



Local Flood Risk Management Strategy

Consultation 2015

**DRAFT FOR
CONSULTATION**

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1. Introduction

1.1 Background

Following the devastating floods of 2007, the Government commissioned Sir Michael Pitt to review the events of the summer of 2007. This review identified what measures could be undertaken to reduce the risk and the impacts of flooding on communities across the country. The Pitt Review made 92 recommendations, which led to the introduction of legislation in April 2010, entitled the Flood and Water Management Act (FWMA). Prior to the FWMA in 2009 Government introduced the Flood Risk Regulations (FRR), to put in place the European Union 'Floods Directive' (2007), into English law.

Under the legislation, the Royal Borough is a Lead Local Flood Authority (LLFA). As a LLFA the Royal Borough has roles, responsibilities and duties with powers to manage local flood risk across Royal Greenwich. A key element in delivering local flood risk management is the duty to develop, maintain, apply, and monitor a strategy that includes all local sources of flood risk. This is that strategy and describes the commitment to work to address local flood risk and provides a framework of how local flood risk will be managed.

1.2 What are we doing to address the risk?

The Royal Borough will work to deliver the following Flood Risk Management objectives

The Royal Borough will deliver work to meet the following objectives:

- To reduce local flood risk
- To reduce the impact of any flooding
- To plan for flooding to enable quicker recovery after a flood
- A combination of all the above

The Royal Borough of Greenwich is part of the South East London Flood Risk Management Partnership and will work within that partnership to manage local flood risk and fulfil the duties and responsibilities under both the FRR and FWMA.

To manage flood risk the Royal Borough will:

- Work in partnership with other risk management authorities (RMAs)
- Prepare a South East London sub-regional Local Flood Risk Management Strategy
- Prepare a Local Flood Risk Management Strategy for Royal Greenwich.
- Prepare a six year Action Plan that will be reviewed annually.

The south east London Lead Local Flood Authorities that are contributing to the South East London Strategy are:

- London Borough of Bexley
- London Borough of Bromley
- Royal Borough of Greenwich
- London Borough of Lewisham

The Royal Borough has worked with the other three boroughs following the start of the Drain London Programme in 2010. The Drain London Project was set up by the Greater London Authority (GLA) following on from the Mayor of London's Regional Flood Risk Appraisal. The Drain London Forum was established and is co-ordinated by the GLA and includes the 33 London boroughs, the Environment Agency, Thames Water, and Transport for London. Through the Drain London project the Royal Borough has delivered both the Surface Water Management Plan (SWMP) and Preliminary Flood Risk Assessment (PFRA).

The working relationship of the South East London Flood Risk Management Partnership ('the Partnership') has been formalised. The Partnership meets every quarter and is made up of the following members.

- Thames Regional Flood and Coastal Committee (RFCC) Representative
- Southern RFCC Representative
- Lead Councillors from each borough
- Council Officers from each borough
- Environment Agency
- Thames Water

1.3 *What is the Local Flood Risk Management Strategy (the "Local Strategy")?*

The Local Strategy is a document which sets out how the Royal Borough is responding to identified local flood risk across the borough.

The Local Strategy specifies:

- the risk management authorities in Royal Greenwich;
- the flood and coastal erosion risk management functions that may be exercised by the RMAs in relation to Royal Greenwich;
- the objectives for managing local flood risk;
- the measures proposed to achieve those objectives;
- how and when the measures are expected to be implemented;
- the costs and benefits of those measures, and how they are to be paid for;
- the assessment of local flood risk for the purpose of the Local Strategy;
- how and when the Local Strategy is to be reviewed; and,
- how the Local Strategy contributes to the achievement of wider environmental objectives.

1.4 *What is the Flood Risk Management Plan?*

The Flood Risk Management Plan (FRMP) is a requirement of the Flood Risk Regulations which sets out that the Royal Borough as Lead Local Flood Authority for an area which falls within flood risk zone must produce an FRMP. The Environment Agency has undertaken an FRMP for the Thames River Basin, of which Royal Greenwich forms a part. As both the Local Strategy and

the FRMP have similar requirements and both would contain similar information the Royal Borough has opted to supply the Action Plan from this Local Strategy as the Flood Risk Management Plan.

This Local strategy and Action Plan outlines and responds to required actions; these actions are similar for an FRMP. Table 1 sets out the requirements for an FRMP and where this local strategy and other documents have responded to those requirements.

Table 1: FRMP requirements

| <i>Flood Risk Management Plan requirements</i> | <i>Where this has been undertaken</i> |
|---|---|
| <i>A map showing the boundaries of the Flood Risk Area</i> | <i>Local Strategy Appendix D PFRA flood hazard mapping SWMP Critical Drainage Areas</i> |
| <i>The conclusions drawn from the flood hazard and risk maps published under Regulation 22 of the Flood Risk Regulations 2009</i> | <i>Local Strategy and Action Plan PFRA SWMP</i> |
| <i>Objectives for the purpose of managing the flood risk</i> | <i>Local Strategy</i> |
| <i>Proposed measures for achieving those objectives</i> | <i>Local Strategy and Action Plan</i> |
| <i>A description of the proposed timing and manner of implementing the measures including details of who is responsible for implementation</i> | <i>Local Strategy and Action Plan</i> |
| <i>A description of the way implementation of the measures will be monitored</i> | <i>Local Strategy and Action Plan</i> |
| <i>A report of the consultation</i> | <i>Local Strategy Appendix B</i> |
| <i>Where appropriate, information about how the implementation of measures under the FRMP and river basin management plans (RBMP) for the area will be co-ordinated</i> | <i>Local Strategy Thames FRMP</i> |

1.5 Structure of the Local Strategy

The South East London Lead Local Flood Authorities are jointly producing a South East London Local Flood Risk Strategy to describe the group's common aims and objectives, the shared approach to flood risk management, and the commitment to partnership working. The Royal Borough's individual Local Strategy sets out specific objectives and an Action Plan for Royal Greenwich, and has been informed by the emerging higher level strategy.

1.6 Legislative and policy context

Table 2 lists the key legislation that is relevant to the Local Strategy. Of particular relevance are the Flood Risk Regulations 2009 and the Flood and Water Management Act 2010.

