Lewisham's Local Flood Risk Management Strategy 2022-2027

Foreword

We underestimate the risks from a changing climate at our peril. Lewisham Council, alongside many local authorities up and down the UK, has responded to this global threat by recognising the climate emergency and setting ambitious local targets for action. But the risks we face will not disappear as the world moves to net zero carbon: many of them are already locked in. The question is not whether our climate will change but by how much.

The risks and impacts are understood and backed by science but there is growing concern that the long-term planning needed, particularly at a national level, is not happening at the scale and pace needed.

Lewisham's Flood Risk Management Strategy is therefore hugely important in this context. The last major flooding incident in the borough remains in living memory, but it's now over 50 years since the 1968 floods. While geology and geography have shaped the flow of water in South East London over thousands of years the changing urban landscape and rising global temperature mean the past is no longer a reliable guide to the future.

Taking action on flood risk is vital to protect our most vulnerable individuals and communities. It also creates the opportunity for a wealth of wider benefits. The borough's rivers are a natural asset enjoyed by residents and nature alike. Lewisham's rivers and other water features like the lake at Beckenham Place Park and the Waterlink Way are an accessible and visible part of what makes Lewisham a special place to live and visit.

Trees, plants and permeable areas of softer landscaping are a vital part of slowing down and managing flows of water, recognising and retaining water as a precious resource. This critical infrastructure reduces flood risk, but does so much more: improving local air quality, absorbing carbon, creating habitats and boosting biodiversity while improving the look and feel of our streets and local communities.

We cannot stop all flooding but we can and will reduce the risk the borough faces and minimise the impact of future floods on our communities. This strategy sets out the Council's plans to work with partners nationally, regionally and locally over the next 5 years to create a greener and safer Lewisham.

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Cabinet Lead for Environment and Climate Action

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1 Introduction

1.1 Over 28,000 homes and businesses in Lewisham are at risk of flooding[1], with areas that score more highly on deprivation measures disproportionately affected. The borough's exposure to flood risk is changing as climate change continues to affect weather patterns in the UK. Lewisham has declared a climate emergency and set the ambition for the borough to be net zero carbon by 2030, but without significant action to cut global carbon emissions the borough needs to adapt in response to the likelihood of more frequent and intense storms, droughts and temperature variations.

1.2 Even the most optimistic assessment of international governmental agreements to reduce emissions are based on limiting global warming to under 1.5 degrees centigrade. Without action by 2050 summer rainfall could fall by as much as 24% with downpours becoming more intense. Winter rainfall increase by as much as 16%[2], changes that will impact our well-being, the natural environment and the economy.

1.3 Addressing the complex and wide-ranging impact of a changing climate needs sustained investment and long-term planning but in 2021 the UK Climate Change Committee's Climate Change Risk Assessment[3] was highly critical of progress across the UK.

1.4 Despite this Lewisham Council is committed to building a robust evidence-base on the flooding risks the borough faces and taking action to address them. This work is vital in keeping our most vulnerable residents and communities safe but also creates opportunities. Greening urban areas and recognising water as a precious resource can enrich local communities. Trees and green infrastructure can play a major part in slowing down and managing flows of water, while offering a wide range of other benefits from biodiversity, air quality, shading and are often a highly valued part of any local community.

1.5 The Government has given local authorities powers to manage local flood risk in a more coordinated way working in partnership with other relevant bodies at a national, regional and local level. Lewisham Council, as with other London Boroughs and single tier authorities across England is designated as a Lead Local Flood Authority (LLFA) with specific responsibilities relating to local flood risk from surface water runoff, groundwater and small rivers, streams and ditches.

[1] https://www.lewisham.gov.uk
[2] https://www.theccc.org.uk
[3] https://www.ukclimaterisk.org/

1.6 The Flood and Water Management Act 2010 requires LLFAs such as Lewisham to develop and apply a Local Flood Risk Management Strategy that:

- Specifies the roles of the different organisations with responsibility for managing flood risk in Lewisham;
- Describes how Lewisham is working with partners to reduce flood risk;
- Provides an overall assessment of local flood risk;
- Sets out the objectives for managing local flood risk; and
- Outlines what actions are to be taken to meet those objectives.

1.7 Further information regarding the legislative context to local flood risk management and a more detailed description of the strategy requirements are provided in Appendix 1.

1.8 This Local Flood Risk Management Strategy builds on the work of the Council's 2015 strategy, and will set new objectives to manage local flood risk and tie in to the new National Flood Risk Strategy and Thames Water Drainage and Wastewater Management Plans.

1.9 The rise in extreme weather conditions, the presence of buildings in areas of flood risk, and significant constraints on public funding, mean that flood incidents cannot be prevented completely. The approach set out in this Flood Risk Management Strategy seeks to understand the risks the borough faces, bring investment in to reduce risk and work in partnership to ensure that the frequency and impact of flood events are reduced.

Historic flooding in Lewisham

Figure 1: Catford Bridge Station September 1968

1.10 A number of areas in London suffered during the Great Floods of September 1968 including the last major flood on the River Ravensbourne and its

tributaries when heavy rainfall within the catchment caused the river to burst its banks, creating widespread flooding of several hundred residential and commercial properties in the borough (figure 1 shows the depth of flooding at Catford Bridge Station).

1.11 Following the 1968 event the River Quaggy was enclosed in a concrete culvert. Less severe river flooding was also recorded in 1977, 1992, 1993, and 2013/2014 (although the latter not causing significant flooding within the borough compared to other reaches of the Ravensbourne and Quaggy).

1.12 In 1990 local residents opposed a plan to expand the defences in the area and pushed for the river to be released from its culvert and develop a series of moulded floodplains to create a more natural approach to flood risk management and better habitats for wildlife.

1.13 The Ravensbourne and in particular the Quaggy have benefited from flood alleviation measures to reduce this risk to the community from fluvial flooding such as Ladywell Fields, Cornmill Gardens in Lewisham Town Centre and the Sutcliffe Park Flood Storage Area scheme just across the borough boundary in Eltham . This is the approach we are trying to follow in developing and delivering the Local Strategy for Lewisham.

1.14 The Thames Barrier became operational in 1982. Since that time the Barrier was closed four times in the 1980s, 35 times in the 1990s, 75 times from 2000 to 2009 and 65 times between 2010 and March 2014. The Barrier was closed 50 times between September 2013 and July 2014 alone. Without the existence of the Thames Barrier, if extreme storms coincided with high tide, 115 square km of London could be flooded.

Roles and responsibilities

1.15 The London Borough of Lewisham Local Flood Risk Management Strategy sets out how Lewisham Council as the LLFA and partnership organisations work together to improve the management of local flood risk.

1.16 Lewisham Council works with several partners to reduce the risk and impact of flooding across the borough. The strategy sets out the responsibilities of these bodies so it is clear how the partnership will work together and so that local residents and businesses know what to expect of the different organisations involved. Risk Management Authorities, as defined by the Flood and Water Management Act 2010, include:

- The Environment Agency – strategic overview role for all sources of flooding with specific responsibilities for flood and coastal erosion risk management activities on main rivers and the coast (this designation gives the Environment Agency powers to carry out works but not a duty to do so – maintenance and operation is the responsibility of the owner), regulating reservoir safety, and working in partnership with the Met Office to provide flood forecasts and warnings

- Thames Water – responsible for managing the risk of flooding from the public sewer network, both for surface water and foul;
- Highway Authorities – trunk roads in Lewisham are managed by Transport for London while the London Borough Lewisham Highways Team are responsible for the maintenance of all public roads, it is the responsibility of these agencies to ensure that flood risk affecting their networks is managed effectively
- Neighbouring LLFAs – these are the London Boroughs of Bexley, Bromley, Greenwich and Southwark; these authorities are responsible for the management of local flood risk within their areas; as flood water crosses councils' boundaries, and the impacts of flooding on residents, transport and other utilities can have a significant impact on surrounding areas, it is critical for neighbouring local authorities to work together to manage flood risk.

