

Catchment Strategic Plan

Part of our Drainage and Wastewater Management Plan (DWMP)

Co-creating resilient wastewater catchments

A long-term Strategic Plan for the **Long Reach** System



Contents

Preface	3
Catchment strategic plan glossary	6
Introduction	7
Our co-creators	9
Partners' policies	10
Issues today	11
Our predictions for the future	12
Sustainable solutions	13
Partnership working - case studies	14
Our shared plan	15
Developing our preferred plan for Long Reach	16
Our preferred plan for Long Reach	17
Our preferred 25 year plan for Long Reach	18
Next steps	19
Our shared plan at catchment level	20
Risk zone summary table	24
Navigation index	25
Work with us	26

Foreword



Thames Water has been making considerable progress to bring to fruition their drainage and wastewater management plan (DWMP). The DWMP vision is to co-create a 25-year plan

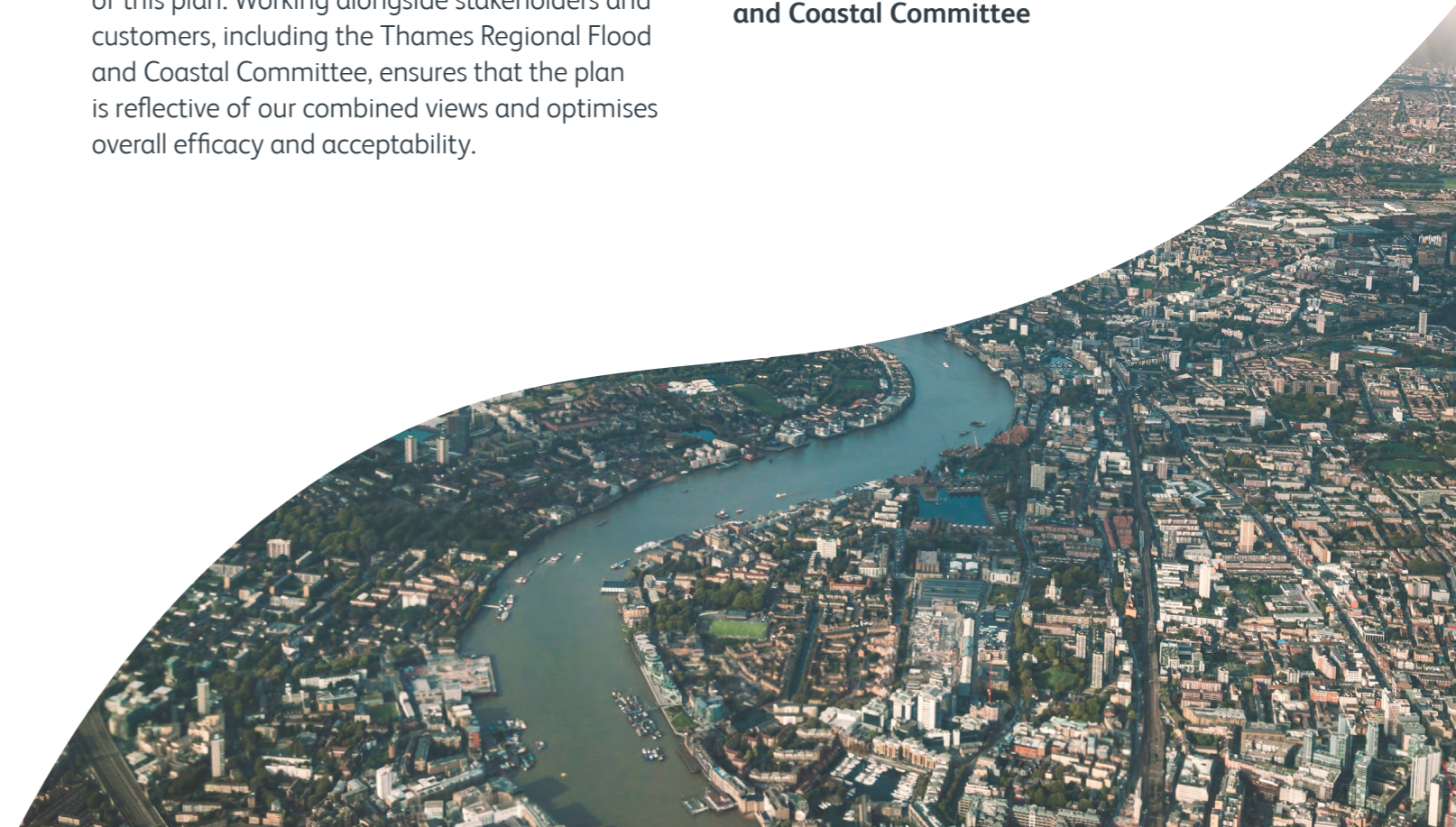
for drainage and wastewater that benefits communities and the natural environment in London and the Thames Valley. We can all agree that planning to adapt to the growing critical pressures facing the water industry, such as climate change, a growing population and urbanisation, is of paramount importance and it has been very good to see that these challenges have been faced head on in the development of this plan.

Thames Water's commitment to achieve the DWMP vision through a collaborative process is one of the most important and admirable themes of this plan. Working alongside stakeholders and customers, including the Thames Regional Flood and Coastal Committee, ensures that the plan is reflective of our combined views and optimises overall efficacy and acceptability.

I have thoroughly enjoyed being part of this process and have been impressed by the extent of engagement that Thames Water has managed to undertake despite the challenging conditions of the coronavirus pandemic. As a result, I believe that the DWMP offers a significant step forward in planning for drainage and wastewater in our region.

Of course, the real changes will only happen once the plan is implemented on the ground, but the joined-up work and co-creation of the DWMP plan so far promises significant improvements for customers, communities and the natural environment across London and the Thames Valley. Continued focus on maintaining a tight relationship with all stakeholders is essential in moving forward to ensure Thames Water reaches their ambitious goals.

Professor Robert Van de Noort
Chair, Thames Regional Flood
and Coastal Committee



Preface

Our DWMP progress and enhancements since our draft plan

We're proud of our first DWMP, and encouraged by the level of positive feedback we've received. By engaging and working collaboratively with around 2,000 of our customers and stakeholders, we've been able to deepen our shared understanding as well as develop new ways to approach drainage and wastewater management across our region.

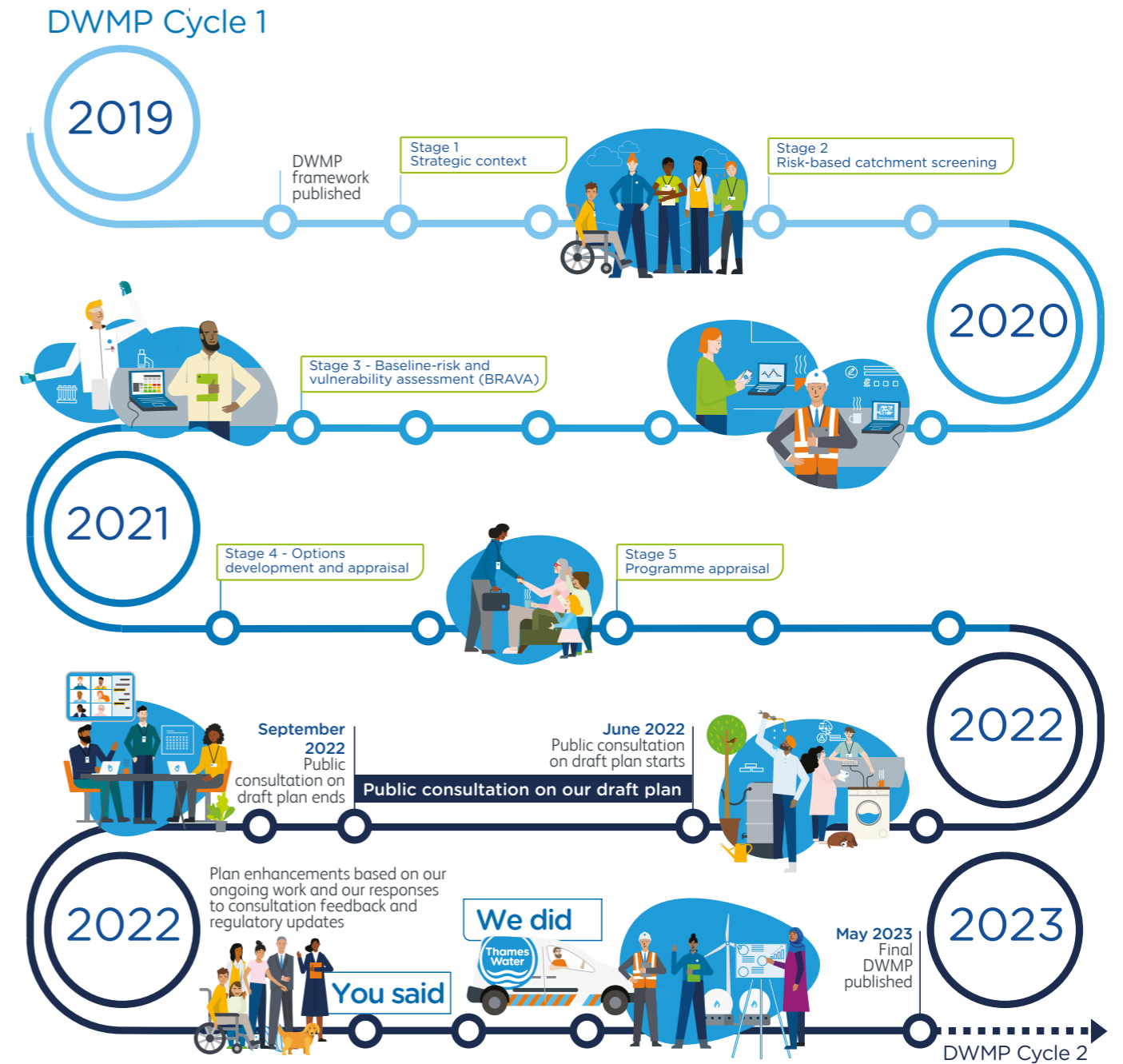
We'd like to say a big thank you to everyone who got involved and collaborated with us in the development of our shared plan. We're really happy it's having a positive impact already, and encouraged by the shared benefits we can deliver in the future as we continue to move forward together.

Our plan aligns with wider industry strategic plans and delivery programmes, such as the Water Industry National Environment Programme (WINEP) and the Long-Term Delivery Strategy (LTDS), and we'll make sure it continues to do so as we tackle current pressures and future challenges.

Over the past four years, we've developed, tested and enhanced our DWMP by engaging with customers and stakeholders and working with their valuable input and feedback to create a final plan we can all support. It's been almost a year since we first published our draft DWMP, and we've made some great progress since then. As customer and stakeholder requirements have evolved over time, our plan has evolved too.

We've enhanced our adaptive planning to increase the resilience of our final DWMP. We've also been testing its sensitivity against a range of alternative plans, risks and uncertainties to make sure our final plan is flexible to different potential futures. This approach will help us to make more proactive, adaptable and informed choices over time. It will also make sure that our interventions are set up for the future and can add the best value while providing ongoing opportunities for us to develop innovative solutions and ways of working.

The rest of this document summarises our final plan for this specific Catchment Strategic Plan (CSP) area, including the progress we've made from draft to final. We look forward to building on this progress and our collaborative approach as we implement our shared plan and evolve into DWMP Cycle 2.