Table 2 Summary of relevant EU and National legislation, Government policy and the Royal Greenwich Development Plan

Relevant Legislation, Government policy and the Royal Greenwich Development Plan

| Relevant Legislation, Government policy and the Royal Greenwich Development Plan | |
|---|--|
| <u>Flood and Water Management Act (2010)</u> | The FWMA sets out the role of the Council as a Lead Local Flood Authority (LLFA) and sets out a range of powers and responsibilities |
| <u>Flood Risk Regulations (2009)</u> <u>EU Floods Directive (2007)</u> | The Flood Risk Regulations (FRR) transposes the European Union (EU) Floods Directive into English Law. The purpose of the Floods Directive is to establish a framework for assessing and managing flood risk, aimed at reducing the negative impact of flooding on human health, the environment, cultural heritage and economic activity across the European Community. |
| <u>The Land Drainage Act (1991 and amended in 1994)</u> | The Land Drainage Act 1991 requires that a watercourse be maintained by its owner in such a condition that the free flow of water is not impeded. Councils have a responsibility to consent certain works which are proposed over or in watercourses |
| <u>Water Resources Act (1991)</u> | This Act aims to prevent and minimise pollution of water. Under the act it is an offence to cause or knowingly permit any poisonous, noxious or polluting material, or any solid waste to enter any controlled water. |
| <u>EU Water Framework Directive (2000)</u> | The Directive sets out to establish a Community framework for the protection of surface waters and groundwater across the EU. |
| <u>Strategic Environmental Assessment Directive (2001)</u> | The Strategic Environmental Assessment (SEA) Directive applies to a wide range of public plans and programmes (e.g. on land use, transport, energy, waste, agriculture, etc. Plans and programmes in the sense of the SEA Directive must be prepared or adopted by an authority (at national, regional or local level) and be required by legislative, regulatory or administrative provisions. |
| <u>Civil Contingencies Act (2004)</u> | The Civil Contingencies Act establishes a legislative framework for civil protection in the United Kingdom. It imposes a clear set of roles and responsibilities on those organisations with a role to play in preparing for and responding to emergencies. Local authorities are a Category 1 responder under the Act, and have a key role to play in respect in discharging their duties in the legislation. |
| <u>Climate Change Act (2008)</u> | The Act sets up a framework for the UK to achieve its long-term goals of reducing greenhouse gas emissions and to ensure steps are taken towards adapting to the impact of climate change. |
| <u>Conservation of Habitats and Species Regulations (2010)</u> | The objective of the Habitats Directive is to protect biodiversity through the conservation of natural habitats and species of wild fauna and flora. The Directive lays down rules for the protection, management and exploitation of such habitats and species. |
| <u>The Localism Act (2011)</u> | The Localism Act contains a wide range of measures to devolve more powers to councils and neighbourhoods and give local communities greater control over local decisions like housing and planning. |
| <u>The Water Act (2014)</u> | The Water Act will, for the first time, mean businesses, charities and public sector customers will have the freedom to switch supplier from 2017. The Act will: <ul style="list-style-type: none"> • Address growing pressure on water resources by making our supply more resilient; • Ensure that hundreds of thousands of households in the highest flood risk areas will be able to access affordable flood insurance from 2015. |

| Relevant Legislation, Government policy and the Royal Greenwich Development Plan | |
|---|--|
| Government policy and guidance | |
| National Planning Policy Framework (2012) | <i>The National Planning Policy Framework sets out the Government's planning policies for England and how these are expected to be applied. It sets out the Government's requirements for the planning system only to the extent that it is relevant, proportionate and necessary to do so. It provides a framework within which local people and their accountable councils can produce their own distinctive local and neighbourhood plans, which reflect the needs and priorities of their communities.</i> |
| TE2100 Plan | <i>This document, prepared by the Environment Agency and endorsed by Government, sets out recommendations for flood risk management for London and the Thames estuary through to the end of the century and beyond. Royal Greenwich falls within three action zones (2, 3 and 4) and the policy context cited is the Thames CFMP and Thames Strategy East.</i> |
| Royal Greenwich Development Plan | |
| The London Plan, consolidated with alterations since 2011 (2015) | <i>The London Plan is the overall strategic plan for London, and it sets out a fully integrated economic, environmental, transport and social framework for the development of the capital to 2036. Chapter Five sets out London's response to climate change. Policies 5.12 and 5.13 address flood risk management and sustainable drainage. Policy 5.14 addresses water quality and wastewater infrastructure.</i> |
| Royal Greenwich Local Plan: Core Strategy with Detailed Policies | <i>The Core Strategy sets out the long term aspiration, and indicates the broad locations in Royal Greenwich for various land uses as well as providing detailed policies used in determining planning applications. Policies E2 and E3 address flood risk. Detailed guidance is set out in chapter 9 of the Greener Greenwich supplementary planning document.</i> |

1.7 Related documents

Along with the legislation and key policy documents highlighted above, there are other documents which should be read and considered in conjunction with the Local Strategy. Some of these are highlighted below:

- Royal Greenwich Preliminary Flood Risk Assessment
- [Royal Greenwich Strategic Flood Risk Assessment](#)
- Royal Greenwich Surface Water Management Plan
- [Greener Greenwich Supplementary Planning Document](#) (SPD)
- The Mayor's Water Strategy
- [London Regional Flood Risk Appraisal \(First Review\)](#)
- [Thames River Basin Management Plan](#)
- [Thames Catchment Flood Management Plan](#)
- [Thames Strategy East](#)
- National Flood and Coastal erosion risk management strategy for England
- [The Thames Tideway Tunnel project](#)
- [Water Resource Management Plan \(Thames Water\)](#)

2. Local flood risk

2.1 What is a flood?

A flood is formally defined in the Flood and Water Management Act as;

"where land not normally covered by water becomes covered by water."

Flooding can be caused by a range of sources including;

- Heavy rainfall, Surface Water
- Rivers overflowing
- Dams overflowing or being breached
- Reservoirs
- Tidal waters, and
- Groundwater.

A flood does not include flood water from any part of the sewerage system unless it is caused by an increase in the volume of rainwater (including snow and other precipitation) entering or otherwise affecting the system. Nor does it include flooding caused by a burst water main.

In the context of a local flood risk strategy, local flooding is from surface runoff, groundwater and ordinary watercourses.

2.2 What is flood risk?

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

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.

Figure 1: Defining 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.

**2.3 Local flood risk in Royal Greenwich**

The Royal Borough is responsible for local flood risk, which is flood risk from surface water (rainfall) groundwater and ordinary watercourses. These are smaller rivers and streams or in some instances ditches. Flood risk from larger rivers such as the Quaggy, Kidbrooke and Thames is the responsibility of the Environment Agency. A breakdown of what flood risk affects Royal Greenwich and who is responsible is set out in Section 3.2.

2.4 Historic flooding

The Preliminary Flood Risk Assessment (PFRA) was developed in June 2011 to respond to the requirements of the Flood Risk Regulations (FRR). The PFRA sets out historic flooding across Royal Greenwich. This information has not been re-produced here and reference should be made to the PFRA.

A number of areas across London flooded during September 1968, when heavy rainfall caused the River's Quaggy and Kid Brook in the south west of the borough to burst their banks. The Ravensbourne and in particular the Quaggy have benefited from flood alleviation measures, such as the Sutcliffe Park flood storage area scheme, to reduce the risk to the community from fluvial flooding by removing the rivers from culverts and returning them to a more natural state.

The winter of 2013-14 was a significant event across southern England. The event was caused by prolonged and extreme rainfall during the wettest December to January period in the UK since records began. The prolonged heavy rainfall caused groundwater to rise to exceptionally high levels, which led to significant flooding in Surrey and a number of south London boroughs.