1.17 The following key partners are not formally defined as Risk Management Authorities but nevertheless play critical roles in the management of flood risk in Lewisham:

- Local community organisations – provide crucial local knowledge and public engagement on flooding and wider environmental issues, and with their network of volunteers help to deliver climate adaptation and carry out management of green-blue spaces;
- Rail Authorities – Network Rail and London Underground are responsible for managing critical transport infrastructure, it is the responsibility of these agencies to ensure that flood risk affecting their networks is managed effectively;
- Emergency Services – responsible for minimising the impact of extreme flood events and responding to emergency situations; and
- Utilities - responsible for provision and maintenance of utility infrastructure – electricity, gas telecommunications, etc and ensuring its resilience to flood risk.

1.18 A more comprehensive description of the roles and responsibilities of the various different authorities that manage flood risk in Lewisham can be found in Appendix 2.

1.19 Local residents and businesses also have a role to play in managing flood risk. People and properties that live in areas of high flood risk should be prepared for flood incidents (information on flood risk that properties face can be accessed here). Landowners whose properties are next to watercourses have a responsibility to ensure the unobstructed flow of water. It is also essential that local residents and businesses report any incidents of flooding of property, open spaces or roads. This helps to build up knowledge of flooding patterns, which then improves future risk management

Local context

1.20 The Local Flood Risk Management Strategy is one of several documents, plans, strategies and policies that influence how flood risk is managed in Lewisham; from national policy and guidance, through to local strategies and plans that set out how this will be applied locally.

1.21 Lewisham's Parks and Open Spaces Strategy highlights the priorities to preserve and enhance existing green spaces while delivering flood storage and through partnership working convert grey to blue-green infrastructure within highway active travel works.

1.22 Appendix 1 provides an overview of the interrelationship between various documents that deliver flood risk management objectives and an overview of the hierarchy of the national policy and guidance that influences them.

1.23 The Local Flood Risk Management Strategy is a strategic document, which sets out the overarching principles that dictate the approach taken to manage flood risk and outlines a broad range of objectives and actions to deliver these.

Development planning

1.24 Housing and other new development represents a potential increase in flood risk either from being in areas that are prone to flooding or by increasing the amount of water discharged from the site. This is managed through the planning application process, which is set out in the National Planning Policy Framework (NPPF) and other policy documents.

1.25 The Local Strategy does not set out the specific details of these policies or how they are managed. The strategy will include actions to monitor the implementation of these policies that affect local flood risk management and, if appropriate, identify new policies or implementation mechanisms that improve local flood risk management.

Assessment of local flood risk

1.26 A Flood is defined as inundation of water on land that is not normally covered by water. The combination of extensive man-made surfaces and under-lying impermeable geology in Lewisham mean that local rivers respond rapidly to rainfall and are liable to sudden flooding; these factors also increase the risk of surface water flooding.

1.27 The Ravensbourne River valley cuts through the centre of Lewisham and flows south to north from Bromley to the River Thames, the tributes of the River Ravensbourne the River Quaggy, River Pool and Spring Brook all rise in or near the higher ground in the London Borough Bromley.

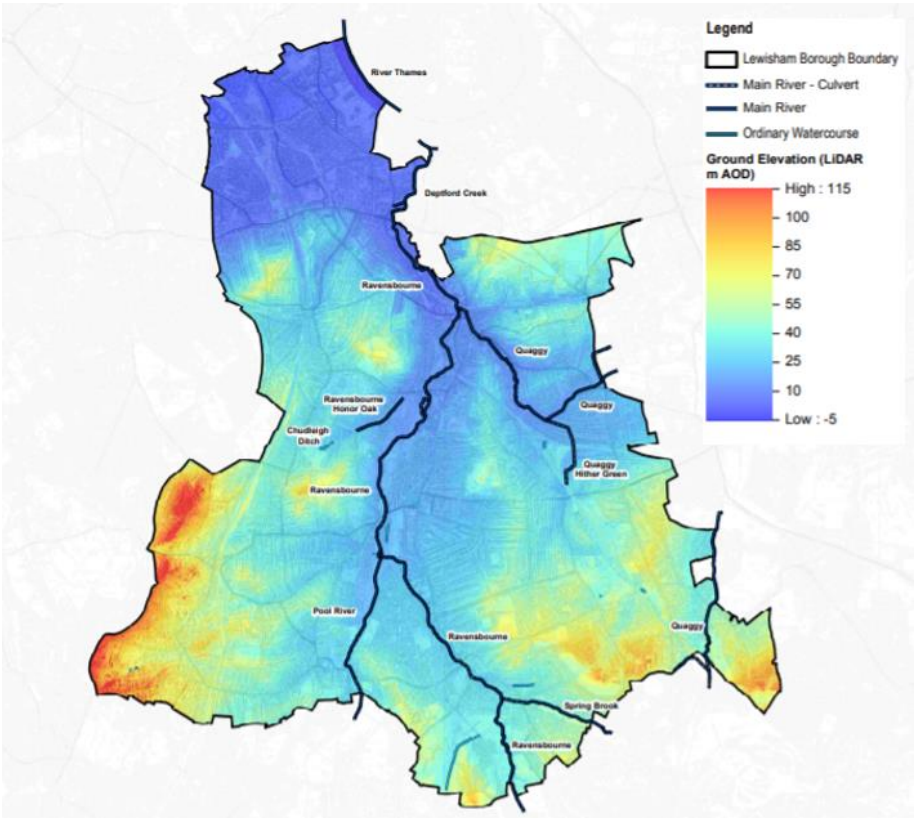

Figure 2: Topography of Lewisham

1.28 The number of properties at risk of flooding in Lewisham is high compared to other local authorities. This is mainly due to the geography and layout of the borough – most properties at risk of flooding are in the River Ravensbourne valley or fall within the Thames tidal breach zone.

1.29 Consequently, a wide range of flood defence systems are required to manage flooding and ensure that Lewisham's residents and businesses are not faced with unacceptable risks or disruption. These defences include all aspects of the drainage networks from simple road gullies to large channelised rivers, floodwalls and flood storage areas.

Sources of flooding

1.30 Like many areas adjacent to the River Thames the communities to the north of the borough are at risk of tidal flooding from the River Thames estuary, particularly Evelyn and New Cross wards. The last time flooding from the River Thames estuary was recorded within the borough was in January 1928, when a storm surge tide overtopped the flood defences.

1.31 Other significant sources of flooding in Lewisham are main rivers and surface water. River flooding can be caused by rain falling far away from the location where flooding actually occurs. The rate of onset of flooding depends on the size and nature of the river catchment. For example, due to the urban nature

of the River Ravensbourne catchment and the location of the rainfall event the lead time for fluvial flooding within the Ravenbourne valley could be between 1 to 6 hours.