Preface

What you told us about the draft DWMP for our region

We published our draft DWMP for public consultation in June 2022, and asked our customers and stakeholders for their feedback on it. We received around 1,400 responses from a wide range of local, regional and national stakeholder groups, including responses from every CSP area across our region.

We received lots of positive comments on the quality and ambition of our draft plan as well as useful ideas for making our final DWMP even stronger.

The consultation feedback had six main themes, as outlined below. We've listened carefully and responded wherever possible within our final plan*.

This valuable feedback has further enhanced our DWMP and will help our customers, communities and the natural environment in our region to thrive now and in the future.

You said

You supported

- Our preferred plan with the majority of our customers and stakeholders agreeing with this choice
- Our proposed solution types from nature-based solutions to using the latest technologies to increase capacity in our sewer system
- Our partnership-working approach with our 200+ local authorities, organisations, action groups, catchment partnerships and national stakeholders

You challenged

- Our targets – you wanted amendments or some new ones to be added
- Our programme – you wanted quicker delivery in certain areas and were concerned about such an ambitious SuDS plan
- The cost – you were worried about the impact on customer bills

You offered ideas for

- New or amended solutions that we could consider including in our preferred plan
- Maximising the benefits of our preferred plan's positive outcomes
- Enhancements to our stakeholder engagement approach and ongoing activities

You wanted more details on

- The resilience of our assets to flooding and power outage
- How our plan will be funded - by business-as-usual activities (base funding) or enhancement funds
- Adaptive planning scenarios to evidence how our plan could adapt to future influencing factors such as climate change

Feedback themes



Protecting the environment

Level of ambition and pace of delivery



Evidencing best value

Affordability and bill impact



Delivering the plan

Solutions and deliverability of the plan



Enhancing the plan

Technical clarifications and ease of navigation



Working together

Collaboration to achieve multiple benefits



Valuing your input

Stakeholder engagement

We did

We've used as much of your feedback as we could, together with the progress from our ongoing DWMP work and our responses to regulatory updates, to enhance our final plan including in the following ways:



More ambitious storm overflow target delivery to help protect the environment



Increased evidencing around best value and justification for our preferred plan



Increased alignment of DWMP to other strategies and delivery plans



Increased number of proposed solutions



Rewritten and restructured parts of the documents to be clearer and more accessible



More detailed content throughout, especially on strengthening partnership working and stakeholder engagement



Additional future scenario testing



Increased balancing of risk, ambition and deliverability



Earlier planned implementations



New dedicated technical appendices

* Some consultation feedback didn't require further action or wasn't relevant to the DWMP process. Other feedback was relevant to future DWMP planning cycles and will be used to inform this work.



This document focuses on the progress and updates we've made in our final DWMP for this specific CSP area.



Find out more about how we've addressed the wider consultation feedback in our [You said, We did](#) Technical appendix.

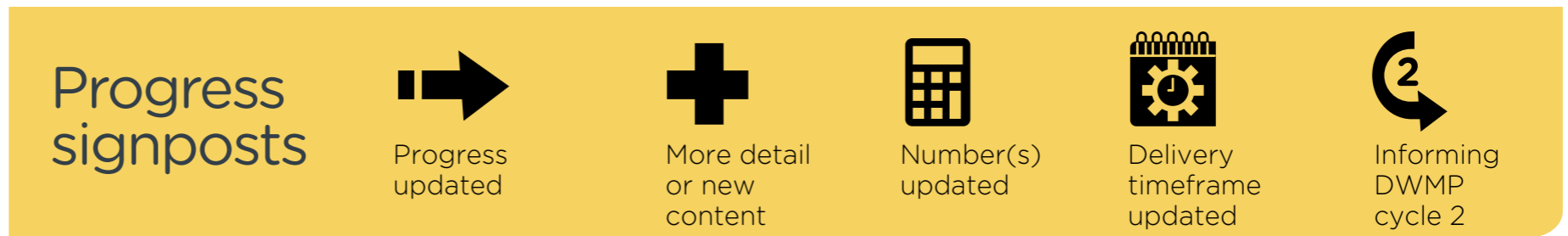
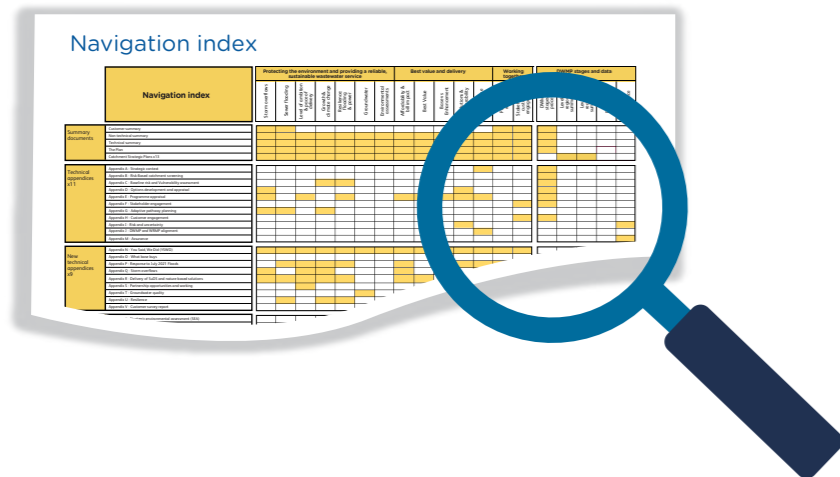
Preface

Navigating the final DWMP for our region

We've enhanced our final DWMP since we published it as a draft for public consultation in June 2022, and we want to make it easy for you to see what's changed.

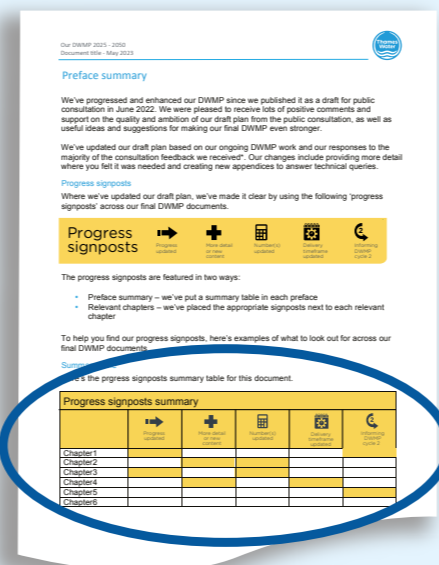
You can spot all the places we've updated our draft plan with our 'progress signposts', which we've used across all our final DWMP documents. Here's where they'll be:

- Preface summaries - We've put a summary table in each document's preface, excluding Summary documents and the Catchment Strategic Plans (CSPs)
- Relevant chapters - We've placed the appropriate signposts next to each relevant chapter, including Summary documents and the CSPs



To help you find our progress signposts, across our final DWMP documents, here are examples of what to look out for:

Preface summaries



Relevant chapters



If you need help navigating our final DWMP and locating key content, you can find a Navigation index at the back of this document.

Catchment strategic plan glossary

Term	Definition
1 in 30-year storm	A storm that has a 1 in 30 chance (3.33% probability) of being equalled or exceeded in any given year. This does not mean that a 30-year flood will happen regularly every 30 years, or only once in 30 years.
1 in 50-year storm	A storm that has a 1 in 50 chance (2% probability) of being equalled or exceeded in any given year. This does not mean that a 50-year flood will happen regularly every 50 years, or only once in 50 years.
Baseline Risk And Vulnerability Assessment (BRAVA)	Following Risk Based Catchment Screening (RBCS) detailed risk assessments on those catchments where we believed there was an adverse risk to performance over time, we modelled their performance for future epochs (2020, 2035 and 2050).
Combined Sewer	A combined sewer is a sewer designed to carry both wastewater and surface water from domestic and/or industrial sources to a treatment works in a single pipe.
Dry Weather Flow (DWF)	Dry Weather Flow (DWF) is the average daily flow to a Sewage Treatment Works (STW) during a period without rain.
EA Pollution Categories 1 to 3	Category 1 incidents have a serious, extensive or persistent impact on the environment, people or property. Category 2 incidents have a lesser, yet significant, impact. Category 3 incidents have a minor or minimal impact on the environment, people or property with only a limited or localised effect on water quality. Further guidance available here .
Event Duration Monitoring (EDM)	Event Duration Monitoring measures the frequency and duration of storm discharges to the environment from storm overflows.
Foul Sewer	A foul sewer is designed to carry domestic or commercial wastewater to a sewage works for treatment. Typically, it takes from sources including toilets, baths, showers, kitchen sinks, washing machines and dishwashers from residential and commercial premises.
Hydraulic Overload	When a sewer or system is unable to cope with a high flow.
L2 Area (Strategic Planning Area)	An aggregation of level 3 catchments (tactical planning units) into larger level 2 strategic planning areas. The level 2 strategic planning areas allow us to describe strategic drivers for change (relevant at the level 2 strategic planning area scale) as well as facilitating a more strategic level of planning above the detailed catchment assessments.

Term	Definition
L3 Catchment (Tactical Planning Unit)	Geographical area in which a wastewater network drains to a single sewage treatment works. Stakeholders may be specifically associated with this area. Includes for surface water sewerage that may exist which serves the wastewater geographical area but drains to a watercourse.
Lead Local Flood Authorities (LLFAs)	LLFAs are Risk Management Authorities as defined by the Flood and Water Management Act. They have statutory duties with respect to flood risk management, investigating flooding and the compilation of surface water management plans.
Risk Based Catchment Screening (RBCS)	A first pass screening exercise of catchment vulnerability against 17 different risk indicators to understand which catchments are low risk catchments and those that are likely to be at risk in the future if not supported by our long-term plan.
Sewage Treatment Works (STW)	A Sewage Treatment Works is a site where wastewater is received and treated to a standard legally agreed with the Environment Agency before it is released back into the environment.
Storm Overflow Discharges	Storm overflows are used to manage excess flows, which typically occur as a result of heavy rainfall. Excess flow that may otherwise have caused flooding is released through a designated outfall to a waterbody, land area or alternative drainage system.
Surface Water Sewer	A surface water sewer collects rainwater from domestic and commercial roofs, driveways, patios, etc to a local watercourse or suitable surface water drainage system.
Sustainable Drainage Systems (SuDS)	Drainage solutions for surface runoff that mimic natural drainage regimes and provide an alternative to a network of pipes and sewers.
Thames Regional Flood and Coastal Committee (TRFCC) Area	Thames Regional Flood and Coastal Committee (TRFCC) area was established by the Environment Agency under the Flood and Water Management Act 2010 that brings together members representing the Constituent Authority. Featured TRFCCs are listed here on our DWMP portal.

Introduction

Since 2019, we've been working with you, our stakeholders, to develop our first long-term strategy for wastewater and drainage issues within the Long Reach system that forms much of the London boroughs of Bromley and Bexley. It also covers parts of the borough of Croydon and county of Kent. We're developing a strategy for the next 25 years to meet future challenges such as climate change, population growth and urban creep which could impact the sewerage and drainage systems in our region.