Groundwater level changes in the south east, as measured by borehole readings, resulted in an unprecedented situation that certain boroughs found themselves dealing with. It became clear that groundwater flood impact is often delayed, as the water moves through the chalk towards the Thames. This was illustrated by Bromley and Bexley continuing to experience emerging groundwater in March and April 2014.

During the 2014 groundwater flooding event Croydon Council declared a Major Incident and, alongside other measures, established a local groundwater “Solution Cell” to monitor the situation in Croydon. As the groundwater moved north east towards the River Thames the Solution Cell was expanded to a five borough group (Croydon, Bexley, Bromley, Greenwich and Sutton).

The five-borough groundwater “Solution Cell” continues to meet to improve understanding of the mechanisms of groundwater and the particular triggers that lead to flooding and to identify and find medium to long term solutions to mitigate and alleviate potential groundwater flooding.

The Solution Cell will ensure that a consistent approach is applied to the issue and see tangible, effective outcomes for the communities in the boroughs concerned.

2.5 Future risk of flooding

Maps covering Royal Greenwich’s flood risk by individual source based on modelling outputs are in Appendix D. As the Royal Borough continues to improve the knowledge of local flood risk, instances of flooding will be recorded alongside “near misses” to build up a greater understanding of flood risk and flood mechanisms over time.

The Royal Borough has experienced flooding in the past and whilst work has been undertaken, the risk of flooding will continue into the future. The probability of flooding will increase in the future as a result of factors such as:

- climate change (increased storms);
- urban creep (infill development and loss of green space);
- ageing infrastructure (increased pressure on drainage systems and other infrastructure designed for different patterns of use and in deteriorating condition; and,
- population growth (denser populations mean the impact of a flood for a given area will impact more people).

2.6 Future mitigation

- The Royal Borough will continue to work with partners to improve understanding, and where appropriate deliver mitigation of flood risk into the future.
- The Royal Borough will continue to contribute to key mitigation projects within the Partnership area, such as the Thames Estuary 2100 Plan, the Ravensbourne Corridor Improvement Plan and the Ravensbourne Catchment Plan.
- The Royal Borough will support programmes such as the Lewisham and Catford Flood Alleviation Schemes, which seek to provide mitigation measures through utilisation of existing open space to manage flood risk.

A key output of the Local Strategy is the Action Plan. This sets out what and how the Royal Borough intends to manage local flood risk over the next six years and beyond. The Action Plan will be reviewed annually to consider factors that may influence delivery of the plan and to respond to flood incidents.

Part of the Action Plan will also include the Flood Risk Management Plan (as required by the FRR). A key factor that will impact the ability to deliver these plans is the available funding and prioritisation of schemes in the Royal Borough against others in the wider catchment. Funding of flood risk management is discussed further in Section 5.

3. Roles and responsibilities

3.1 What are the roles and responsibilities?

As the LLFA the Royal Borough has a number of roles and responsibilities through both the FRR and FWMA. The ways in which the Royal Borough is working, and will continue working, to respond to these challenges both individually and in partnership are set out below.

3.1.1 Co-operation and arrangements

Under Section 13 of the FWMA, LLFAs must co-operate with other relevant authorities in the exercise of their local flood risk management functions.

The Royal Borough may share information with other relevant authorities for the purpose of discharging this duty under Section 13 of the FWMA. The Royal Borough is exercising this responsibility through the work as part of the Partnership. Working with neighbouring LLFAs and other relevant authorities, the Royal Borough will seek to maximise any investment in flood risk management.

3.1.2 Power to request information

Under Section 14 of the FWMA the Royal Borough may request a person or organisation to provide information in connection with flood and coastal erosion risk management functions.

The Royal Borough will work with the South East London Boroughs to formulate a common approach in how information is requested from third parties and other RMA's. The Royal Borough's approach to information requests will be developed on a case by case basis, and will be dependent on the nature of the information required.

Failure to comply with a request for information which has had financial, safety, environmental, or reputational impact may result in enforcement action.

3.1.3 Funding

Section 16 of the FWMA sets out the Environment Agency's ability to make grants available in respect of costs incurred or expected to be incurred in connection with flood or coastal erosion risk management in England.

The Royal Borough will work alongside the other members of the Partnership to co-ordinate applications for grants, where relevant and practical to ensure these are maximised for the benefit of all residents and businesses

3.1.4 Local authority investigations

Under Section 19 of the FWMA the LLFA has the duty to investigate flood events within the area for which it is responsible for to the extent that it is considered necessary or appropriate. The investigation should assess which risk management authorities have relevant flood risk management functions and whether each of those risk management authorities has exercised, or is proposing to exercise, those functions in response to the flood event. When a formal Flood Investigation under this duty is completed the LLFA is required to publish the results of investigations and notify any relevant risk management authorities of the findings.

The Royal Borough will adopt a common standard across the Partnership to trigger a formal Flood Investigation. The trigger level is to be:

- five properties (residential or commercial) internally flooded in any one event; or
- one or more properties internally flooded more than three times in a five year period.

Over and above:

- five or more gardens flooded with risk of internal property flooding, which were only prevented by active intervention (e.g. pumps or other measures were used to protect the properties).

An investigation would also be triggered within a Critical Drainage Area (CDA), recognised flow path, or recognised receptor. Investigation triggers apply across borough boundaries within the Partnership, for example if two properties flood within Bexley and three flood within Royal Greenwich and fall within the same CDA, catchment flow path or receptor this will trigger an investigation. It will be agreed by the LLFAs involved who will lead on the investigation and findings will be published by all affected LLFAs.

3.1.5 Duty to maintain a register

Section 21 of the FWMA requires the Royal Borough as LLFA to develop and maintain a register of significant structures or features that are likely to have a significant effect on flood risk within Royal Greenwich.

The Royal Borough intends to use existing asset management systems to host the register of flood risk features. This work is currently being developed and is part of the Action Plan. The Register will contain information about the location, ownership, and condition for each structure.

The Royal Borough will work in partnership to identify structures or assets which have the potential to affect flood risk to or from neighbouring boroughs. These structures will be listed on both of the neighbouring authority's registers.

Currently there is no shared definition of what constitutes a 'significant' structure within the Partnership. The Royal Borough will review what is defined as a 'significant' on a case by case basis.

3.1.6 Consenting to works to ordinary watercourses

The Royal Borough has the responsibility for authorising consent for changes to ordinary watercourses which may affect flow or increase flood risk. This includes the temporary or permanent erection or alteration of any mill dam, culvert, weir, bridge or other like obstruction to the flow of an ordinary watercourse. This requirement is in addition to any other permissions or consents that may be required for the work (e.g. planning permission).

The Royal Borough is also responsible for the Water Framework Directive (WFD) for Ordinary Watercourses. The requirements for the WFD can have a positive impact on flood risk management through greater catchment management, increased permeable surfaces, such as SuDS, and through River Restoration. Catchment Improvement Groups and their plans, as discussed in S3.7.2, will be supported by the Royal Borough.