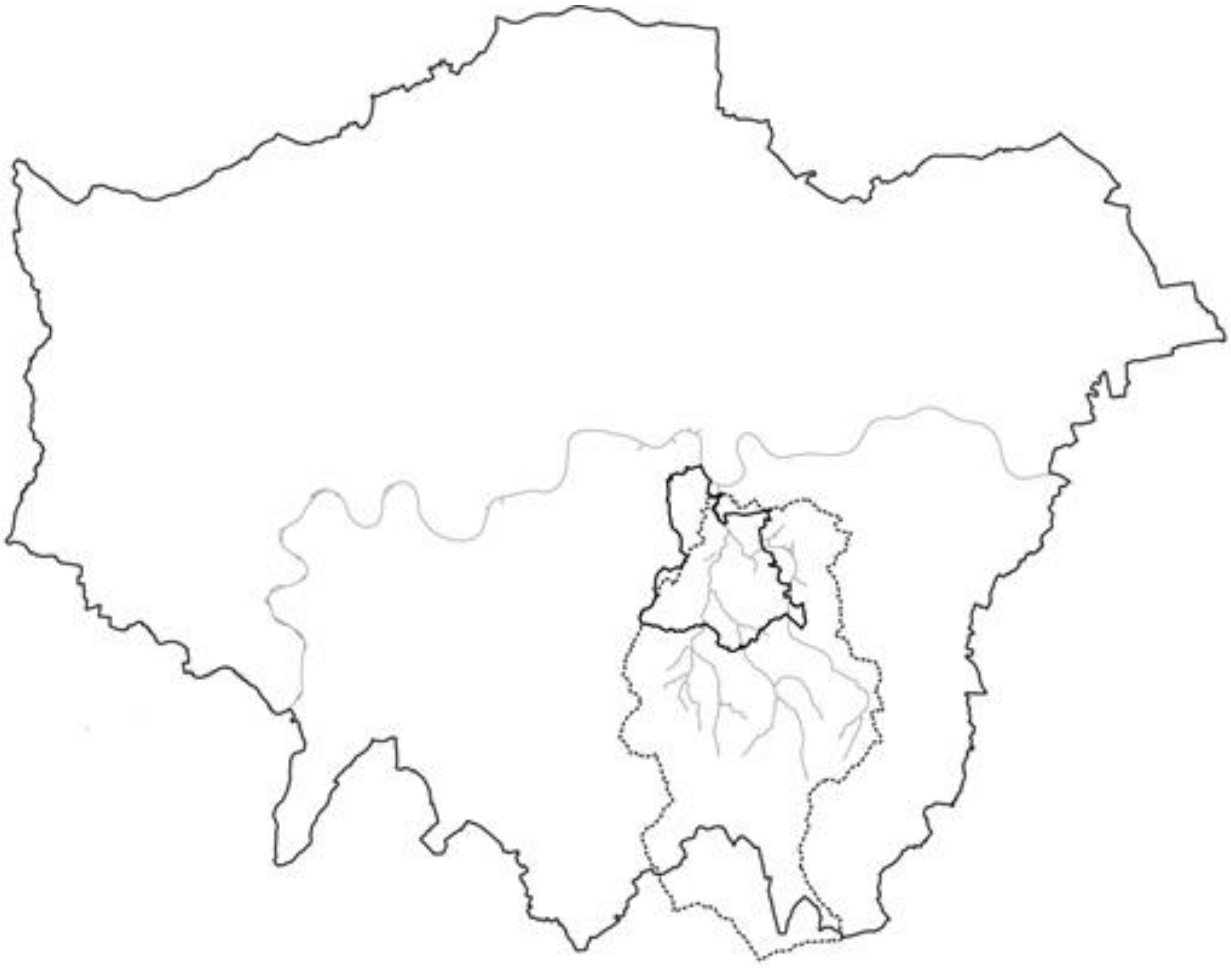

Figure 3: The catchment area of the River Ravensbourne (dotted line), with the boundaries of Lewisham and London superimposed (thick solid lines), the River Thames is also shown (thin solid line)

1.32 Surface water flooding occurs when intense rainfall generates runoff that overwhelms the drainage system leading to ponding and overland flows. Consequently surface water flooding can be highly localised and the onset of flooding is rapid.

1.33 Further sources of flooding include sewers, groundwater and flooding from ordinary watercourses, Table 1 below describes each type of flooding and the relevant risk management authority associated with each of them.

Flood Sources	Definition	Authority
Main Rivers (fluvial flooding)	Flooding caused by overtopping of banks or defences, main rivers are defined by the Environment Agency and are considered to be capable of causing significant flooding	Environment Agency
Tidal	Flooding from the sea or tidal rivers	Environment Agency
Groundwater	Water rises from the ground where permeable rock formations exist; although the bedrock of is London Clay, some of the borough is covered by permeable deposits such as sand and gravel	Lewisham Council
Ordinary Watercourses	Flooding caused by rivers, streams or ditches that are not classed as main rivers	Lewisham Council
Surface Water Runoff	Water that cannot enter the drainage system because it has been overwhelmed or blocked, leads to ponding and overland flows	Lewisham Council
Sewers	Water flows out of sewers due to blockages or lack of capacity	Thames Water
Reservoirs	Reservoir failure leads to sudden inundation of downstream areas (there are no statutory reservoirs in Lewisham)	Environment Agency

Table 1: Different types of flooding and relevant Risk Management Authorities

1.34 Although these flood types are managed separately, it is important to note that they are all inter-related – surface water drains into sewers, sewers and ordinary watercourses flow into main rivers, rivers flow in and out of reservoirs, and so on. Therefore management of the overall system must account for these various interactions.

Flood risk

1.35 Flood risk is a combination of the probability of flooding and the impact of flooding. The probability of flooding is commonly referred to using terms such as a 1 in 100 year flood event, this means that the probability of that flood occurring (or being exceeded) in a given year is 1 in 100 or 1%. This is a statistical expression that is used as a means of quantifying the degree of risk. It does not mean that flooding will only occur once every 100 years. If a flood

with an annual probability of 1 in 100 occurs in a particular year, it is just as likely to occur again the next year or even within the same year.

1.36 The impact of flooding is assessed in computer models by calculating the depth of flooding in a particular area; this can then be related to property damage or disruption to infrastructure allowing the overall consequences of potential flooding to be assessed.

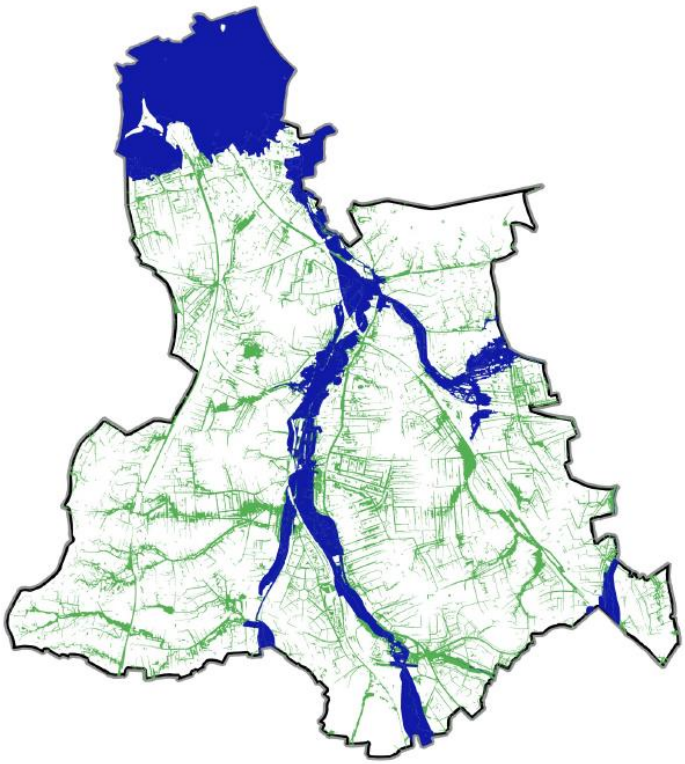

Figure 4: Risk of flooding from rivers (blue) and surface water (green) 0.1% annual exceedance probability

1.37 Figure 4 demonstrates the difference in spatial extent between fluvial and surface water flood risk in Lewisham. While fluvial flooding is generally restricted to fairly well defined river valleys and floodplains, surface water flooding is more widespread and is not confined to river valleys. The surface water flood map also represents the best available source of information for flood risk relating to ordinary watercourses, which in most cases have not been studied independently. It is important to note that these maps show the expected maximum extent of flooding for an event with an annual probability of 1 in 100. Within these areas there are varying degrees of risk – some areas are far more likely to flood than others and some areas will be subject to more severe flooding than other

2 Flood Risk Management

2.1 Existing drainage systems and other flood defences are under constant pressure due to processes such as climate change and urban creep – urban creep is the process whereby the impermeability of an urban area increases over time, due to modifications to individual properties. Continual maintenance and improvements of flood defences are required just to keep flood risk at existing levels.

2.2 Opportunities to reduce flood risk further are continually being sought. This is increasingly feasible because of the availability of new techniques such as computational hydraulic modelling. Applying these techniques as part of Lewisham's Surface Water Management Plan has improved the understanding of flood risk across the borough. Several studies have recently been carried out in high-risk areas that look in detail at the interactions between rivers, surface water and sewers. This allows identification of the highest risk areas and provides tools to evaluate the most effective flood risk management measures.