We want to make sure we increase the resilience of our sewerage and drainage assets and network so that we can protect our customers, communities, and the environment from the impacts of these challenges. This long-term strategic plan outlines our shared vision for the future and details how, through working together, we can improve and enhance our wastewater and surface water services in this TRFCC area to achieve the following ambitious goals:

In this document we'll explain:

- How we've worked in partnership to develop our strategic plan
- Our predictions for the future challenges we face in this region
- How this plan is expected to address these challenges and who else needs to be involved
- Our shared strategy for maintaining the safe and reliable delivery of wastewater and surface water services in the long-term

In this document we summarise our long-term plan for this catchment and also provide links to allow readers to investigate further into various risk zones. If you want to contact us or want to find out more about our DWMP and the set of documents it comprises, please use the following links:

DWMP@thameswater.co.uk

[Drainage and wastewater management plan](#)

Our Goals

95% of properties not at risk of flooding in a 1 in 50-year storm by 2050

Eliminate harm from storm overflows - no more than an average of 10 discharges per annum by 2045 at overflow locations

Enhancing resilience at Long Reach sewage treatment works to ensure 100% permit compliance and protect river water quality

Our DWMP components

DWMP Framework

Our DWMP

The Plan




DWMP portal

Strategic Context

Technical Summary

Technical Appendices

Non-Technical Summary

Theme		How we will measure performance			
	Environment	Sewage treatment works quality compliance The ability of Sewage Treatment Works (STW) to treat and release treated sewage in line with the consented discharge permit quality conditions.	Sewage treatment works DWF compliance The ability of STWs to treat and discharge treated sewage in compliance with the flow discharge permit Dry Weather Flow (DWF) conditions.	Risk of pollution incidents The risk of polluting the environment through uncontrolled escape of sewage (classed as Category 1 to 3 by the Environment Agency) arising from either network or treatment sites.	Storm overflow performance The number of storm overflow discharges to the environment, both in the network and at the STWs.
	Property hydraulic sewer flooding	Internal hydraulic sewer flooding risk in a 1 in 30-year storm The risk of properties flooding internally as a result of hydraulic sewer overload.	External hydraulic sewer flooding risk in a 1 in 30-year storm The risk of sewer flooding to gardens and other land within the property curtilage as a result of hydraulic sewer overload.	Risk of hydraulic sewer flooding in a 1 in 50-year storm (resilience sewer flooding) The risk of residential properties experiencing sewer flooding as a result of hydraulic sewer overload based on a modelled assessment of the performance of our sewers in a storm that statistically occurs once every 50 years on average.	
	Asset health	Sewer collapses The risk of sewers collapsing or rising mains bursting that leads to a loss of/interruption to continued service.			

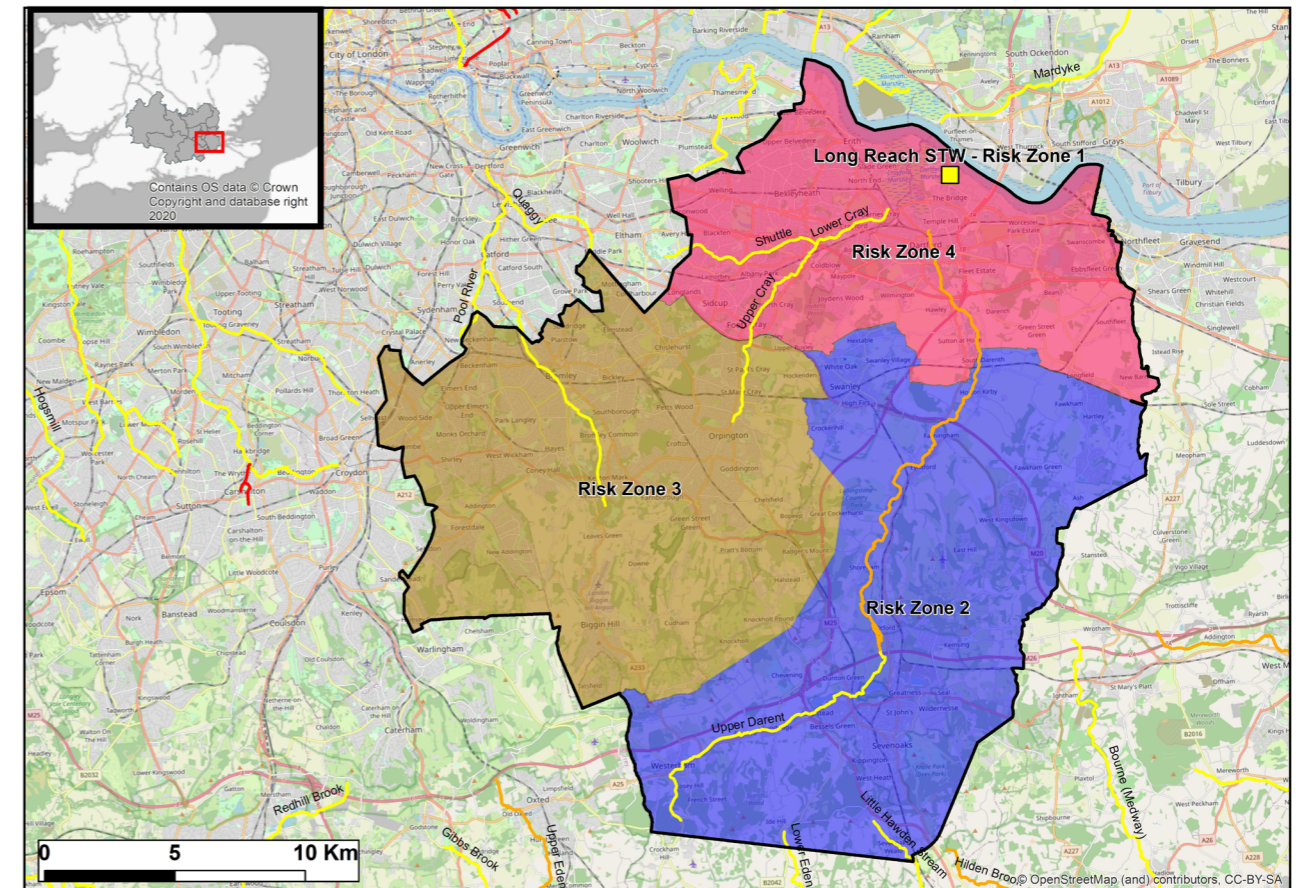
The Long Reach system

The Long Reach catchment is located on the south of the River Thames in northern Kent between the south-eastern suburbs of London, the M25 and the Dartford Tunnel. The system drains from south to north, from Croydon and Sevenoaks to the River Thames. Surface water sewers are present in the majority of the urban catchment apart from the more rural settlements in the Sevenoaks District, south of the Dartford District and south of the London Borough of Bromley.

The treatment works is located in the north of the catchment by the south bank of the River Thames near the town of Dartford. The catchment is predominantly residential with some distinct industrial and scattered commercial areas in each neighbourhood. The residential area is more urbanised towards the south west becoming more rural in the south east areas.

The Long Reach system has over 6,600 km of sewer network and 261 pumping stations. This is a predominately gravity network system, with some vacuum sewers that are pumped to the gravity trunk network. The trunk sewers and many assets in the network are over 100 years old. Long Reach STW is a strategic sludge centre in South East London. In addition to treating its own sludge, the works was upgraded so that it can accept imported sludge from neighbouring sludge centres if they require support.

The region overview map below highlights the watercourses in this area that are typically heavily modified and have river water quality status ranging from poor to moderate. The map also shows the sub-division of the Long Reach system into four risk zones. The risk zones allow the DWMP process to be applied and tailored to smaller discrete areas.



L2 TRFCC Strategic Planning Area
Environment Agency WFD River Water Quality Status 2019

 High Good Moderate Poor Bad



Our co-creators

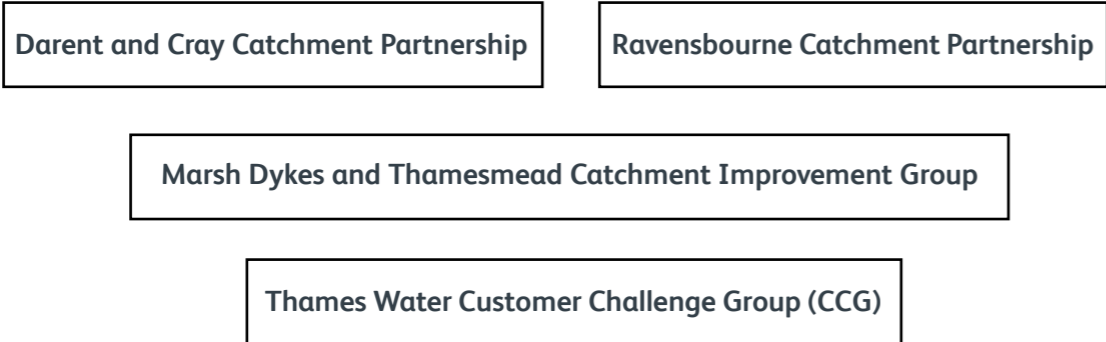
Who our stakeholders are

It's not possible for all the benefits identified in the DWMPs to be developed by water companies alone. They are led by water companies but created collaboratively with other organisations and groups that, with Thames Water have a shared responsibility and/or interest in drainage, flooding and environmental protection. Active engagement with these stakeholders is vital for the consultation, planning and refinement of our DWMP.

Since 2019, we've been working with a wide variety of stakeholders from across this region to understand the local issues and opportunities so that we could create a long-term plan that provides the best outcome for everyone.

In this region we've engaged and worked with stakeholders from the following organisations and groups:

Environment Agency, Water Services Regulation Authority (Ofwat), Natural England, Department for Environment, Food and Rural Affairs (Defra), Consumer Council for Water, Thames Water Customer Challenge Group (CCG), Thames21, South East Rivers Trust, London Borough of Bexley, London Borough of Bromley, Croydon Borough Council, Kent County Council, Darent and Cray Catchment Partnership, Ravensbourne Catchment Partnership, Marsh Dykes and Thamesmead Catchment Improvement Group, Greater London Authority and Transport for London.



The stakeholder feedback we've received

To ensure our stakeholders' views have been considered and are a fundamental part of our final DWMP, we've carried out a variety of stakeholder engagement activities.

From 2020 to 2022 much of the interaction was online due to coronavirus restrictions, but over the years they've included workshops, drop-in sessions, 1-2-1 calls, recorded webinar updates, newsletters, surveys, feedback forms as well as online discussions. From our engagement throughout each of the DWMP framework stages we know that our stakeholders want our strategic plan to deliver the following things in this region (see quotes on the right).

We've spoken to our stakeholders to identify their strategic management plans and policies that could interact with our DWMP. The strategic themes are displayed below and the following table that records all of the plans and policies and how they align with the DWMP.