There are 36km of Ordinary Watercourse in the Royal Borough; further information is available in Chapter 5: Ordinary Watercourses, of the Royal Borough of Greenwich Developer Design Guidance for Flood Risk.

3.1.7 Preliminary Flood Risk Assessment (PFRA)

The Royal Borough produced and published a PFRA in June 2011, in accordance with the FRR. The Royal Borough developed the document in co-ordination with all London Boroughs through the Drain London project, to ensure a consistent approach. The Royal Borough will review this document prior to June 2017 as required by the FRR.

3.1.8 Flood risk management works

The Royal Borough, as LLFA, has the power to carry out flood risk management work if it is considered the work is relevant in regard to this strategy. The type of work which can be undertaken is explained in Table 3 – Flood Risk Management Works, below and may be undertaken provided:

- That the purpose of the works is to manage flood risk within the borough from surface water runoff, groundwater or ordinary watercourse (including a lake, pond or other area of water that flows into an ordinary watercourse); or*

- That the purpose of the works is to manage flood risk within the borough from tidal sources and is within (a), (b) or (f) from Table 4 below; or
- The Environment Agency has consented to the work.

Table 3 Flood risk management works

| Flood Risk Management Work (after Section 14A(9) of the Land Drainage Act, as amended by Schedule 3 of the Flood and Water Management Act) means anything done: | |
|--|--|
| (a) | to maintain existing works (including buildings and structures) including cleansing, repairing or otherwise maintaining the efficiency of an existing watercourse or drainage work; |
| (b) | to operate existing works (such as sluice gates or pumps); |
| (c) | to improve existing works (including buildings or structures) including anything done to deepen, widen, straighten or otherwise improve an existing watercourse, to remove or alter mill dams, weirs or other obstructions to watercourses, or to raise, widen or otherwise improve a drainage work; |
| (d) | to construct or repair new works (including buildings, structures, watercourses, drainage works and machinery); |
| (e) | for the purpose of maintaining or restoring natural processes; |
| (f) | to monitor, investigate or survey a location or a natural process; |
| (g) | to reduce or increase the level of water in a place; |
| (h) | to alter or remove works. |

3.1.9 Sustainable development

Section 27 of the FWMA requires that in exercising a flood or coastal erosion risk management function the Royal Borough, as LLFA, must aim to make a contribution towards the achievement of sustainable development.

The Royal Borough understands the need for sustainable development and the introduction of sustainable drainage, which will contribute to a reduction in surface water run-off and help alleviate and mitigate surface water flood risk.

3.1.10 Sustainable drainage systems (SuDS)

Royal Borough of Greenwich sees sustainable drainage systems (SuDS) as an integral element to all development and actively encourages incorporation of SuDS. The Royal Borough is committed to work in partnership with developers to maximise the uptake and introduction of SuDS.

In April 2015 Government introduced the requirement for major development to provide sustainable drainage systems wherever this is appropriate. These developments must also ensure and secure, as a planning condition, the maintenance and operation of any SuDS systems implemented for the lifetime of the development. The Royal Borough sees SuDS as a key component in managing surface water runoff and to

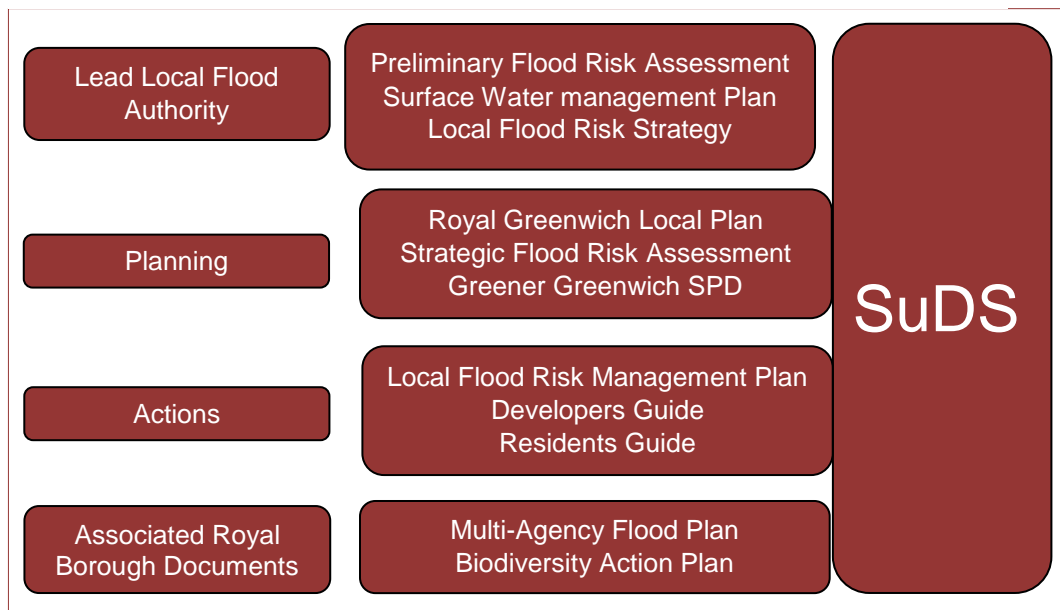
reduce the risk of flooding events as development increases in the urban environment alongside a changing climate.

SuDS alongside green infrastructure can offer benefits aside from surface water management and reducing flood risk such as:

- *Reducing the impacts of the urban heat island effect;*
- *Reducing the impacts of air pollution;*
- *Encouraging greater biodiversity and increased ecology; and,*
- *Creating space and place in the urban environment that can aid wellbeing.*

The requirement and need for SuDS is identified, highlighted and supported in many different Royal Borough strategies and policies. These policies and strategies are supported with practical guidance and where applicable identified actions to help mitigate and alleviate surface water flood risk. The majority of these documents are highlighted in the figure below. For further information around SuDS please refer to Chapter 4 of the Royal Borough of Greenwich Developer Design Guidance for Flood Risk.

Figure 2: Sustainable drainage policies



3.1.11 Schedule 1 designation of features

The Royal Borough, as LLFA, are a 'Designating Authority' and have powers to designate structures and features that affect flooding requiring the owner to seek consent from the Council to alter, remove or replace it. This is a Permissive power, meaning that the Royal Borough has the power rather than duty.

As with the duty to maintain a register, the Royal Borough will work with the partnership to identify features which provide a benefit for neighbouring boroughs which will not increase flood risk.