2.3 If no action were taken to manage flood risk, increased flooding would occur and the consequences could be severe. The cost of this damage and disruption would outweigh the cost of continuing to manage flood risk. The cost effectiveness of flood risk management measures is tested by calculating the costs and benefits for the proposals. Only proposals that demonstrate a sufficiently high benefit to cost ratio are implemented.

2.4 The most effective types of measures are those that reduce runoff rates either by storing water in open spaces upstream of flood risk areas or by reducing the amount of impermeable surfacing which is the main generator of runoff in urban areas. Reducing runoff rates benefits all types of flood risk throughout the catchment whereas alternative measures such as constructing flood walls on rivers benefit only a specific area and can have negative impacts elsewhere.

Progress since the previous strategy

2.5 Lewisham Council published its previous Local Flood Risk Management Strategy in 2015. The strategy included 64 separate actions assessed against national, sub-regional and local objectives. A cost of each of the actions was estimated and they were prioritised as 'Very High'; 'High'; 'Moderate' and 'Low'. The actions are wide ranging in nature, some specific and localised, while others are very general in nature. A key issue with the 2015 strategy is the very high costs of the actions, estimated at between £20m-£40m, which are unfunded and in the main not the responsibility of the Council.

2.6 A key focus of the previous strategy was to increase capacity and the evidence base to support delivery of the Lead Local Flood Authority function. This work has included:

- Identification and risk assessment of ordinary watercourses in the borough (2017) and delivery of remedial works on Lewisham land (2018);
- GIS mapping of flood incidents identified through calls to the Council's Access Point and reports by the Highway Inspectors' Team, triangulated against rainfall records, Environment Agency flood alerts and Thames Water data (2017);
- Commissioning consultants to provide technical assessments of planning applications for major developments (2017);
- Review of GIS mapping data against the priorities in the 2015 Strategy and identification of projects likely to attract external funding (2018);
- Review and prioritisation of Lewisham gully cleansing (2018);
- Development and submission of capital flood alleviation schemes 'Verdant Lane' and 'Beckenham Place Park' projects onto the Environment Agency Grant in Aid funding programme (2019);
- Creation and recruitment to a new Flood Risk Manager post within the Council (2019);
- Successful bid for funding from the Department of Environment Farming and Rural Affairs (DEFRA) for surface water modelling (2019);
- Updating the Multi Agency Flood Plan (2021);
- Completion of drainage works within Hither Green Cemetery to reduce the risk of flooding to the adjacent strategic railway track (2022);

2.7 The Council updated its Preliminary Flood Risk Assessment in 2017. The Preliminary Flood Risk Assessment is a requirement under the Flood Risk Regulations 2009 and provides a high level summary of flood risk from surface water, groundwater, sewers and ordinary watercourses and any interaction these have with main rivers.

2.8 A Strategic Flood Risk Assessment Level 1 and Level 2 as required under the National Planning Policy Framework was completed in 2019 and 2020 respectively to support the development of Lewisham's new draft Local Plan and move development away from the most vulnerable locations.

Understanding and predicting flooding

2.9 Climate change is likely to affect flood risk through sea level rise, more frequent and higher storm surges, increased winter rainfall, drier summers with periods of more intense summer rainfall. These effects are likely to result in increased frequency and magnitude of flooding in Lewisham. No climate model can give a single definite answer to what the future will look like, however, Climate Projections 2018 (UKCP18) predicts that winter rainfall could increase by around 20% by 2080 with greater intensity of rainfall increasing the risk of flooding[4] (Table 2).

[4] https://www.metoffice.gov.uk/

2.10 As such, there is clear need and demand to take proactive action to reduce current and future impacts of flooding. Local flood risk in particular is likely to be affected by climate change from:

- increasing rainfall intensities in the summer, leading to more intense rain storms and flash flooding of surface water and small ordinary watercourse;
- increased rainfall volumes in the winter leading to more fluvial flooding, including ordinary watercourses high levels on rivers can reduce the ability of ordinary watercourses and drainage networks to discharge; and
- increased rainfall can lead to significant groundwater recharge, which can cause groundwater flooding.

	Summer rainfall % change	**Winter rainfall % change**
1990-2025	-5.9	+10.3
2025-2050	-26.5	+8.9
2050-2080	-33.9	+19.7

Table 2: predicted changes in rainfall volume

2.11 Sea levels are predicted to rise with consequential increases in flood risk from the tidal Thames and we are reliant on Government investment and the work of the Environment Agency to ensure this risk is understood and matched by sufficient investment and action. The Environment Agency's TE2100 plan is designed to do this with the Thames Barrier and any future replacement infrastructure there to provide protection alongside enhancements to local flood defences.

Wider benefits

2.12 Flood risk management is part of a wider environmental management and community support framework. Activities to manage the environment and support communities can have flood risk management benefits and flood risk management activities can have other environmental and societal benefits. Identifying opportunities to deliver other environmental and societal benefits is important in delivering any works as it helps to provide multiple benefits. It can also provide an opportunity for additional funding and support for the measures. Examples of areas that flood risk management work can provide other benefits include:

- Providing habitat to enhance the environment – planting trees, creating ponds and wetland features, and providing blue/green infrastructure to create habitat also reduces and manages runoff and contributes to flood risk management.
- Supporting communities to improve their resilience – many communities are at risk of flooding, which is a significant cause of

disruption, supporting them to manage this as a community can help to improve their resilience to flooding and climate change and lead to wider community actions.

- Improving local landscape character – many landscape features, such as trees, ponds, ditches, hedgerows, contribute to flood risk management, by supporting the maintenance and enhancement of landscape character flood risk can also be managed.

The Local Strategy will seek to identify opportunities to deliver multiple benefits through delivering blue green infrastructure.

Figure 5: River Ravensbourne at Cornmill Gardens

3 Principles, Objectives and KPI's

3.1 The core flood risk management principles set out our overarching approach to flood risk management, cutting across our objectives, helping us to determine our priorities, while ensuring that a consistent approach to project delivery of each action is taken.

3.2 The strategy objectives clearly present our ambitions for managing local flood risk, improving our understanding of risk and developing an evidence base that allows us to act to reduce flood risk; they enable us to ensure that development reduces the risk of flooding and that local residents and businesses are aware of the risk they face and empowered to act to reduce that risk.

Core Principles

3.3 Improve the borough's resilience to flooding and protect the most vulnerable:

- Understand and respond to the impact of a changing climate through a dynamic approach to flood risk management;
- Target investment and planning on flood risk to support the borough's most vulnerable individuals and communities;
- Support decision-making across the Council that ensures future development across Lewisham reduces flood risk.

3.4 Take an evidenced-based approach when assessing investment needs and prioritising project delivery:

- Use flood risk data and modelling to understand the risks of river, surface water and groundwater flooding;
- Identify flood infrastructure in the borough and understand their condition and potential impact on flood risk;
- Ensure the Council takes a strategic approach to flooding through its work as a Lead Local Flood Authority, Highways Authority, Planning Authority and in the service delivery of relevant Council functions.

3.5 Work in partnership to deliver multiple benefits through coordinated action:

- Deliver projects collaboratively with Risk Management Authorities locally, subregionally and across London securing partnership funding to achieve cost effective solutions with a range of benefits;
- Cooperate with internal stakeholders and service teams to ensure that SuDS (sustainable drainage systems) are integrated into other programmes of works;
- Integrate adaptation and investment in green infrastructure as part of Lewisham's response to the Climate Emergency promoting a natural and healthy environment for the benefit of residents and wildlife.

Objectives

3.6 The following objectives for managing local flood risk aim to reduce the risk and impact of flooding on the borough. The objectives for this strategy reflect the need to progress with the improvements achieved to date and to address the future challenges that face Lewisham.