“ Include more definition on the map, such as watercourses, LPA, risk zones (not SDACs) ”



Partners' policies

Management Plan (Hyperlink)	Key aspects that align with the DWMP
Local Flood Risk Management Strategies	
Local Flood Risk Management Strategy, London Borough Of Bexley	<ul style="list-style-type: none"> The purpose of this strategy is to set out the approach for managing flood risk from local sources in both the short and long term.
Kent Local Flood Risk Management Strategy	<ul style="list-style-type: none"> This strategy sets out how local flood risks will be managed in the county by the authorities involved.
London Borough Of Bromley, Local Flood Risk Management Strategy	<ul style="list-style-type: none"> The purpose of this strategy is to set out the approach for managing flood risk from local sources in both the short and long term.
Local Flood Risk Management Strategy: 2015-2020, London Borough of Croydon	<ul style="list-style-type: none"> This strategy sets out the long-term vision and flood risk management priorities to shape a strategy that delivers the greatest benefit to the people, property and environment of Croydon.
SuDS Design and Evaluation Guide	
Sustainable Drainage, Design & Evaluation Guide: London Borough of Bexley	<ul style="list-style-type: none"> This guide promotes the idea of integrating SuDS into the fabric of development using the available landscape spaces as well as the construction profile of buildings. This approach provides more interesting surroundings, cost benefits, and simplified future maintenance.
Sustainability and Planning	
Chalk Stream Restoration Strategy	<ul style="list-style-type: none"> Enhanced status for all chalk streams
The London Plan	<ul style="list-style-type: none"> This plan is an integrated economic, environmental, transport and social framework for the development of London over the next 20-25 years.
Bexley Growth Strategy	<ul style="list-style-type: none"> This strategy details how the council working with a range of partners, proposes to positively manage housing and economic growth and its associated supporting infrastructure in the borough in the future.
Thames Estuary TE2100 Plan, Environment Agency	<ul style="list-style-type: none"> Take an adaptive approach to managing the risk of flooding to people, property and the environment Protect the social, cultural and commercial value of the tidal Thames, tributaries and floodplain Ensure sustainable and resilient development in the floodplain Tackle the climate crisis by enhancing and restoring ecosystems and maximising benefits of natural floods

Management Plan (Hyperlink)	Key aspects that align with the DWMP
Surface Water Management Plans	
Dartford Surface Water Management Plan	<ul style="list-style-type: none"> The aim of this plan details the understanding of the causes and consequences of surface water flooding and to test the benefits and costs of mitigation measures.
Sevenoaks Stage 1 Surface Water Management Plan	<ul style="list-style-type: none"> This plan investigates the local flood risks in Sevenoaks as part of their remit for strategic oversight of local flood risk management in Kent.
Thameside Stage 1 Surface Water Management Plan	<ul style="list-style-type: none"> This plan investigates the local flood risks in Thameside as part of their new remit for strategic oversight of local flood risk management in Kent.
Charlton to Bexley Riverside Integrated Water Management Strategy (IWMS)	<ul style="list-style-type: none"> Understand, plan and implement new fully integrated water services infrastructure to support the proposed development to avoid sewer and surface water flooding and increase water supply security in a more sustainable way. A coordinated and collaborative approach to investment and maintenance of infrastructure solutions between the relevant stakeholders will be required to meet this aim. The IWMS will set the framework for achieving this
River Catchment Partnership Plans	
Darent and Cray Partnership	<ul style="list-style-type: none"> Develop sustainable water management within the catchment Improve water quality
Marsh Dykes and Thamesmead Catchment Plan	<ul style="list-style-type: none"> The catchment vision is 'sustainable wildlife-rich waterways for future generations.'
Ravensbourne Catchment Plan	<ul style="list-style-type: none"> New development enhances the river and allows nature to thrive Community and volunteer groups are well supported in their work along the river Enhancement and education programmes benefit local people A locally supported Catchment Plan creates a path towards a healthy future for the rivers within the catchment
A Catchment Plan for the River Wandle	<ul style="list-style-type: none"> "A naturally functioning and self-sustaining chalk river rich in biodiversity and a haven for Londoners" Habitat and wildlife: the river supports a mosaic of habitats with high biodiversity Water: plentiful and clean, and varied in its flow speeds, widths and depths Good access: sympathetically managed pathways along the whole river Engagement: everyone in the catchment aware of the river and knowing how their actions can affect it Councils, businesses, government agencies and the public working together for the river

Issues today

The initial [risk-based catchment screening](#) (RBCS) in this region, published in 2019, assessed system performance against a range of 17 indicators, using information from company reporting systems or from relevant stakeholders, to identify systems that are vulnerable to the risks of growth and climate change. We identified that this system warranted long-term planning with 7 of the 17 indicators being breached.

As part of optioneering we have then assessed the catchment against a series of planning metrics as shown in the table below.

This identified the highest risk for each metric that then progressed through optioneering and into the appraisal phases. The table identifies the risk areas and metrics that have passed through for solution development.

The DWMP process is iterative and will be repeated every 5 years, with the next version due in 2028. This will capture any changes in demands for this catchment, incorporate the outputs from the [review of the 2021 floods](#) and will look to for opportunities to utilise future technologies and engineering solutions.

Risk Zone	Risk						
	Storm Overflow Performance	Internal Sewer Flooding	External Sewer Flooding	Resilience (1 in 50-year storm)	Surcharging	STW Quality Compliance	STW DWF Compliance
1 (STW)	N/A	N/A	N/A	N/A	N/A	Yes	Yes
2	Yes	Yes	Yes	Yes	Yes	N/A	N/A
3	Yes	Yes	Yes	N/A	Yes	N/A	N/A
4	Yes	Yes	Yes	N/A	N/A	N/A	N/A

*N/A' indicates that a particular risk is not applicable/cannot be quantified either to/for the STW or risk zones



Our predictions for the future

We've modelled the entire system against future challenges, assessed targets and carried out discussions with local stakeholders and forecast that, if we do nothing and do not implement the DWMP, over the next 25 years there will be an increased risk of hydraulic sewer flooding and pollution from our sewerage systems.

We modelled the impact of climate change, population growth and urban creep on flood risk, pipe capacity, treatment works compliance and storm overflow compliance from a 2020 baseline, which includes the Thames Tideway Tunnel, to 2050.

This has helped determine how risk will change over time due to these factors.

Our forecast network performance metrics are summarised opposite. We forecast that by 2050, over 9% of properties will be at risk of hydraulic sewer flooding from the sewerage system in a 1 in 50-year storm, for example in areas such as Crayford and Orpington.

Long Reach STW water quality

	2020	2025	2030	2035	2040	2045	2050
Water Quality (SS* & BOD*)	80%	93%	95%	98%	100%	104%	107%
Water Quality (AmmN*)	80%	93%	95%	98%	100%	104%	107%

* Suspended Solids (SS)
* Biochemical Oxygen Demand (BOD)

* Ammoniacal Nitrogen (AmmN)

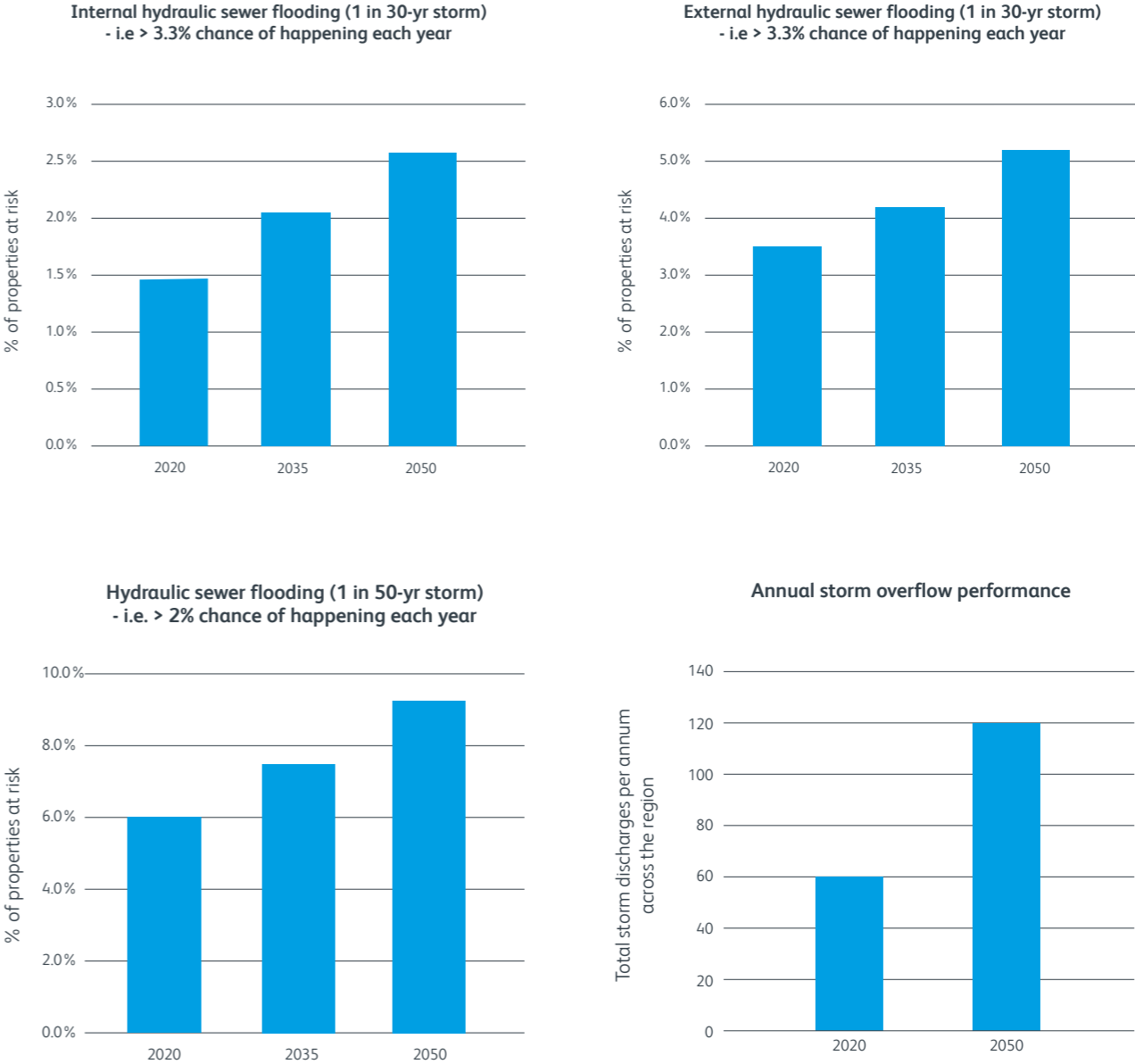
Based on our findings from modelling and from discussions with local stakeholders, we forecast that if we do nothing, over the next 25 years there will be an increased risk of hydraulic sewer flooding and pollution from our sewerage systems in this region. Therefore, there is an evident need for long-term planning and the implementation of the DWMP, to protect this region and support its future growth.

The ability of STW to treat and dispose of sewage in line with current water quality discharge permit conditions was assessed.

If you are a DWMP practitioner, further details can be found on our Practitioner portal.