3.2 Sources of flood risk

There are many different sources of flooding which affect the Royal Borough, as shown in Table 4 – Sources of Flooding below:

Table 4 Sources of flooding

| Type of flooding | Description | Responsibility |
|--|--|--|
| Surface Water Flooding | Often referred to as “Pluvial” flooding this flooding is when there is too much rainfall for the existing drainage systems to cope with, resulting in overland flows. | LLFA in terms of a strategic overview |
| Groundwater Flooding | This can be the result of a series of complex mechanisms that are not fully understood and further work is underway at a national level to better understand the causes. | LLFA in terms of a strategic overview |
| River Flooding Rivers fall into two categories, | Main River – These are generally large rivers, such as the Thames, Ravensbourne and Quaggy. | Environment Agency in terms of a strategic overview and Riparian owner |
| | Ordinary Watercourse – These are generally the smaller rivers, brooks and streams and some ditches | LLFA in terms of a strategic overview and Riparian owner |
| Coastal/Tidal Flooding | This is when coastal or estuary areas are inundated by the sea | Environment Agency in terms of a strategic overview |
| Reservoir Flooding | This is when a reservoir fails and the water it holds inundates areas upstream of the reservoir. | The individual owner of the Reservoir |
| Sewer Flooding | Sewer flooding is generally caused by a lack of capacity in the sewer network. | Thames Water |

3.3 Risk management authorities

A number of risk management authorities (RMAs) operate across South East London. Table 5 – Risk Management Authorities, below sets out their respective responsibilities under the 2010 Flood and Water Management Act.

Table 5 Responsibilities of risk management authorities

| RMA | Responsibilities under the 2010 Flood and Water Management Act |
|-----------------------|--|
| Local Council as LLFA | Responsible for managing flood risk from local sources See Section Error! Reference source not found. for full break down. |
| Environment Agency | Responsible for managing flooding from main rivers or the sea. Strategic overview for all flooding sources and coastal erosion |

| RMA | Responsibilities under the 2010 Flood and Water Management Act |
|--|---|
| <i>Thames Water Utilities Limited</i> | <i>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</i> |
| <i>Local Council as Highways Authority</i> | <i>Responsible for maintenance of all public roads Under Highways Act 1980, responsible for provision and maintenance of highways drainage and ditches</i> |
| <i>TfL</i> | <i>Responsible for maintaining any drainage and ditches associated with Red Routes in London</i> |
| <i>Neighbouring LLFAs</i> | <i>Carry out duties under FWMA within their own borough boundaries Mutual duty to co-operate with local LLFA as a neighbouring RMA in the undertaking of flood risk management functions Must work in partnership with local LLFA to address cross boundary flood management issues</i> |

3.4 Emergency planning

The Royal Borough as a category 1 responder within the Civil Contingencies Act has a responsibility to be prepared and resilience in the event of an emergency. Flooding in the first instance, depending on the size, impact and those affected by any source of flooding may lead to an emergency being declared.

The Royal Borough has in place a Multi-Agency Flood Plan. This document assesses all risk of flooding and the likely impacts these risks will have across the borough and what actions will need to be implemented.

The Royal Borough has in preparedness undertaken many emergency exercises in partnership with other emergency responders, neighbouring boroughs as well as high profile locations within Royal Greenwich. These exercises are listed below in Table 6 – List of emergency planning exercises.

Table 6 List of emergency planning exercises

| Exercise | Date | Description |
|--|----------------------|--|
| <i>Blue Dyke</i> | <i>October 2014</i> | <i>Joint multi-agency desktop exercise with Bexley using a fluvial flooding scenario</i> |
| <i>Directorate Flood Risk and BCM exercise</i> | <i>2013 to 2014</i> | <i>The annual directorate and trading company BCM plan exercises for this year used a surface water flooding scenario following a flood risk briefing.</i> |
| <i>South East London SRRF</i> | <i>February 2013</i> | <i>Multi agency workshop exercise including a scenario focussing on the public health aspects of a flooding incident</i> |
| <i>O2 Flood Risk</i> | <i>November 2011</i> | <i>Desktop exercise for AEG, Environment Agency and Greenwich council for a breach on the peninsula at night with an ongoing event.</i> |
| <i>Blue Museum</i> | <i>February 2011</i> | <i>National Maritime Museum desktop flooding exercise facilitated by the council with an expert panel from the emergency services</i> |

| Exercise | Date | Description |
|-----------------|---------------|--|
| Warspite | December 2009 | Metropolitan Police Service desktop flooding exercise (assisted by council and Environment Agency) to determine the potential impact of a breach on proposed future police assets and premises, and to validate mitigation measures. |
| Blue Creek | July 2009 | Joint desktop exercise with Lewisham with multi agency expert panel dealing with fluvial flooding from the Ravenbsbourne and tributaries, plus a limited amount of surface water flooding. |
| Blue Lagoon 2 | April 2009 | Following on from the below concentrating on health issues, led by the Primary Care Trusts. |
| Blue lagoon | June 2008 | Joint desktop exercise with Bexley with multi agency expert panel dealing with tidal flooding through a breach at Thamesmead. |

3.5 **Planning**

Royal Borough of Greenwich, as the local planning authority, has in place policies to manage development in flood risk areas. This is primarily through the [Royal Greenwich Local Plan: Core Strategy with Detailed Policies](#), which is supported by the Strategic Flood Risk Assessment (SFRA). The Core Strategy is further supported by the Greener Greenwich supplementary planning document (SPD), which covers flood risk, SuDS, water use and water sensitive urban design.

The Royal Borough sees new development as key in actively reducing flood risk across Royal Greenwich through various approaches and considerations, from constructing flood resilient developments to supporting river restoration, and including SuDS as standard. The London Borough of Lewisham has introduced their River corridor improvement plan SPD, which the Royal Borough supports.

Government introduced on the 6th April 2015 the requirement for major development to ensure SuDS are delivered. Development must also ensure that SuDS will be proportionately managed and maintained for the lifetime of the development. SuDS are discussed further in S3.1.10 above and in Chapter 4 of the Royal Borough of Greenwich Developer Design Guidance for Flood Risk.

3.6 **LLFA Structure**

The Royal Borough is organised as eight departments that operate together. The LLFA role sits within the Department for Regeneration, Enterprise and Skills (DRES) within Strategic Transportation.

3.7 **Partnership**

To deliver the Action Plan, the Royal Borough has identified the following additional groups of stakeholders

- Business groups

- Environmental and wildlife groups
- Emergency services
- Religious groups
- Resident's groups and associations
- Neighbouring local authorities
- Statutory bodies (e.g. Natural England)
- Transport operators and authorities
- Utility providers and operators

3.7.1 South East London Flood Risk Management Partnership

The South East London Flood Risk Management Partnership is made up of the following organisations:

- London Borough of Bexley
- London Borough of Bromley
- London Borough of Lewisham
- Royal Borough of Greenwich
- Environment Agency
- Thames Water

The purpose of the Partnership is to ensure local flood risk is considered across administrative and organisational boundaries and where appropriate to work together to address the wider strategic flood risk to the Partnership.