3.7 Local Flood Risk Management Strategy Objectives:

1. **Understanding Risk and opportunity –** Risk Management Authorities in Lewisham have a clear understanding of local flood risk and management opportunities and this understanding is shared with partners to create an evidence base for the management of flood risk which enables Lewisham to target resources where they are most effective
2. **Reducing the Risk of Flooding** – Protect the people and businesses of Lewisham from flooding through investment in flood risk management projects and programmes using new or innovative techniques where appropriate
3. **Resilient Planning** – Development and spatial planning in Lewisham takes account of flood risk issues, reduces the causes of flooding and plans to effectively manage any impacts and through the re-development of previously developed land, reduces overall flood risk.
4. **Resilient Communities** – Residents and businesses of Lewisham have access to appropriate data and information to understand flood risk in their area, how it is managed and by who. Communities are empowered to act to protect themselves from flooding through individual efforts, partnerships and joint working

Objective 1 – Understanding risk and opportunity

Risk Management Authorities in Lewisham have a clear understanding of local flood risk and management opportunities and this understanding is shared with partners to create an evidence base for the management of flood risk which enables Lewisham to target resources where they are most effective.

Flood Modelling

3.8 The Environment Agency's Risk of Flooding from Surface Water (RoFSW) currently represents the best information available on surface water flood risk across the borough.

3.9 The Environment Agency's RoFSW models overland flows on the surface that result from extreme rainfall events but it does not explicitly model the underground drainage system – it accounts for this by 'losing' a certain amount of water below ground. In general this works well as in most cases fairly reliable assumptions can be made regarding the drainage system. However, it does not work well in certain cases, particularly where flood alleviation schemes have previously been implemented in response to known flood problems or where interaction with rivers plays a key role.

3.10 Consequently, Lewisham Council have carried a series of detailed modelling studies looking at high-risk areas that explicitly model the interactions between above and below ground drainage systems including main rivers, ordinary watercourses, sewers and surface water.

3.11 The results of these studies will be used to update future versions of the Environment Agency's national surface water mapping. This will then be adopted as the standard surface water flood map and be published on the Council website and on the Environment Agency website under 'Risk of Flooding from Surface Water'.

Flood Incidents

3.12 The Council seeks to collect and record detailed information when flood incidents occur. Flooding in this context is defined as an inundation by water that causes damage to property or disruption to services. Recording flood incidents enhances understanding of flood risk and can be used to validate and improve models, as well as providing first hand evidence of flooding. Lewisham record flood incident information on a database. Members of the public can report flood incidents to the Council using the following methods:

- Website – https://lewisham.gov.uk/myservices/roads-and-transport/roads-and-pavements/flooding-and-leaks
- Email – flooding@lewisham.gov.uk

Surface Water Management Plan

3.13 Lewisham published its Surface Water Management Plan in 2008, it outlines the preferred surface water management strategy in a given location. As the information relating to surface water flooding has improved significantly in recent years it is recommended that the SWMP be updated. It is vital to establish a long-term action plan that is based on the most up to date information available to manage surface water.

Sustainable Drainage Opportunities

3.14 The Council as a landowner manages parks and open spaces, corporate buildings, housing, car parks, schools and highway infrastructure sustainable drainage measures could be used within all of those spaces to manage surface water and provide additional benefit to the landowner. It is crucial to understand the most effective locations to retrofit sustainable drainage measures.

Asset Management

3.15 Maintenance of flood risk management assets is the responsibility of the asset owner. A large number of such assets are on or under the highway network.

3.16 Routine maintenance includes day-to-day activities such as cleaning highway gullies and removing litter and other detritus from the streets. These actions help to ensure that important features of the drainage network such as gullies, pipes and grilles are less likely to become blocked and thereby lead to flooding.

3.17 Lewisham Council considers any asset that has the potential to cause flooding through individual failure to be significant. Therefore large assets such as culverted watercourses, raised flood defences, flood storage areas and underground tanks are considered to be significant whereas individual highway gullies are not. Lewisham LLFA maintain the flood risk management asset register.

Key Performance Indicators

Objective 1 – Understanding risk and opportunity	
KPIs	1. Number of flood incidents recorded 2. Spend on remediation work to enhance flood risk management assets

Objective 2 – Reducing the risk of flooding

Protect the people and businesses of Lewisham from flooding through investment in flood risk management projects and programmes using new or innovative techniques where appropriate.

Retrofitting Sustainable Drainage

3.18 To maximise the multiple benefits of sustainable drainage in existing communities it is essential to identify and implement opportunities to retrofit SuDS. There are many situations where such measures can be carried out cost effectively, for example:

- Regeneration projects – projects to enhance public spaces create opportunities to improve drainage by implementing multi-functional measures such as rain gardens and permeable paving
- Footway schemes – works on the footway often provide opportunities to implement SuDS, for example by converting conventional highway verges and planted areas, which are usually raised, to rain gardens which are shallow depressed areas of vegetation that can accept, store and drain rainwater runoff; opportunities to install permeable paving should also be exploited both on footways and carriageways however such schemes can be limited by existing constraints such as buried services and the high cost of full re-construction
- Tree planting – planting street trees into SuDS trees pits help to store surface water, risking the risk of localised surface water on the highway. SuDS trees pits help to reduce water stress in dry periods and the likelihood of tree roots protruding toward the surface.
- Traffic calming schemes – works that involve restricting traffic in some way to promote safety measures can often be combined with SuDS implementation at minimal additional cost
- Car parks – these often have potential to be converted to store shallow depths of flood water during extreme flood events without significantly affecting their serviceability; for example creating a 100mm high kerb or bund around a fairly flat car park whilst leaving the conventional drainage system intact can store relatively large volumes of water at low cost; such schemes can be enhanced further by replacing the conventional drainage systems with additional SuDS features
- Refurbishment of large estates – large sites such as hospitals, business and industrial areas implement routinely carry out refurbishment and renewal works, such schemes create opportunities to implement SuDS
- Schools – present a number of opportunities for SuDS, which can be used to enhance the school landscape design and provide a range of educational and play opportunities. Schools typically have significant external spaces, both hard and soft landscaped, which are ideal for

retrofitting sustainable drainage features. An additional benefit of delivering SuDS in schools is the opportunity to integrate the measures with the school curriculum and thereby provide first-hand educational opportunities.

- Parks and open spaces - creating flood storage areas in parks and open spaces often involves restoring natural floodplains and constructing wetlands, through careful design such areas can be used to maximise storage during extreme flood events while remaining serviceable for day-to-day use.

Flood Alleviation Schemes

3.19 Risk management authorities can construct flood storage areas, flood defences, or other works to reduce the risk of flooding to an area. The optimum design and its cost effectiveness would normally be confirmed through hydraulic modelling. If modelling shows that no suitable option can be identified, then other steps such as individual property protection measures will be consider to manage the risk.

Natural Flood Management & Nature-based Solutions

3.20 The area of mostly permeable land adjacent to the railway line that runs from Grove Park Station to the South Circular provides vital natural flood resilience which helps to reduce the risk of flooding to critical infrastructure (verdant lane/south circular junction and the strategic railway line) downstream.

3.21 The creation of a district park in this location provides an opportunity to enhance and adapt the landscape using Nature-based solutions; the adapted landscape could attenuate a greater amount of rainwater and provide greater flood risk benefit in times of deluge, retaining peak storm flows in natural features which will help to boost local biodiversity.

3.22 The Council working with the Baring Trust and other local partners aims to protect and improve flood mitigation benefit of permeable natural sites across the borough by introducing Natural Flood Management techniques such as wetland restoration, using woody debris to slow flows and tree planting.

Water Framework Directive

3.23 The Water Framework Directive requires local authorities and other stakeholders to take actions to improve the status of water bodies based on a wide range of measures including biological and chemical indicators. Most of the rivers in Lewisham are classed as ‘heavily modified’ due to the extent of urbanisation and associated modifications to watercourses in the borough.

3.24 Poor water quality caused by urban pollution is a serious and widespread issue afflicting Lewisham’s rivers. As well as causing loss of wildlife, unsightly polluted watercourses and unpleasant odours can blight nearby areas and in

some cases affect the health and well-being of local residents. Sources of pollution include highway runoff, industrial areas and litter. A major pollution source that is very challenging to control is misconnected sewers. These often involve small DIY installations such as kitchen sinks and washing machines that are 'misconnected' to the wrong sewer outfall, the result is that the effluent from these devices is delivered straight to the nearest river instead of going to the sewage treatment works.