[DWMP Practitioner portal](#)

Change in risk if we do nothing and do not implement the DWMP



2020 and 2050 modelled overflow data in DWMP catchments due to hydraulic incapacity

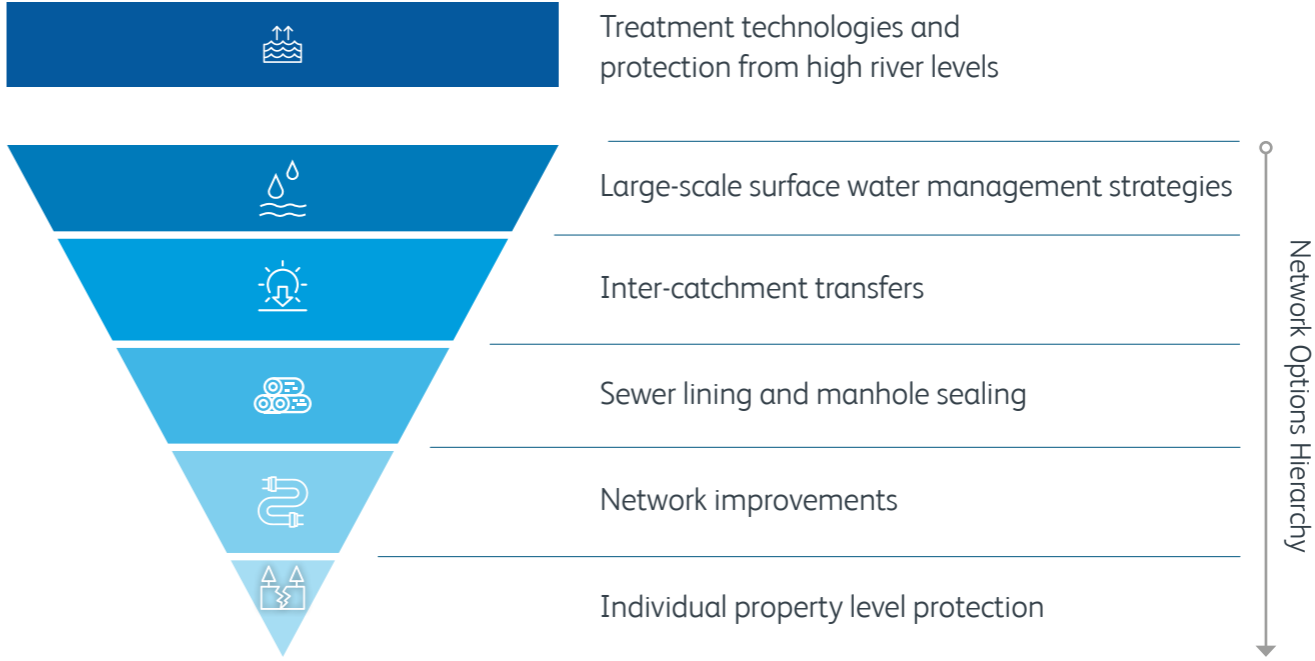
Sustainable solutions

We've combined our knowledge of the catchments with the stakeholder feedback we've received to help us identify the solutions required to meet the future needs of this region. We've used a structured approach that started with over 40 generic solutions, to ensure broad thinking, and identified and assessed the feasibility of a wide range of potential interventions and the extent to which they resolve the area's future needs.

Our approach has followed the same method that has been developed and implemented successfully over many years, for our Water Resources Management Plans (WRMP). Our stakeholders, like us, want this DWMP to work

in balance with the natural environment and make the best use of available land. The rural/urban mix in this region aligns to balancing grey/green engineering solutions with traditional storage, predominantly in urban areas.

Our hierarchy of options follows this principle - it focuses first on maximising the efficient use of existing assets, then prioritising natural surface water management solutions over network improvements. The sustainable solution options we've considered for this area are outlined below. To view our spatial analysis of the potential solutions that have been reviewed, scoped out or selected visit our [DWMP portal](#).



Solution options considered in optioneering

<p>Large-scale surface water management strategies</p> <p>Delivery of surface water management strategies across the risk zones to significantly reduce or remove the rainfall runoff entering the foul sewer system at these locations.</p> 	<p>Inter-catchment transfers</p> <p>Utilise and optimise existing inter-catchment connections between the catchments and also between some of the STWs. These connections could be used to transfer flows between catchments without capacity to those with short-term capacity.</p> 	<p>Sewer lining and manhole sealing</p> <p>Undertaking a programme of sewer lining and manhole sealing, we will target as a priority the areas of high infiltration and with a high potential to reduce unwanted flows into our sewer system that currently take up much of its capacity.</p> 	<p>Network improvements</p> <p>Managing the impact of surface water on the sewerage system through the identification of network improvements to address deficiencies in the sewerage network capacity, specifically in areas with deliverability constraints and a high risk of sewer flooding now or in the future. This includes the construction of large attenuation sewers, new surface water and foul water sewers.</p> 	<p>Individual property level protection</p> <p>Providing vulnerable homes with active and passive flood protection measures such as flood proof doors, self-sealing bath/shower systems (non-return valves) and installation of household pumping stations.</p> 	<p>Treatment process technologies and protection from high river levels</p> <p>Implementation of a range of different technologies identified to enhance the performance of the STW, through either retrofitting or new-build options. This will include the use of more intensive wastewater treatment processes which have the capacity to meet future demands and the construction of flood bunds to protect our assets from high river levels.</p> 
---	---	---	---	--	---

Partnership working - case studies

Working in partnership with our stakeholders is a fundamental component of our plan. It can provide significant potential to support delivery of mutually beneficial outcomes, address multiple drivers and deliver multiple benefits. In this section we present a few examples of partnership working opportunities in this region.

Sevenoaks STW and Wetlands

There is an opportunity to improve the environmental health of the river Darent, an internationally rare and precious chalk stream. The Long Reach STW system extends into the river Darent catchment and takes wastewater from areas including Sevenoaks to be treated at Long Reach STW, where treated effluent is discharged into the tidal Thames. Currently, the wastewater system takes water out of the river Darent catchment, which suffers from low flows during periods of dry weather. As a chalk stream the river is also affected by groundwater abstractions.

Over recent decades, groundwater abstractions have been reduced in the catchment, however the predicted population growth that will further increase demand for water, as well as the impact of climate change resulting in warmer and dry conditions could further exacerbate periods of low flow in the river.

There is an opportunity to improve the environmental health of the catchment through flow augmentation by discharging high quality treated effluent further upstream in the catchment via a new STW near Sevenoaks.

Additional benefits could include:

- increased flows that would help to support river ecology in a vulnerable chalk stream
- reuse of brownfield landfill site
- potential wetland development with improved access and amenity in the area and improved biodiversity.

Working collaboratively with Kent County Council, the Environment Agency and South East Rivers Trust is essential to address the complexities of this scheme such as the sensitivity of the receiving watercourse, incorporating nature based solutions such as wetlands to enhance environmental value, providing amenity and educational value for the local community and appropriate environmental permitting.

Initial discussions have been held with these stakeholders and environmental regulator to discuss the opportunities (i.e. potential environmental and social benefits) and constraints such as the total cost and permitting requirements.

Pembroke Road

The area around Lessness Heath was identified in the BRAVA workshops as being subject to flooding with foul and surface water, at times exacerbated by high tide. A range of opportunities exist to develop collaborative options such as Property Flood Resilience, SuDS, and/or a new pumping station.

Recharge in the River Cray

The River Cray chalk stream flows north to join the Darent, near Dartford, then the Thames. An opportunity exists for partnership working with Thames21 and South East Rivers Trust to develop SuDS off large roof spaces where runoff can direct into the groundwater as a recharge and then act as a low flow alleviation scheme for the Cray which will aid in maintaining the overall health of the Cray.

Opportunity	Partner
Groundwater Recharge in the Cray	Thames21
Lessness Heath Culverted Watercourses	London Borough of Bexley
Sevenoaks STW and Wetlands	Kent County Council

These opportunities have been identified following a detailed screening and prioritisation exercise with our partners. This approach is explained in the [Appendix S Partnership Opportunities and Working](#) report.



Our shared plan

Our shared long-term plan for the Long Reach system has been formulated based on a balance of how deliverable and sustainable the proposed interventions are, and also how cost efficiently they can deliver multiple benefits.

The challenges this region has presented us in delivering that balance have included:

- Population growth uncertainties
- Incomplete mapping of surface water systems e.g. sewer, highway or land drainage and the extent of our hydraulic surface water sewerage network model coverage

- Location of property level misconnections
- Pipe materials e.g. pitch fibre sewers impacting asset health
- Ownership and maintenance of SuDS

We propose an asset strategy that fundamentally addresses the inputs to our system i.e. unwanted flow removal and bringing foul systems back to their original intent of taking foul flows only.

We will achieve this through an adaptive approach whereby we will aggressively target unwanted flows to restore capacity in our network incrementally at system level over the next 25 years. This will include disconnecting surface water misconnections from foul and combined sewers and redirecting it to surface water drainage.

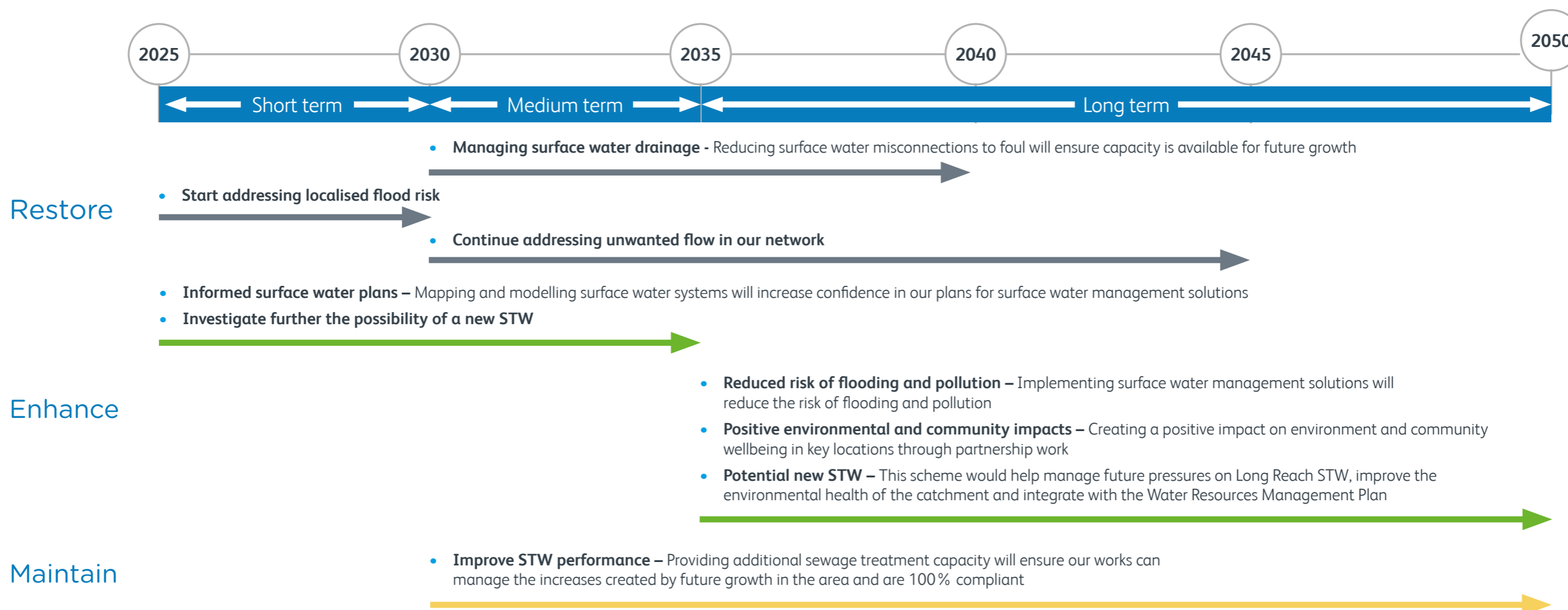
Our approach is to address systems holistically, to provide wide-ranging benefit to the

catchments we service in the most resilient and sustainable way for foul, combined and surface water systems.

We will work in partnership, where possible, to evolve surface water systems, championing green infrastructure.

Within the catchment, those assets linked to the most sensitive watercourses will be prioritised.