3.7.2 River catchment improvement groups (CiGs)

River catchment improvement groups (CiGs) are groups of partners; stakeholders, including organisations such as Thames 21 and the London Wildlife Trust; residents; and other interest groups. These groups work to improve the rivers primarily in response to the Water Framework Directive, but also to enhance the biodiversity and ecology of these river corridors, and to increase access, amenity and the education of the benefits of these silver ribbons, which connect and flow through the communities of Royal Greenwich.

The actions and outcomes of the work undertaken by the CiGs and their approach to catchment management and restoration, this has a positive influence on flood risk management within Royal Greenwich. River restoration and active encouragement of permeable surfaces, such as SuDS, and managing and treating surface water runoff in the urban environment will reduce flood risk along the river catchments as well as improve the quality of the rivers.

The Royal Borough is responsible for Ordinary Watercourses. There is a clear link between catchment improvement and flood risk management, and the benefits that can be delivered, that have a positive benefit to Royal Greenwich. As a partner in the CiGs the Royal Borough will work with and support the actions of the CiGs for both the improvement of the waterways and also for the benefits of flood risk management.

There are three river catchments within Royal Greenwich. Each catchment has its own CiG. These are:

Ravensbourne Catchment Improvement Group – covering the:

- River Quaggy
- Kyd Brook

Marsh Dykes Catchment Improvement Group – covering the:

- Marsh Dykes (Thamesmead)
- Wickham Valley Watercourse (Wogebourne)

Darrent and Cray Catchment Improvement Group – covering the:

- River Shuttle (Source)

Alongside these CiGs there is also the Quaggy Waterways Action Group (QWAG).

3.7.3 Other Stakeholders

The Royal Borough will undertake an open, transparent and pragmatic approach between the Flood Risk Management Team and other departments, and will develop strong links with key stakeholders, including elected Members, community groups and flood groups.

The Royal Borough has identified the following potential beneficiaries of local flood risk management:

- Residents;
- Businesses ;
- Riparian Owners; and,
- Built and natural environment.

3.8 How this strategy will be monitored

The Royal Borough will monitor the Local Strategy through the use of Key Performance Indicators (KPIs). The Flood Risk Manager will provide reporting of the KPIs and key information to the Partnership at meetings, where the Local Strategy KPI monitoring will be a standing item on agenda. The KPIs are designed to be a quick reference to provide an overview for the four south east London boroughs. The provisional KPIs are set out in Table 7 - Partnership - below.

Table 7 Local Strategy key performance indicators

| KPI ID | Metric and description |
|---------|---|
| FWMA 1a | <p>Number of (Section 19) flood investigations undertaken.</p> <p>Number of flood investigations undertaken under Section 19 of the Flood and Water Management Act 2010 in response to the trigger level being reached.</p> |

| KPI ID | Metric and description | | | | | | | | | | |
|---------------|---|-----------|-------------|-------------|--|-------------|--|-------------|---|-------------|--|
| FWMA 1b | <p>Number of (Section 19) flood investigations published.</p> <p>Number of flood investigations at or above the trigger level completed and published (including discretionary investigations if appropriate).</p> | | | | | | | | | | |
| FWMA 2a | <p>Number of requests for works to ordinary watercourses received.</p> <p>Number of requests for works to ordinary watercourses under Section 23 of the Land Drainage Act 1991.</p> | | | | | | | | | | |
| FWMA 2b | <p>Number of ordinary watercourse consents granted.</p> <p>Number of requests for works to ordinary watercourses where consent is granted.</p> | | | | | | | | | | |
| FWMA 2c | <p>Number of ordinary watercourse consents refused.</p> <p>Number of requests for works to ordinary watercourses where consent is refused.</p> | | | | | | | | | | |
| FWMA 3a | <p>Number of structures / features added to (Section 21) register of flood risk assets.</p> <p>Structures or features which, in the opinion of the authority, are likely to have a significant effect on a flood risk in its area, and a record of information about each of those structures or features, including information about ownership and state of repair recorded on the Section 21 register.</p> | | | | | | | | | | |
| FWMA 3b | <p>Number of structures / features considered for (Schedule 1) 'designation'.</p> <p>Designation is a form of legal protection or status reserved for certain key structures or features that are privately owned and maintained, but which make a contribution to the flood or coastal erosion risk management of the people and property at a particular location.</p> | | | | | | | | | | |
| FWMA 3c | <p>Number of structures / features designated (Schedule 1).</p> <p>Number of structures / features which meet the four designation conditions and for which the four stage process of designation has been completed.</p> <table border="1"> <thead> <tr> <th>Condition</th> <th>Explanation</th> </tr> </thead> <tbody> <tr> <td>Condition 1</td> <td>That the designating authority thinks the existence of the structure or feature affects a flood or coastal erosion (or both) risk.</td> </tr> <tr> <td>Condition 2</td> <td>That the designating authority has flood or coastal erosion risk management functions in respect of the risk being affected.</td> </tr> <tr> <td>Condition 3</td> <td>That the structure or feature is not already designated by another designating authority.</td> </tr> <tr> <td>Condition 4</td> <td>That the owner of the structure or feature is not a designating authority.</td> </tr> </tbody> </table> | Condition | Explanation | Condition 1 | That the designating authority thinks the existence of the structure or feature affects a flood or coastal erosion (or both) risk. | Condition 2 | That the designating authority has flood or coastal erosion risk management functions in respect of the risk being affected. | Condition 3 | That the structure or feature is not already designated by another designating authority. | Condition 4 | That the owner of the structure or feature is not a designating authority. |
| Condition | Explanation | | | | | | | | | | |
| Condition 1 | That the designating authority thinks the existence of the structure or feature affects a flood or coastal erosion (or both) risk. | | | | | | | | | | |
| Condition 2 | That the designating authority has flood or coastal erosion risk management functions in respect of the risk being affected. | | | | | | | | | | |
| Condition 3 | That the structure or feature is not already designated by another designating authority. | | | | | | | | | | |
| Condition 4 | That the owner of the structure or feature is not a designating authority. | | | | | | | | | | |

| KPI ID | Metric and description |
|----------------|--|
| <i>FWMA 4a</i> | <p><i>Number of actions from the Local Flood Risk Management Strategy Action Plan commenced or in progress.</i></p> <p><i>The number of actions from the individual borough Local Strategy Action Plans that have been commenced. Reported against the total number of actions stated.</i></p> |
| <i>FWMA 4b</i> | <p><i>Number of actions from Local Flood Risk Management Strategy Action Plan completed.</i></p> <p><i>The number of actions from the individual borough Local Strategy Action Plans that have been completed. Reported against the total number of actions stated.</i></p> |

3.9 How this local strategy will be reviewed

The Royal Borough has developed the Local Strategy with the aim of reviewing the whole document every six years.

The Action Plan will be impacted by existing internal and external budgets and other funding opportunities, in response to significant flooding and in response to changes in development pressures and plans. The updated Action Plan will be agreed at borough level and then presented at the relevant Partnership meeting.