3.25 Lewisham Council work with Thames Water to identify and rectify misconnections; however, it is not possible to identify and eliminate all misconnected properties. In some areas wetlands planted with reeds can be used to mitigate the impacts of residual pollution and contribute to meeting Water Framework Directive objectives.

3.26 The Council aims to maximise opportunities to restore or enhance water features and achieve the following key benefits for all flood alleviation schemes under consideration:

- Reduce flood risk
- Improve water quality
- Enhance amenity value for local residents
- Create or improve wildlife habitats
- Protect or restore river corridors by naturalising heavily modified watercourses where opportunities exist

Thames Estuary 2100

3.27 Tackling flood risk requires local and regional action. The Thames Estuary 2100 Plan identifies the need to raise flood defences in central London by 0.5m by 2065 and by 1 m by 2100, to provide protection up to a 1:10,000-year standard. These dates may need to be brought forward if sea level rise accelerates.

3.28 The Environment Agency's Thames Estuary 2100 Plan requires flood defence raising in Lewisham alongside replacement of the Thames barrier to provide continued protection. The Council will facilitate plans to raise flood defences on the borough's riverside to protect Lewisham against higher tides.

Key Performance Indicators

Objective 2 – Reduce the risk of flooding	
KPIs	1. Number of properties and businesses that have reduced risk of flooding as a result of flood mitigation projects and SuDS 2. Additional storage of flood water in the public realm 3. Spend on delivery of flood risk management projects 4. Area of hardstanding surfaces disconnected from the drainage system 5. Length of river restored through river restoration activities 6. Number SuDS tree pits planted
Targets for 2027	1. 1000 properties with a reduce risk of flooding 2. 25,000m^3 of addition flood storage in the public realm 3. 2000m2 of impermeable surface disconnected from the public sewers

Objective 3 – Resilient Planning

Development and spatial planning in Lewisham takes account of flood risk issues, reduces the causes of flooding and plans to effectively manage any impacts and through the re-development of previously developed land, reduces overall flood risk.

Sustainable Drainage

3.29 New developments, particularly the re-development of brownfield sites, provide opportunities to reduce overall flood risk, through the use of Sustainable Drainage Systems (SuDS) and by allowing space for flood storage and overland flows.

3.30 Lewisham's Local Plan includes policies that require all new developments to maximise the use of SuDS and restrict surface water runoff rates to greenfield rates where possible. These systems include measures such as green roofs, permeable paving and rainwater harvesting that mimic natural drainage systems by increasing storage and infiltration, and slowing down the rate of runoff. This reduces the rate and volume of surface water runoff and therefore the risk of flooding further downstream.

3.31 To ensure the potential multiple benefits of SuDS are realised, it is recommended that above ground, green infrastructure SuDS (such as swales, rai gardens and wetland features) are preferred to below ground measures such as underground storage tanks. Green infrastructure SuDS deliver wider benefits than below ground systems which provide flood storage benefits but little else. As well as enhancing the aesthetic value of our surroundings, green infrastructure SuDS can contribute to improving air quality and well-being. Above ground systems are also easier to inspect and maintain and are therefore less prone to failure.

3.32 This recommendation aligns with the drainage hierarchy in the London Plan which requires above ground systems to be considered first. It also addresses requirements in paragraphs 109 and 114 of the National Planning Policy Framework to recognise the wider benefits of ecosystem services and plan positively for the creation, protection, enhancement and management of networks of biodiversity and green infrastructure. Lewisham have developed a Lewisham SuDS Guide that provides further information regarding the use of SuDS with specific reference to Lewisham's urban character and local geographical conditions.

Safe Development

3.33 To be classed as safe any development in or near flood risk areas must:

- Provide a dry access route above the 100 year plus climate change flood level or, where appropriate modelled data exists, an access route within the low hazard area of the floodplain (as defined by the Environment Agency's Flood Risk Assessment Guidance for New Development R&D Technical Report FD2320) to and from any residential development should be provided;
- Finished floor levels should be set at least 300mm above the 100 year plus climate change flood level; to achieve this without increasing flood risk elsewhere, it must be shown that there will be no net loss of flood storage and that overland flow routes will not be obstructed;
- For surface water flooding, a 100mm freeboard instead of 300mm may be considered.

3.34 The National Planning Policy Framework contain policies that avoid locating vulnerable uses, such as basement dwellings or essential infrastructure, in areas that are at risk of flooding.

Key Performance Indicators

Objective 3 – Resilient Planning	
KPIs	1. Number of minor developers that have implemented SuDS measures 2. Percentage of major development that provide over a 90% betterment from pre to post development attenuation rates

Objective 4 – Resilient communities

Residents and businesses of Lewisham have access to appropriate data and information to understand flood risk in their area, how it is managed and by who. Communities are empowered to act to protect themselves from flooding through individual efforts, partnerships and joint working.

Preparedness

3.35 It is vital to recognise that even with a wide range of flood defences in place, residual flood risk will still exist; this is due primarily to two factors:

- Exceedance events – extreme storms can occur that exceed the design standards of the flood defences;
- Structural failure – flood defences have the potential to fail either through blockages or structural collapse, such failures are often associated with inadequate maintenance;
- Technical unfeasibility – with the impact of climate change it may not be uneconomically viable to defend all areas at risk of flooding.

In areas where significant residual flood risk remains it is important that communities and businesses are adequately prepared.

Flood resilience

3.36 Where residual flood risk remains and no other suitable flood risk reduction measures can be identified, individual property protection measures can be used as a last resort to minimise the potential consequences of flooding. For shallow flooding depths a water exclusion policy may sometimes be appropriate using flood gates across doorways or air brick covers.

3.37 Flood resilience measures allow water to enter properties but aim to reduce the damage caused when it does. Examples of flood resilient design measures include raising electrical circuits and other services, and using waterproof floor and wall coverings such as tiles or concrete rather than timber or plaster. Such properties may need to be evacuated temporarily during flood events but can be re-entered relatively quickly. Conventional properties that experience flooding can require many months, and large financial sums, to be returned to their pre-flood condition. These measures are not ideal; however, they can significantly reduce the costs and disruption caused by flooding

Flood Insurance

3.38 Property insurance claims for flood damage across the UK have increased significantly over recent years and are likely to increase further due to the impacts of climate change. Since 2000, flood insurers have been providing

cover under a 'Statement of Principles' agreement with the Government, which ensures that flood insurance is available to householders and small and medium sized enterprises (SMEs). Large commercial properties are not covered by the Statement of Principles and therefore need to arrange for flood risk insurance at market rates.

3.39 The Government and the insurance industry made an agreement in 2013 to take forward the Flood Reinsurance Scheme (Flood Re) as the preferred approach to addressing the availability and affordability of flood insurance. The Flood Re scheme is a not-for-profit flood reinsurance fund, owned and managed by the insurance industry, and established to ensure that those domestic properties in the UK at the highest risk of flooding can receive affordable cover for the flood element of their household property insurance.

Multi-Agency Flood Plan

3.40 Lewisham Council aims to take action before, during and after flooding in order to mitigate the effects of any extreme rainfall or fluvial flood events. The procedures to be followed are set out in detail in the Multi-Agency Flood Plan. This document was prepared by Lewisham's Emergency Planning Team in partnership with a number of external agencies including the Metropolitan Police, the London Fire Brigade and the Environment Agency. It includes a risk assessment for critical infrastructure across the borough, this ensures that the risks are well understood and can be managed accordingly.

3.41 Council officers in the Emergency Planning, Green Scene, Highways and Corporate Assets teams monitor Flood Guidance Statements issued by the Flood Forecasting Centre and the Environment Agency's Flood Alerts and Warnings – the latter are based primarily on river levels rather than surface water flood risk.

Partnership working

3.42 Flooding does not stay within local authority boundaries, it is therefore essential that LLFAs work in partnership with neighbouring authorities, the Ravensbourne Catchment Group and with a range of agencies to create a comprehensive understanding of flood risk and determine a suitable plan of actions to manage that risk.