The diagram below outlines the sequencing of our proposed interventions for this catchment:



Developing our preferred plan for Long Reach

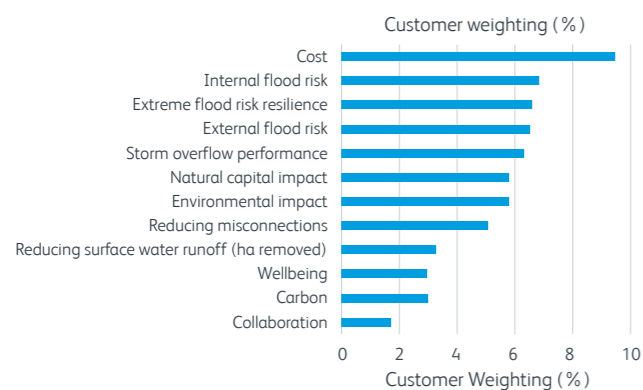


Defining a best value framework

A best value framework is one that considers broader criteria than just economic cost. So our DWMP maximises outcomes for the communities it serves. Our criteria are based on the 12 planning objectives of the DWMP with additional criteria to capture broader environmental impact.

Defining what our customers and stakeholders value

We have used quantitative customer research to determine the relative priorities of the different criteria.



Agreeing scenarios with stakeholders

For our London catchments our approach has focused on a programme of storm discharge and flooding reduction that meets targets in each of the thirty-five risk zones. We identified and agreed scenarios to cover the range of our ambitions through discussion with our regional stakeholders.

Alternative plans and outcomes
Maintain flooding resilience - delivers the statutory storm discharge reduction requirements and maintains property flooding at 2025 levels
Maximum community benefit - meets our DWMP sewer flooding objectives and delivers our storm discharge reduction plan for high priority sites by 2035 and all sites by 2045 whilst also creating the most benefit to communities and the environment
Resilient - constrained - meets our sewer flooding planning objectives and delivers our storm discharge reduction plan for high priority sites by 2035 and all sites by 2045. Delivers a feasible level of surface water management within the first 10 years of the plan
Accelerated / deliver sooner - accelerates investment to deliver our performance outcome targets sooner, including our storm discharge reduction at all sites by 2035, reflecting views expressed by stakeholders in the public consultation

To avoid customer bill volatility, we also explored alternative investment profiles that define how quickly options are implemented. We also considered a better information plan that includes factors such as improvements in overflow and river monitoring data and improved accuracy in our hydraulic modelling to predict flood risk.

Scoring our options against our planning objectives

Scores have been generated for every option for each of our planning objectives and weighted based on our customer priorities. For example, DWMP with additional criteria to capture broader environmental impact.

Natural capital (NC) impact
We used data from Natural England on the existing NC in the catchment and assessed whether the option would improve or reduce this baseline based on additional green space generated. Surface water management schemes scored highly whilst new sewers and tanks scored lower.

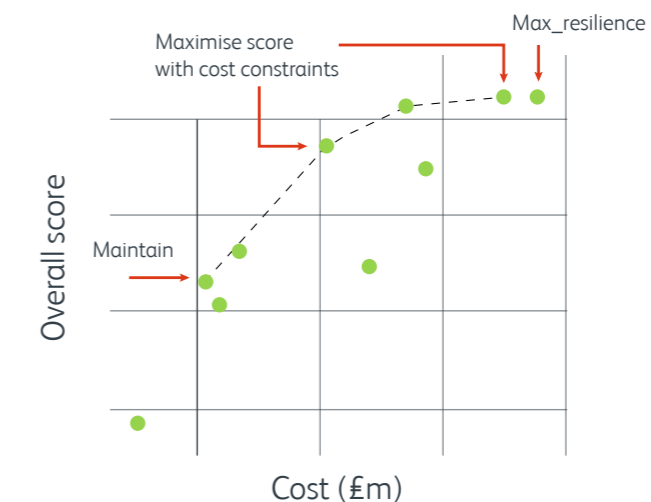
Wellbeing impact
We used data on environmental factors in the catchment that influence population and human health, including improved access to recreation and the environment, and assessed whether the option would improve or reduce this baseline.

Reducing misconnections
We assessed the area to be disconnected from our foul and connected into our surface water systems as part of our options.

Assessing different scenarios

We used a decision support tool to optimise our plan based on our 'value criteria'. We tested multiple alternative plans to allow us to assess different scenarios and compare their outcomes.

Illustrative score vs cost



Determining our preferred plan

Our preferred plan has been developed by considering a range of factors including:

- affordability
- deliverability
- performance outcomes
- strategic environmental appraisal
- stakeholder feedback

This has allowed us to develop an adaptive plan that recognises areas of risk and uncertainty, where improved understanding will be used to prioritise interventions at key decision points over those that can be deferred.

Our preferred plan balances our ambitions, our stakeholder and customer desires, our planning objectives and affordability.

Our preferred plan for Long Reach

From the first iteration of our preferred plan for Long Reach we estimate that to tackle growth and climate change we need to invest an additional £2.4bn over the period 2025 to 2050, on top of our day-to-day maintenance activities. We aim to reduce this cost requirement in subsequent iterations of our DWMP through partnership benefits, innovation and better targeting with enhanced surface water system knowledge.

Our asset strategy for our systems in London is to deliver a storm discharge and flooding reduction programme that will meet our targets in each of the 35 risk zones by 2050 allowing for climate change and growth.

Our preferred plan comprises options that have been developed to meet medium term(2035) and long term (2050) performance targets.

Our hierarchy of solution types commences with, and seeks to maximise the implementation of, and benefit from sustainable urban drainage solutions.

- £1.1bn on managing the impact of surface water on the sewerage system including construction of new sewers, sewer upsizing and attenuation storage to provide additional capacity
- £568m on improvements to surface water management, with a particular focus on removing surface water from impacting on the networks
- £100m upgrading the Long Reach STW
- £581m on sewer lining

Our preferred plan (resilient - constrained) has been optimised to offer the best value solution to reduce sewer flooding, protect the environment, and enhance natural capital as shown in the relative performance of our preferred plan figure.

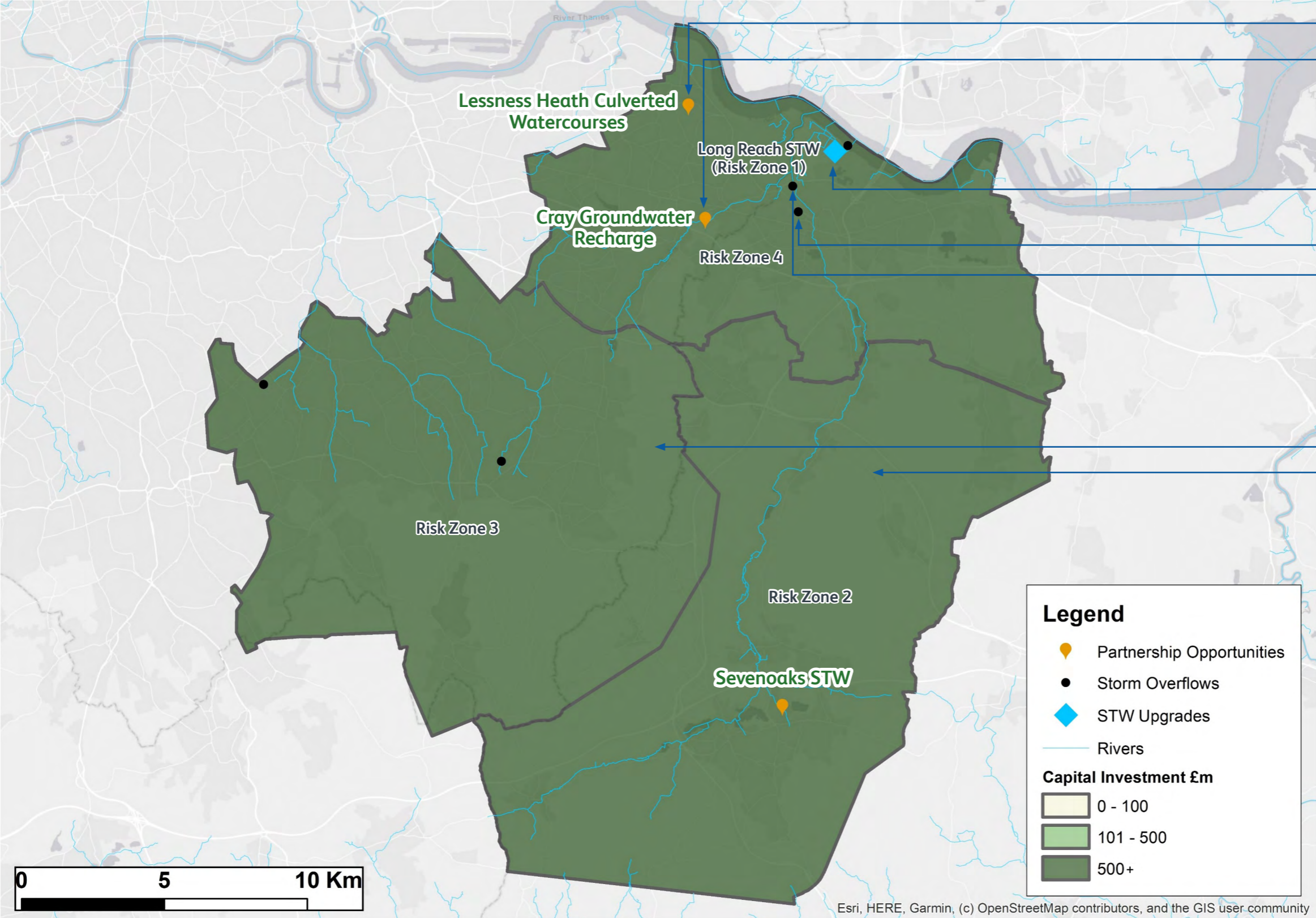
Relative performance of our preferred plan



- Storm overflow performance**
 Reduce the number of average annual storm discharges by 128. By 2050, none of the 29 storm discharge locations in this catchment will overflow more than ten times per annum on average
- Property flooding**
 Protect 4,251 properties from internal sewer flooding up to a 1 in 30-year storm event
 Protect 7,451 properties from external sewer flooding up to a 1 in 30-year storm event
 Protect 13,440 properties from sewer flooding up to a 1 in 50-year storm event
 If we don't invest, over 6.7% of properties would be at risk in a storm up to 1 in 50-year in 2050. As a result of implementing our plan, this would decrease to 3.5%
- Treatment capacity enhancements and/or protection from high river levels at the STW**
 Upgrade the Long Reach STW by and investigate further the possibility of a new STW
- Asset improvements**
 Reline 423km of sewers
- Reduce misconnections / Reduce surface water runoff**
 306 ha (equivalent to 20,400 properties) to be disconnected from our sewers and reconnected to a surface water sewer with attenuation or to a soakway
- Carbon**
 264,672 tonnes of carbon embodied in delivering the plan, with 402 tonnes of carbon sequestered in delivering the plan



Our preferred 25 year plan for Long Reach



We've mapped a selection of the partnership opportunities in this region where we could work together with our stakeholders. If you are a DWMP practitioner, further details can be found on our [Practitioner portal](#).

Upgrades to the STW will be required over the next 25 years to ensure treatment capacity keeps pace with growth.