3.10 How has this strategy been consulted

This document was consulted in the summer 2015. On completion, a summary will be inserted here, including how the local strategy was modified based on consideration of the comments received. Appendix B sets out the statement of consultation.

3.11 Environmental Impact

The strategy has been subject to a Strategic Environmental Assessment (SEA) the findings and conclusion of the SEA are in Appendix C.

4. Objectives and measures

4.1 National objectives

The overall aim of the National Flood and Coastal erosion risk management strategy for England is to ensure the risk of flooding and coastal erosion is properly managed by using the full range of options in a co-ordinated way.

To be consistent with the National Strategy so that all sources of risk are considered, the following national objectives will be taken into consideration and where appropriate addressed in the management of local flood risk:

- Understanding and Working Together: 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;
- Development Control: Avoiding inappropriate development in areas of flood and coastal erosion risk and being careful to manage land elsewhere to avoid increasing risks;
- Reducing Risk: Maintaining and improving Flood and Coastal Erosion Risk Management (FCERM) systems to reduce the likelihood of harm to people and damage to the economy, environment and society;
- Improve Public Awareness: Building 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,
- Improved Emergency Planning and Recovery: Improving the detection, forecasting and issue of warnings of flooding, co-ordinating a rapid response to flood emergencies and promoting faster recovery from flooding.

4.2 Regional (Partnership) objectives

The underpinning regional (Partnership wide) objectives are based on the terms of reference from the South East London Partnership. They cover the four borough's objectives for their Local Strategies to:

- Develop a robust and consistent understanding of flood risk across south east London actively sharing information where necessary;
- Establish a common understanding of each risk management authority's roles and responsibilities;
- Collaborate in the development of the local flood risk management strategies and other tasks required by current legislation to deliver coordinated flood risk management across south east London;
- Promote potential options for joint mitigation of flood risk across south east London to ensure that all partners are working together to reduce local flood risk;
- Ensure that there is a common overview of the resources, skills and capabilities available to manage flood risk, alongside an understanding of where the gaps exist and how available funds can best be maximised;

- Discuss issues and obtain advice/guidance from other risk management authorities to ensure that there are robust links to other forums involved in flood risk at South East England, London and local level in order to shape policy and funding; and,
- Ensure that elected members are fully briefed as to the current progress of the Partnership, and specifically where there are projects which are likely to be put forward for funding to the Thames or Southern Regional Flood and Coastal Committees (RFCCs).

4.3 Local objectives

The local objectives have been developed from the wider objectives of the Royal Borough and applying these to flood risk management, and are set out below.

- Reduce and better manage all sources of local flood risk within Royal Greenwich;
- Communicate flood risk with affected communities;
- Manage development to reduce flood risk and encourage sustainable drainage;
- Provide local advice and guidance to help residents and business understand their flood risk and be resilient; and,
- Engage with residents and business to make sure decisions are made using best and most up to date information available.

4.4 How the objectives will be achieved

To address these objectives, the Royal Borough has developed the Action Plan, which is detailed in Appendix A. The Action Plan sets out how the Royal Borough will seek to exercise the role and responsibilities under the FWMA and work to manage flood risk over the next six years and beyond.

The delivery of the Action Plan will be linked to the availability of funding. Many of the identified actions are dependant either partly or wholly on external funding sources. To manage this, the Royal Borough has undertaken to review the Action Plan annually to ensure that it is realistic and achievable. In reviewing the priorities each year the availability of funding will be considered on an individual action's position within the Action Plan.

5. Funding and delivery

5.1 Funding sources

There is a range of different funding sources available for flood risk management. These are:

- **Flood Defence Grant in Aid (FDGiA)** – this funding is specifically for flood defences and is also linked with Partnership funding.
- **Partnership arrangements with other risk management authorities (RMAs)** – these can be sought in order to increase the likelihood of schemes seeking FDGiA funding
- **Thames Water** – flood alleviation projects specific to Thames Water’s commitment to remove all sewer flooding by 2027.
- **Environment Agency** – fund and manage a range of flood risk management projects with a fluvial / tidal focus with potential opportunities to partner in a range of projects including studies to improve understanding of areas at risk of flooding, flood forecasting, flood alleviation works and flood and coastal erosion risk management.
- **Highways Authority** – responsible for the maintenance of public roads.
- **Other LLFAs** – partnership work with other LLFAs to deliver flood risk management works, which could be neighbouring authorities, (such as would be appropriate for flood alleviation works spanning two or more LLFA areas,) or with non-neighbouring LLFAs (who are delivering similar projects such as awareness raising or publicity campaigns around flood risk management).
- **Partnership funding** – this can be money from local communities and business as contributions from those who will benefit from measures delivered through the Local Strategy. This funding can be sought in order to increase the likelihood of schemes attracting FDGiA funding.

Alongside these traditional sources of funding:

- **Local Levy** – this funding is available from the Regional Flood and Coastal Committees.
- **Royal Borough of Greenwich capital and revenue budgets** – the Royal Borough often undertakes major projects ranging from refurbishment of schools to the introduction of large scale public realm improvements. Where appropriate these projects will include or integrate identified projects to reduce or mitigate flood risk.
- **Community Infrastructure Levy (CIL)** – a charge made against new development that can be used to fund local measures. For the Partnership it is composed of two elements – local CIL (where adopted) and Mayoral CIL. The Mayoral CIL is in place to deliver Crossrail; however the local CILs can be used to invest in local infrastructure including flood relief and resilience works. Royal Greenwich has an adopted local CIL.

- **European funding** – possible sources of funding include LIFE+, which is a programme providing specific support for the implementation of European environment policy; INTERREG, which is a collection of funds aimed at promoting inter-region cooperation across the EU; and the European Fisheries Fund, which could fund actions to protect and develop fish habitats.
- **Defra grants** – grants that are either allocated directly to support the introduction of new legislation and practices, or made available for local authorities to submit grant applications for funding.
- **The Growing Places Fund** – available for Local Enterprise Partnerships (LEPs) to make provision for investment in infrastructure that unlocks development.
- **Invest to Save** – fund to invest to protect the most disadvantaged residents with a view to longer term reduction in costs connected with homelessness, tenancy failure, crime, health and residential care packages.
- **Green Investment Bank** – UK Government owned bank to set up to fund green projects on commercial terms and mobilise other private sector capital into the UK's green economy, particularly energy and waste infrastructure.
- **The Catchment Restoration Fund** – a fund administered by the Environment Agency aimed at the restoration of more natural features in and around water bodies.
- **Business rate retention** – Fund raised through retention of money raised through levy of local business rates, enabling the authority to target this at measures identified in the Local Strategy.
- **New Homes Bonus** – can be used to assist with funding of infrastructure to support new housing build.
- **Communities fund** – available for use for delivery of biodiversity projects located within proximity of waste operators.
- **Big Lottery Fund (Communities Living Sustainably)** – available for partnerships that bring together the public, private, voluntary and community sectors to build sustainable and resilient communities to help deal with the potential impact of climate change.
- **Heritage Lottery Fund** – provides grants to sustain and transform our heritage including parks, historic places, and natural environment.
- **Health Agenda** – budget specifically for public health, which will allow councils to provide services that meet the health needs of their local community. This might include contributing to projects that encourage activity and exercise.
- **Greater London Authority** – top-tier administrative body for Greater London, which administers grants and funding for a range of cross London projects

and schemes in line with the Mayor of London and the London Assembly's objectives.