3.43 The Flood and Water Management Act group which include representatives from Lewisham's Green Scene, Emergency Planning, Highways and Planning Policy teams meet to discuss ongoing activities and policy development. This provides an opportunity for officers from different departments that have responsibilities for flooding to share information and coordinate activities across the Council.

Key Performance Indicators

Objective 4 – Resilient Communities	
KPIs	1. Number of residents engaged about flood risk management risk through events 2. Number of school children engaged about flood risk management 3. Number of volunteers that have agreed to assist with the maintenance of blue-green infrastructure
Target	1. 1000 volunteers engaged specifically on maintenance of blue-green infrastructure by 2027 2. 600 school pupils engaged on the implementation of sustainable drainage and climate adaptation by 2027

4 Action Plan

4.1 As LLFA, Lewisham Council will take the lead role in implementing this strategy and coordinating activities with other risk management authorities to address flood risk across the borough. Lewisham will carry out many of the actions identified in the action plan using existing resources. Lewisham is allocated an annual budget for LLFA activities; the Highways, Climate Resilience Team, Planning, Emergency Planning and Green Scene teams carry out most of these. Some actions will require additional funding for staff resources, expert consultancy fees and direct project funding. A number of other external sources of funding and resources will be utilised where available:

- Funding can be obtained from Defra's Flood Defence Grant in Aid (FDGiA) and the Thames Regional Flood and Coastal Committee's local levy, both administered by the Environment Agency, for local flood risk investigations and for implementation of flood alleviation schemes that deliver suitable reductions in flood risk;
- Thames Water can fund flood alleviation works on the sewer network where the appropriate criteria are fulfilled;
- Utility companies and property owners are responsible for site specific flood risk alleviation, resistance and resilience of their premises;
- Developers are required to ensure that flood risks are addressed and to implement SuDS as part of new developments, contributions to flood alleviation schemes can be achieved through Community Infrastructure Levy payments or Section 106 agreements.

4.2 The Action Plan covers the 4 objectives: understanding risk and opportunity, reducing the risk of flooding, resilient planning and resilient communities.

4.3 To support delivery and development of the Action Plan, each action has a reference number and an indication of the timeframe for delivery, the cost and the owner of the action. Given the scope of work, the complexity of many of the actions and the 5-year timeframe there are a wide range of variables involved. Changes to costs, resources, technology as well as variable nature of flood risk event will require changes to the Action Plan which will need to be regularly reviewed and updated.

4.4 Specific delivery dates have been used to highlight when the action will be completed. Actions shown as on-going display continuing programmes of work, where progress will be tracked by an associated KPIs

Objective 1 – Understanding risk and opportunity			
Ref	**Action**	**Owner**	**Time-frame**
1.01	Produce a database for planned council works in the public realm, parks and open spaces to maximise integration of flood adaptation in the Council wider programme of works	Inclusive regeneration	April 2023
1.02	Produce a shared SuDS Opportunities Register showing where flood storage could be incorporated into the public realm	Climate resilience team	April 2023
1.03	Record flood incidents and share data with partners to develop a picture of flood risk across the borough	LLFA	On-going
1.04	Maintain a register of significant flood risk management assets to ensure that the condition major assets is known	LLFA	On-going
1.05	Conduct a Surface Water Management Plan to identify options to manage flood risk to an acceptable level	Climate resilience team	March 2025
1.06	Identify ownership and condition of assets that fall under the Thames Estuary 2100 Plan	LLFA	March 2025
1.07	Conduct an asset and performance review of all highway drainage, culverts and flood risk management assets in Lewisham to help prioritise future asset management maintenance in the borough	Highways	On-going
1.08	Internal flooding group to review actions on a yearly basis and identify projects where flood mitigation can be integrated	LLFA	February 2023
1.09	Report Action Plan amendments to the Sustainable Development Select Scrutiny Committee	Climate resilience team	March 2023
Objective 2 – Reducing the risk of flooding			
Ref	**Action**	**Owner**	**Time-frame**
2.01	Conduct flood risk mitigation works on the flood storage area within Chinbrook Meadows to reduce the risk of fluvial flooding on the River Quaggy	Green scene	April 2023
2.02	Deliver a constructed wetlands within Chinbrook Meadows to reduce the risk of siltation of flood risk management assets within the park	Green scene	April 2023

Ref	Action	Owner	Time-frame
2.03	Integrate flood adaptation measures within Dalmain Primary School to reduce the risk of surface water flooding with the Carholme Road critical drainage area	Climate resilience team	September 2022
2.04	Integrate flood adaptation measures within Rathfern Primary School to reduce the risk of surface water flooding with the Carholme Road critical drainage area	Climate resilience team	September 2023
2.05	Construct SuDS tree pits within areas of high surface water flood risk to reduce the likely of localised highway flooding	Climate resilience team	On-going
2.06	Carry out programme of community river restoration activities on the River Ravensbourne, River Pool and River Quaggy to reduce the likelihood of fluvial flooding.	Green scene	On-going
2.07	Plant trees within the public realm, parks and open spaces in critical drainage areas to intercept rainfall and reduce surface water runoff	Green scene	On-going
2.08	Reduce the risk of flooding along the Ravensbourne by creating flood storage in Beckenham Place Park as part of the wider investment in the eastern side of the park	Capital delivery team	December 2023
2.09	Complete a business case for delivering a constructed wetlands within Sydenham Wells Park to reduce the risk of surface water flooding within the Upper Sydenham critical drainage area	Climate resilience team	December 2026
2.10	Complete a business case for delivering a capital flood alleviation scheme at Verdant Lane to reduce the risk of surface water flooding to properties and infrastructure on the Verdant Lane and Brownhill Road	Climate resilience team	December 2026
2.11	Identify opportunities at natural permeable sites across the borough where Nature-based solutions can be implement to reduce the risk of flooding	Climate resilience team	On-going
2.12	Work with partners to develop a masterplan for the Grove Park District Park that identifies areas where nature-based flood risk attenuation can be implemented	LLFA	March 2023

Objective 3 – Resilient Planning			
Ref	**Action**	**Owner**	**Time-frame**
3.01	Produce procedural and guidance documents to enable planning officers to asses sustainable drainage strategies within minor applications to maximise the flood attenuate within new development	Climate resilience team	December 2022
3.02	Update Planning Validation maps to ensure Ordinary Watercourses are identified as planning constraints	Planning validation team	December 2022
3.03	Deliver programme of SuDS training to planning and planning policy officers to ensure that SuDS and flooding benefit is maximised through the development process	Climate resilience team	On-going
3.04	Ensure that (where feasible) all development within critical drainage areas will attenuate to greenfield runoff rates	LLFA	On-going
3.05	New development will contribute over 5000m2 of new blue green infrastructure in the public realm	Climate resilience team	March 2024
3.06	Review opportunities to update planning policy including the Rivers Corridors Improvement SPD to give a greater focus on Ordinary Watercourses	Planning	March 2024
3.07	Review local planning policy in the context of The Environment Bill and other changes to national policy to create opportunities to use offsite contributions for the delivery of blue green interventions within the public realm where developments are not able to do so onsite.	Planning	March 2023

Objective 4 – Resilient communities			
Ref	**Action**	**Owner**	**Time-frame**
4.01	Produce interpretive installations near watercourses that increase public knowledge on risk of flooding within Lewisham	Climate resilience team	December 2022
4.02	Provide information and guidance on small-scale SuDS features and depaving to empower residents to retrofit their properties	Climate resilience team	December 2022
4.03	Create online content to inform residents and landowners of the level of flood risk that they face and the steps they can take to increase resilience	LLFA	December 2022
4.04	Conduct a flood preparedness study which will outline the level of flood risk properties face	Climate resilience team	March 2026
4.05	Review and update the Multi Agency Flood Plan for the borough and hold a repeat local exercise with first responders, council services and others.	LLFA	March 2024

Glossary

Climate change Long-term variations in global temperature and weather patterns, recent predictions suggest that climate change will lead to an increase in the frequency and intensity of storms that cause river and surface water flooding