These are the storm overflows which have been modelled and targeted to ensure they have no adverse impact on the receiving watercourse by limiting the average number of storm discharges to <10 times per year.

This map illustrates the range of investment required for each of the risk zones in the system,

Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community

Next steps

Final version of the plan

We've progressed and enhanced our DWMP since we published it for public consultation in June 2022. We've updated our draft plan based on our ongoing DWMP work and our responses to regulatory updates and the majority of the feedback received during the 12-week consultation period.

Our preferred plan balances our ambitions, our stakeholder and customer desires, our planning objectives and affordability.

Further stakeholder input

This is our first DWMP and it will be the launch pad for future DWMP cycles that will occur every five years where growth, risks and system performance will be re-assessed and reviewed and the DWMP process repeated. We hope that we will receive a similar level of engagement and co-creation from our stakeholders in the next iteration as it has been a valuable contribution to this first iteration.

Funding and delivery

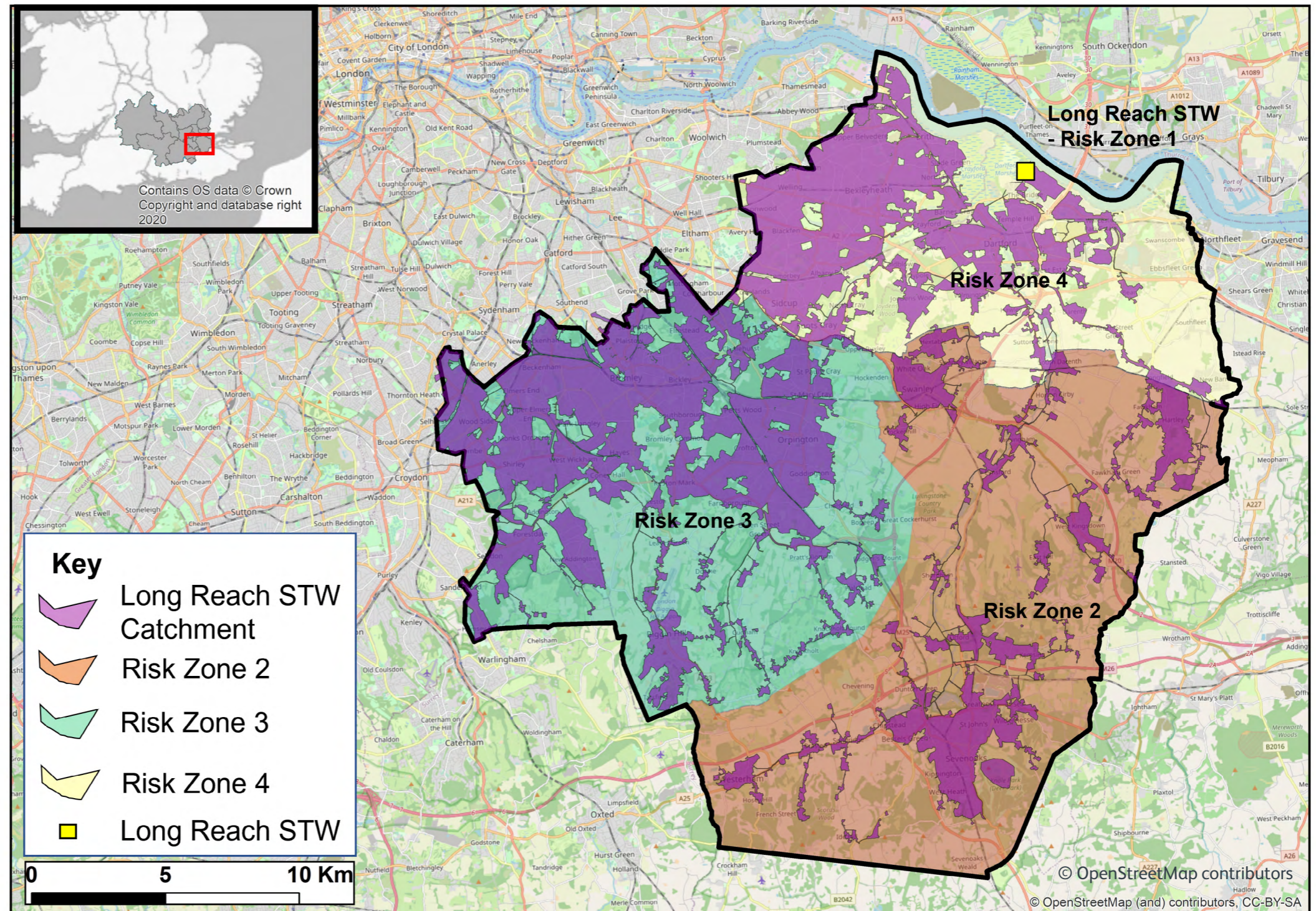
This DWMP is a 25-year rolling strategic plan. The first 5-years of the plan will be assessed through the price review process to confirm the funding to deliver the initial phase between 2025 and 2030.

Future iterations on the plan will address elements that can't be progressed due to funding restrictions, as well as changes in customer priority or technical issues.



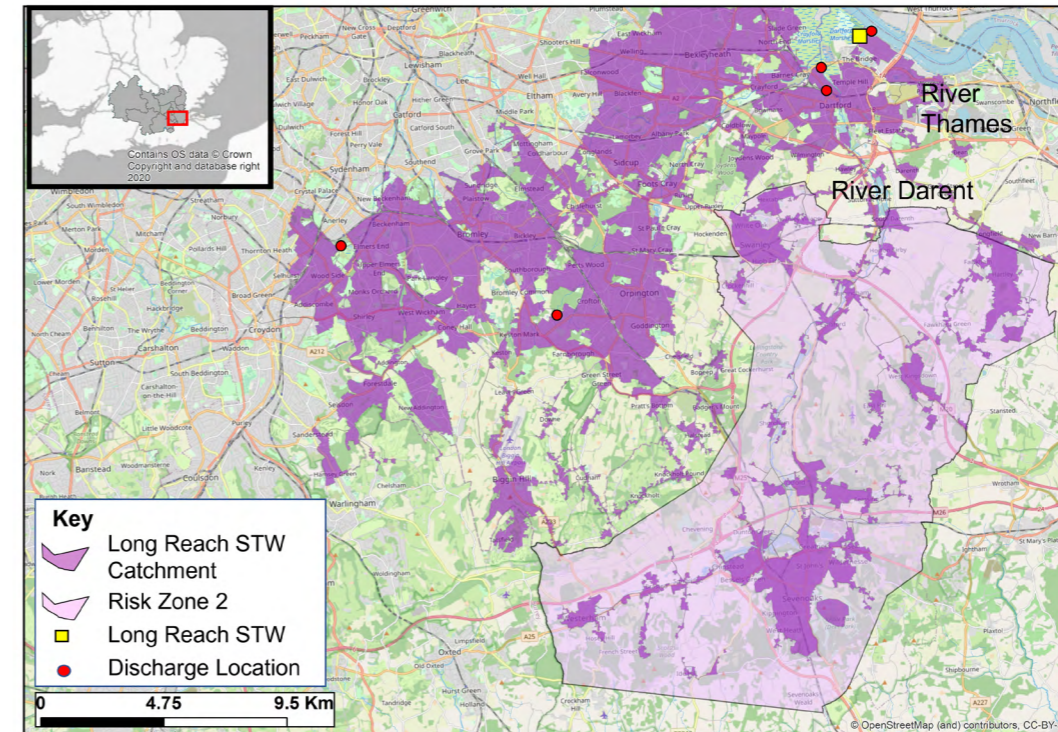
Our shared plan at catchment level

Use this interactive map by clicking on the blue boxes to find out more about our plans for the Long Reach STW risk zones.



Risk Zone 2 - Kent

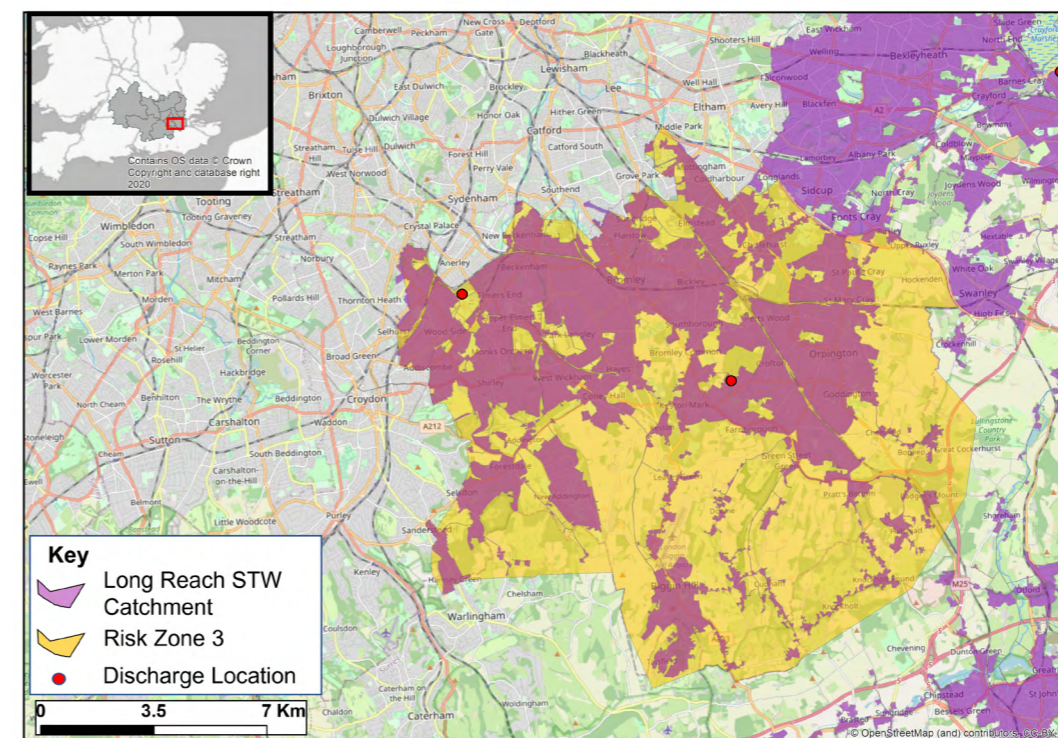
<p>What are the challenges?</p>	<ul style="list-style-type: none"> Increased internal hydraulic sewer flooding - from 1.4% to 2.7% of properties: Calculated as increased modelled risk of internal hydraulic sewer flooding from 1.4% of properties (742) at risk up to a 1 in 30-year storm in 2025 to 2.7% of properties (1430) at risk by 2050 Increased external hydraulic sewer flooding - from 3.5% to 5.1% of properties: Calculated as increased modelled risk of external hydraulic sewer flooding from 3.5% of properties (1848) at risk up to a 1 in 30-year storm in 2025 to 5.1% of properties (2681) at risk by 2050 Increased hydraulic sewer flooding - from 5.8% to 9.3% of properties: Calculated as increased modelled risk of internal hydraulic sewer flooding from 5.8% of properties (3008) at risk up to a 1 in 50-year storm in 2025 to 9.3% of properties (4864) at risk by 2050
<p>Which of our solutions are best suited?</p>	<ul style="list-style-type: none"> Surface water management Sewer lining to target infiltration hotspots Network improvements Construct deep tanks and tunnels