- **Transport for London** – *provides a range of funding streams to deliver projects which support the Mayor's Transport Strategy through a Local Implementation Plan (LIP).*

The Royal Borough will work with other organisations to support their applications for funding where there is clear benefit to Royal Greenwich, its residents and businesses, or the partnership.

5.2 **Delivery**

The Royal Borough will, where possible, prepare schemes and measures that provide multiple benefits and target funding for the most vulnerable communities.

Where appropriate, a cost/benefit appraisal will be undertaken for each scheme, based on the estimated cost of undertaking the measure and the potential benefits that may be created. This process will follow the Government's Flood Defence Grant in Aid (FDGiA) cost benefit process to ensure that the maximum value for money can be achieved.

A cost / benefit appraisal considers the total expenditure required to deliver and maintain a scheme and compares it to the resulting benefits. The total expenditure includes capital costs (such as those for studies, design and implementation) and maintenance costs (regular upkeep costs, any operational costs such as electricity).

The prioritisation process seeks to prioritise areas with the greatest level of risk (see Section 2.2) and is therefore informed by local drivers including presence of critical drainage areas, areas of high deprivation, and vulnerable receptors.

The level of detail available on costs and benefits for the measures identified in the Action Plan will depend on the data and information available. At this stage in the preparation of the Local Strategy there is not enough information to enable the preparation of a formal appraisal of benefits and costs for many of the measures identified. With the preparation and publication of subsequent Action Plans, more information will become available and further detail on the benefits and costs will be included.

6. Conclusion

The Royal Borough's Local Flood Risk Management Strategy is a plan for understanding and managing the risk of flooding within Royal Greenwich. This local strategy looks at flood risk from all sources in Royal Greenwich, joining up the responsibilities locally, neighbouring boroughs, government departments and their agencies, water companies, communities, individual households and businesses.

The Action Plan describes how the Strategy will be delivered.

This local strategy focuses on 'local flood risk.' This is flooding caused by surface runoff, groundwater and ordinary watercourses (streams, ditches etc.) but needs to be managed in conjunction with flooding from other sources such as main rivers or the coast and through working with a range of responsible organisations.

This local strategy considers how all sorts of very different activities and actions can help manage flood risk, from better planning, to practical and simple measures which can be undertaken by residents and businesses both in terms of understand the local risk, planning and making sound arrangements and learning from events that will inevitably occur in the future.

However the activities identified in this local strategy can only seek to manage flood risk. It would not be possible to protect all households from all flood risk. Instead efforts need to be made by all involved: organisations, householders and businesses alike, to reduce flood risk in practical ways. Sometimes this will involve making sure those properties, households and businesses can manage in the event of a serious flood.

It is vital that organisations work better not just with each other but crucially with the public. The Local Strategy details the roles and responsibilities of all stakeholders, including households and community groups, so that there is better clarity and understanding about how and when different stakeholders need to be involved.

Assessing levels of risk from flooding is a difficult task. With greater development and increasingly uncertain weather patterns, houses and businesses that may not have been flooded in living memory may still be at risk. There are many methods in determining areas at risk of flooding, from models to historic memories; these are all crucial in making sure that the limited resources available are used most effectively to reduce the probability and impacts flooding.

This local strategy is how the Royal Borough intends to manage local flood risk within Royal Greenwich

Glossary and abbreviations

| Glossary and abbreviations | |
|-----------------------------------|--|
| CDA | Critical Drainage Area |
| CIL | Community Infrastructure Levy |
| DCLG | Department for Communities and Local Government |
| DEFRA | Department for Environment, Food and Rural Affairs |
| Designating authority | Royal Borough of Greenwich as Lead Local Flood Authority |
| FCERM | Flood and Coastal Erosion Risk Management |
| FDGiA | Flood Defence Grant in Aid |
| Floods Directive | European Union Floods Directive 2007 |
| Fluvial | Flooding attributed to river processes |
| FOI | Freedom of Information Act |
| FRM | Flood Risk Management |
| FRR | Flood Risk Regulations 2009 |
| FWMA | Flood and Water Management Act 2010 |
| GLA | Greater London Authority |
| HRA | Conservation of Habitats and Species Regulations 2010 |
| INTERREG | A collection of funds aimed at promoting inter-regional cooperation across the EU |
| KPI | Key Performance Indicator |
| LEPs | Local Enterprise Partnerships |
| LIFE+ | A programme providing specific support for the implementation of European environment policy. |
| LLFA | Lead Local Flood Authority |
| LFRMS | Local Flood Risk Management Strategy |
| National Strategy | National flood and coastal erosion risk management strategy for England |
| Ordinary Watercourse | Every river, stream, ditch, drain, cut, dyke, sluice, sewer (aside from public sewers) and passage through which water flows which is not considered to be a main river. |
| PFRA | Preliminary Flood Risk Assessment |
| Pluvial | Flooding attributed to rainfall |
| RFCC | Regional Flood and Coastal Committee |
| Riparian owner | Owning property next to or adjoining a river, stream or ditch grants you rights and responsibilities for that section of river. |
| RMA | Risk Management Authority |
| SEA | The Strategic Environmental Assessment Directive |
| SELFRMG | South East London Flood Risk Management Group |
| SoEP | Statement of Environmental Particulars |

| Glossary and abbreviations | |
|-----------------------------------|--|
| Solution Cell | Five-borough groundwater flooding prevention initiative (Croydon, Bexley, Bromley, Greenwich and Sutton). |
| SuDS | Sustainable Drainage Systems |
| TfL | Transport for London |
| The Four Boroughs | South East London Lead Local Flood Authorities (Bexley, Bromley, Greenwich and Lewisham). |
| The Partnership | South East London Flood Risk Management Partnership (Bexley, Bromley, Greenwich and Lewisham, Thames Water and The Environment Agency) |
| TWUL | Thames Water Utilities Limited |
| WFD | Water Framework Directive |

Appendices

- A. Action Plan
- B. Summary of Consultation
- C. Environmental Assessment
 - C.1 Screening report
 - C.2 Scoping report
 - C.3 Responses to consultation
 - C.4 SEA and HRA report
 - C.5 Statement of Environmental Particulars
- D. Flood risk maps

Appendix A – Action Plan

Appendix B – Summary of Consultation

Appendix C – Environmental Assessment

C.1 Screening Report

C.2 Scoping Report

C.3 Responses to consultation

C.4 SEA and HRA Report

C.5 Statement of Environmental Particulars

Appendix D – Flood Risk Maps