Depave The replacement of impermeable hardstanding surfaces with permeable soft surfaces

Ecosystem services The benefits people obtain from ecosystems such as food, water, flood control and recreation

Flooding Inundation by water that causes damage to property or disruption to services

Green infrastructure A network of multi-functional green space capable of delivering a wide range of environmental and quality of life benefits

Greenfield runoff rate The rate of runoff that would occur from a site in its undeveloped (and therefore undisturbed) state

Groundwater Water in the saturated zone of the ground below the water table, prolonged wet periods cause the water table to rise which can lead to water seeping out of the ground unexpectedly

Main rivers A watercourse designated on a statutory map maintained by Defra

Natural Flood Management The alteration, restoration or use of landscaped features to slow runoff rates and reduce flood risk downstream

Ordinary watercourses A watercourse that is not a designated main river, a private drain or a public sewer

Rain Garden Small planted detention basins that are designed to temporarily store rainfall runoff and increase infiltration, they can be planted with a wide variety of vegetation capable of tolerating wet and dry conditions

Sustainable drainage system A sequence of management practices and control features that are designed to drain surface water in a more sustainable manner than conventional techniques by increasing storage and infiltration, and slowing down the rate of runoff

Urban creep The process whereby the impermeability of the urban area increases over time, mainly due to modifications to individual properties

Nature-based Solutions Actions to protect, sustainably manage, and restore natural or modified ecosystems, that address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits.

List of Abbreviations and acronyms

LLFA	Lead Local Flood Authority
LFRMS	Local Flood Risk Management Strategy
SWMP	Surface Water Management Plan
SuDS	Sustainable Drainage
EA	Environment Agency
SFRA	Strategic Flood Risk Assessment
NGO	Non-governmental Organisation
GIS	Geographical Information System `
FDGiA	Flood Defence Grant in Aid
S106	Section 106
CIL	Community Infrastructure Levy

References

1. The Flood and Water Management Act, The Stationery Office Ltd, April 2010

2. Strategic Flood Risk Assessment, London Borough of Lewisham, October 2018

3. Preliminary Flood Risk Assessment, London Borough of Lewisham, May 2017

4. Surface Water Management Plan, London Borough of Lewisham, April 2011

6. National Planning Policy Framework, DCLG, March 2012

7. The London Plan, Greater London Authority, March 2021

9. Local Plan, London Borough of Lewisham

10. Multi Agency Flood Plan, London Borough of Lewisham, March 2021

11. The Flood Risk Regulations 2009, The Stationery Office Ltd, December 2009

12. Progress in adapting to climate change, Climate Change Committee, June 2021

Appendix 1 – Legislative and strategic context

Legislative context

Pitt review

The extreme flooding that occurred during the summer of 2007 highlighted the lack of effective management of local flood risk in the UK. This led to publication of the Pitt Review 'Learning Lessons from the 2007 Floods' in December 2008. This report identified that much of the flooding was caused by local sources, such as surface water, rather than river or coastal flooding which have traditionally been the focus of strategic flood risk planning. The review recommended giving local authorities responsibility for coordinating measures to minimise flood risk in their areas.

Flood Risk Regulations 2009

These regulations designate local authorities, such as Lewisham, as Lead Local Flood Authorities with new duties including the requirement to:

- Prepare a preliminary flood risk assessment by June 2011, for publication by the Environment Agency in December 2011, showing the probability of flooding and consequences for human health, the environment, cultural heritage and economic activity
- Prepare flood risk maps and flood hazard maps by June 2013, for publication by the Environment Agency in December 2013
- Prepare a flood risk management plan for areas which are at significant risk of flooding by June 2015, for publication by the environment Agency in December 2015

Flood and Water Management Act 2010

This Act gives Lead Local Flood Authorities the following responsibilities relating the management of local flood risk:

- Develop, maintain, apply and monitor a strategy for local flood risk management in its area, the strategy must specify:
    - The risk management authorities in the authority's area
    - The flood and coastal erosion risk management functions that may be exercised by those authorities in relation to the area
    - 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 strategy
    - How and when the Strategy is to be reviewed

    - How the strategy contributes to the achievement of wider environmental objective
- Investigate flooding incidents and report on the findings
- Establish and maintain a register of structures or features which, in the opinion of the authority, are likely to have a significant effect on 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
- Aim to make a contribution towards the achievement of sustainable development in the discharge of its flood risk duties
- Designate structures or features that affect flooding as designated flood defences which cannot then be altered without consent

Civil Contingencies Act 2004

Local authorities have 7 duties under the Civil Contingencies Act 2004:

- To operate with other local responders to enhance coordination and efficiency
- Ensure information is shared with local responders to enhance coordination
- Carry out risk assessments
- Have emergency plans in place
- Have business continuity management arrangements in place
- Have arrangements in place to warn and inform the public in the event of an Emergency
- Provide advice and assistance to businesses and voluntary organisations regarding business continuity management

Multi Agency Flood Plan

This document describes the roles of the different organisations involved in planning for and responding to severe flood incidents.

National Planning Policy Framework

The National Planning Policy Framework (NPPF) was introduced in 2012 and provides Government guidance on planning. It includes national flood risk policies that describe how flood risk is managed in relation to new development.

Local Plan

The draft Local Plan for Lewisham sets out the vision for shaping the borough and contains the policies by which planning decisions will be made. These include policies that set out Lewisham's approach to managing local flood risk from new development – avoiding inappropriate development in flood risk areas, ensuring that new development is safe from flooding and does not increase flood risk outside of the development site by increasing runoff or displacing flood water.

Appendix 2 – Flood Risk Management Authorities

The table below describes the functions and responsibilities of the Risk Management Authorities that operate in Lewisham, as defined by the Flood and Water Management Act 2010.

Authority	Function	Responsibilities
Lewisham Council	LLFA	Strategic role in overseeing the management of local flood risk including responsibility for: • Preparing and applying a Local Flood Risk Management Strategy • Investigating flood incidents • Maintaining a register of flood risk management assets • Designating appropriate flood assets
Lewisham Council	Local Planning Authority	Ensuring that new development is safe from flooding and does not increase flood risk elsewhere
Lewisham Council	Highways Authority	Duty to maintain the highway including responsibility for drain and gully maintenance on non-strategic roads
Lewisham Council	Category 1 responder	Ensuring that systems and processes are in place to provide emergency response to flooding
Lewisham Council	Green Scene	Duty to maintain flood risk management assets within Lewisham parks and open spaces
Environment Agency	Strategic roles	National strategic responsibility for overseeing flood risk actions with regard to the Flood Risk Regulations 2009 and the Flood and Water Management Act 2010
Environment Agency	Operational role	Responsible for overseeing maintenance of flood defences such as the River Lee Flood Relief Channel Management of flooding from reservoirs, main rivers and the sea Advisory Emergency Planning role in assessment of Multi Agency Flood Plans Advisory Planning role in assessment of flood risk associated with planning policy and development
Thames Water	Sewerage undertaker	Responsible for provision and maintenance of the sewer network Upgrade of sewer network to facilitate increased drainage capacity requirements

Authority	Function	Responsibilities
Transport for London	Transport infrastructure provider	Responsible for provision and maintenance of strategic road network and London Underground and bus networks ensuring their resilience to flood risk
Neighbouring boroughs	LLFAs	Strategic role in overseeing the management of local flood risk in their areas and liaison with other LLFAs affected

The following key partners are not formally defined as Risk Management Authorities but nevertheless play critical roles in the management of flood risk in Lewisham.

Authority	Function	Responsibilities
Network Rail	Transport infrastructure providers	Responsible for provision and maintenance of railway network and their resilience to flood risk
Greater London Authority	Drain London	Facilitation of co-ordinated working on flood risk across London including provision of guidance and information
Business and residents	Property owners	Responsible for flood resistance and resilience, and emergency and contingency planning associated with properties
Utility companies	Utility providers	Responsible for provision and maintenance of utility infrastructure – electricity, gas telecommunications, etc and ensuring its resilience to flood risk
Emergency Services	Emergency response	Responsible for minimising the impact of extreme flood events and responding to emergency situations