Hill Retrofit	2013	Susdrain Website	http://www.susdrain.org/case-studies/case_studies/central_hill_highway_retrofit_london.html
	Kennington Depave Case Study	2013	Susdrain Website	http://www.susdrain.org/case-studies/case_studies/kennington_residential_depave_retrofit_london.html
Funding Information	Flood and Coastal Erosion Risk Management Grant in Aid (FCRM GiA)	2013	Environment Agency Website	https://www.gov.uk/government/collections/flood-and-coastal-defence-funding-for-risk-management-authorities
	Community Infrastructure Levy	2013	Inside Government Website	https://www.gov.uk/government/policies/giving-communities-more-power-in-planning-local-development/supporting-pages/community-infrastructure-levy
	Partnership Funding and Collaborative delivery of local flood risk management: a practical resource for LLFAs	2012	Halcrow Group Limited for Defra	http://randd.defra.gov.uk/Document.aspx?Document=9958_FD2643_Partnershipfundingguide.pdf
	Thames Regional Flood and Coastal Committee	2013	Environment Agency Website	https://www.gov.uk/government/groups/thames-regional-flood-and-coastal-committee

APPENDIX A – KEY DATA SOURCES

Historical Flooding Incidents and Flood Risk

Flooding Source	Dataset / Reference
Surface Water	Lambeth Surface Water Management Plan Lambeth Preliminary Flood Risk Assessment Environment Agency at Risk of Flooding from Surface Water (RoFfSW) mapping
Groundwater	Lambeth Surface Water Management Plan Lambeth Preliminary Flood Risk Assessment Lambeth Strategic Flood Risk Assessment
Fluvial and Tidal	Lambeth Strategic Flood Risk Assessment Environment Agency website
Sewer	Lambeth Strategic Flood Risk Assessment Direct from Thames Water
Artificial Sources	Reservoir inundation mapping: Environment Agency website

Planning Information

Dataset	Dataset / Reference
Surface Water Critical Drainage Areas	Lambeth Surface Water Management Plan
Lambeth Lost Rivers	Lambeth Surface Water Management Plan