	2025	2030	2035	2050
<p>Timescale</p>	<p>← Short term → ← Medium Term → ← Long Term →</p>			
<p>What targets are we seeking?</p>	<p>To:</p> <ul style="list-style-type: none"> Reduce property hydraulic sewer flooding to 1.5% (internal) and 3% (external) for rainfall up to a 1 in 30-year storm event in any given year Reduce storm discharges (where overflows are present) to <10 in an average year by 2050 			
<p>How will we achieve the targets?</p>	<p>We will:</p> <ul style="list-style-type: none"> Increase the confidence in our plans for long-term investment to reduce the risk of internal and external hydraulic sewer flooding and enable catchment-level planning of surface water management solutions Provide sewer network improvements by installing larger sewers to increase network capacity Investigate the construction of an additional STW in the Sevenoaks area 	<p>We will:</p> <ul style="list-style-type: none"> Further develop our catchment-level planning to reduce the risk of hydraulic sewer flooding by removing rainfall runoff that is entering our foul sewer system and enhance our surface water sewerage systems Construct deep tanks and tunnels to store combined sewage 	<p>We will:</p> <ul style="list-style-type: none"> Reduce the risk of hydraulic sewer flooding by removing surface water from our foul sewer systems through the implementation of surface water management solutions Improve the resilience of our sewers at greatest risk of groundwater inflows by undertaking sewer lining work Continue to provide sewer network improvements by installing larger sewers Continue to construct deep tanks and tunnels to store combined sewage 	

Risk Zone 3 - Bromley

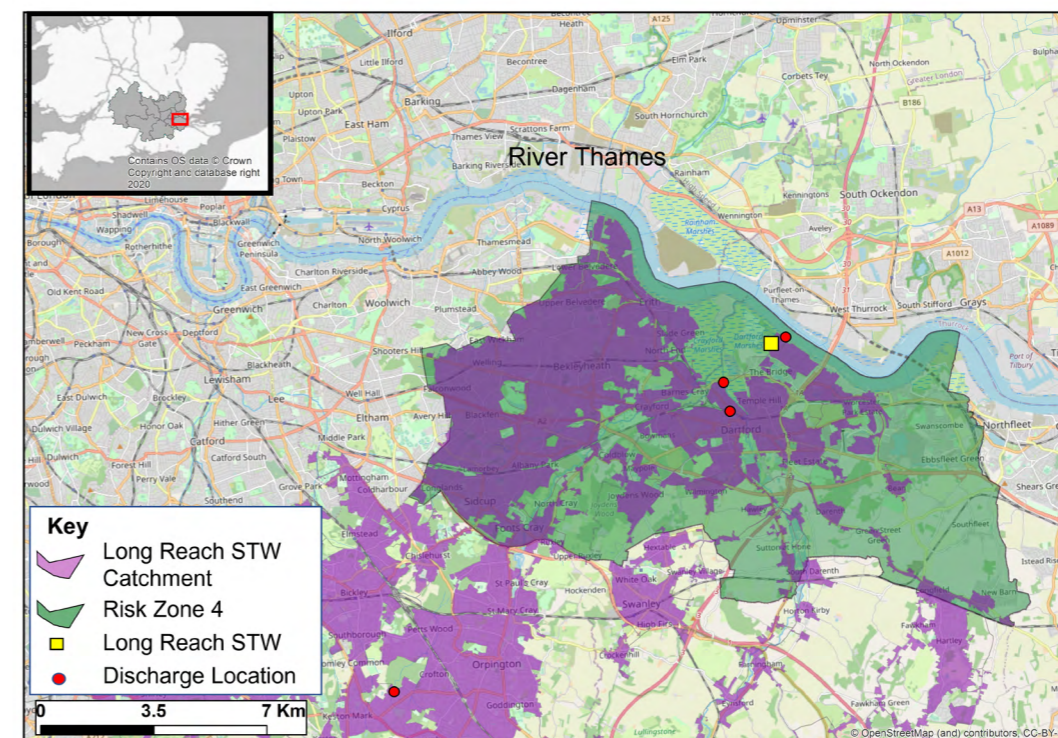
<p>What are the challenges?</p>	<ul style="list-style-type: none"> Increased internal hydraulic sewer flooding - from 1.0% to 1.8% of properties: Calculated as increased modelled risk of internal hydraulic sewer flooding from 1.0% of properties (2043) at risk up to a 1 in 30-year storm in 2025 to 1.8% of properties (3667) at risk by 2050 Increased external hydraulic sewer flooding - from 2.5% to 3.7% of properties: Calculated as increased modelled risk of external hydraulic sewer flooding from 2.5% of properties (5075) at risk up to a 1 in 30-year storm in 2025 to 3.7% of properties (7565) at risk by 2050 Increased hydraulic sewer flooding - from 4.5% to 6.7% of properties: Calculated as increased modelled risk of internal hydraulic sewer flooding from 4.5% of properties (9222) at risk up to a 1 in 50-year storm in 2025 to 6.7% of properties (13816) at risk by 2050 The two overflows in this area discharged 57 times in 2021
<p>Which of our solutions are best suited?</p>	<ul style="list-style-type: none"> Surface water management Sewer lining to target infiltration hotspots Network improvements Construct deep tanks and tunnels



Timescale	← 2025 Short term →	← 2030 Medium Term →	← 2035 Long Term → 2050
<p>What targets are we seeking?</p>	<p>To:</p> <ul style="list-style-type: none"> Reduce property hydraulic sewer flooding to 1.5% (internal) and 3% (external) for rainfall up to a 1 in 30-year storm event in any given year Reduce storm discharges (where overflows are present) to <10 in an average year by 2050 		
<p>How will we achieve the targets?</p>	<p>We will:</p> <ul style="list-style-type: none"> Increase the confidence in our plans for long-term investment to reduce the risk of internal and external hydraulic sewer flooding and enable catchment-level planning of surface water management solutions Provide sewer network improvements by installing larger sewers to increase network capacity Construct deep tanks and tunnels to store combined sewage 	<p>We will:</p> <ul style="list-style-type: none"> Further develop our catchment-level planning to reduce the risk of hydraulic sewer flooding by removing rainfall runoff that is entering our foul sewer system and enhance our surface water sewerage systems Continue to construct deep tanks and tunnels to store combined sewage 	<p>We will:</p> <ul style="list-style-type: none"> Reduce the risk of hydraulic sewer flooding by removing surface water from our foul sewer systems through the implementation of surface water management solutions Improve the resilience of our sewers at greatest risk of groundwater inflows by undertaking sewer lining work Continue to provide sewer network improvements by installing larger sewers Continue to construct deep tanks and tunnels to store combined sewage

Risk Zone 4 - Bexley and Dartford

What are the challenges?	<ul style="list-style-type: none"> Increased internal hydraulic sewer flooding - from 1.0% to 1.6% of properties: Calculated as increased modelled risk of internal hydraulic sewer flooding from 1.0% of properties (1570) at risk up to a 1 in 30-year storm in 2025 to 1.6% of properties (2565) at risk by 2050 Increased external hydraulic sewer flooding - from 2.2% to 3.3% of properties: Calculated as increased modelled risk of external hydraulic sewer flooding from 2.2% of properties (3649) at risk up to a 1 in 30-year storm in 2025 to 3.3% of properties (5339) at risk by 2050 Increased hydraulic sewer flooding - from 4.0% to 6.0% of properties: Calculated as increased modelled risk of internal hydraulic sewer flooding from 4.0% of properties (6519) at risk up to a 1 in 50-year storm in 2025 to 6.0% of properties (9704) at risk by 2050 The four overflows in this area discharged 46 times in 2021
Which of our solutions are best suited?	<ul style="list-style-type: none"> Surface water management and large-scale surface water management Sewer lining to target infiltration hotspots Network improvements Invest in our sewage treatment works to achieve 100% compliance



<div style="display: flex; justify-content: space-between; align-items: center;"> 2025 2030 2035 2050 </div> <div style="display: flex; justify-content: space-around; align-items: center; margin-top: 10px;"> ← Short term → ← Medium Term → ← Long Term → </div>			
Timescale			
What targets are we seeking?	<p>To:</p> <ul style="list-style-type: none"> Reduce property hydraulic sewer flooding to 1.5% (internal) and 3% (external) for rainfall up to a 1 in 30-year storm event in any given year Reduce storm discharges (where overflows are present) to <10 in an average year by 2050 		
How will we achieve the targets?	<p>We will:</p> <ul style="list-style-type: none"> Increase the confidence in our plans for long-term investment to reduce the risk of internal and external hydraulic sewer flooding and enable catchment-level planning of surface water management solutions Provide sewer network improvements by installing larger sewers to increase network capacity 	<p>We will:</p> <ul style="list-style-type: none"> Further develop our catchment-level planning to reduce the risk of hydraulic sewer flooding by removing rainfall runoff that is entering our foul sewer system and enhance our surface water sewerage systems Continue to provide sewer network improvements by installing larger sewers Construct deep tanks and tunnels to store combined sewage Invest in our sewage treatment works to ensure compliance 	<p>We will:</p> <ul style="list-style-type: none"> Reduce the risk of hydraulic sewer flooding by removing surface water from our foul sewer systems through the implementation of large-scale surface water management strategies Improve the resilience of our sewers at greatest risk of groundwater inflows by undertaking sewer lining work Continue to construct deep tanks and tunnels to store combined sewage Continue to invest in our sewage treatment works to ensure compliance

Risk zone summary table

Risk Zone	2025 modelled baseline					2050 Performance without DWMP					2050 Performance with DWMP				Preferred solutions			
	(no.& % of properties)					(no.& % of properties)					(no.& % of properties)							
	Internal flooding (2025)	External flooding (2025)	Resilience flooding (2025)	Number of monitored storm overflows (2021)	Recorded (EDM) storm overflow discharges in 2021	Internal flooding (2050)	External flooding (2050)	Resilience flooding (2050)	Number of modelled storm overflows (2050)	Modelled average annual storm discharges (2050)	Internal flooding (2050) DWMP	External flooding (2050) DWMP	Resilience flooding (2050) DWMP	Modelled average annual storm discharges (2050) DWMP	2025-2030	2030-2035	2035-2050	Investment Band (£)
Long Reach RZ2	742 (1.4%)	1848 (3.5%)	3008 (5.8%)	No data	No data	1430 (2.7%)	2681 (5.1%)	4864 (9.3%)	12	133	413 (0.8%)	933 (1.8%)	1935 (3.7%)	<=10	CP, NI	CP, DT	DT, NI, SL, SWM	High
Long Reach RZ3	2043 (1%)	5075 (2.5%)	9222 (4.5%)	2	57	3667 (1.8%)	7565 (3.7%)	13816 (6.7%)	7	81	1750 (0.8%)	3834 (1.9%)	7259 (3.5%)	<=10	CP, DT, NI	CP, DT	DT, NI, SL, SWM	High
Long Reach RZ4	1570 (1%)	3649 (2.2%)	6519 (4%)	4	46	2565 (1.6%)	5339 (3.3%)	9704 (6%)	8	144	1248 (0.8%)	3367 (2.1%)	5750 (3.5%)	<=10	CP, NI	CP, DT, NI, STW	DT, LSSWM, SL, STW	High
Ham Hill (SW) STW	N/A	N/A	N/A	No data	No data	N/A	N/A	N/A	2	50	N/A	N/A	N/A	<=10	CP	CP	NI	Low

CP = Catchment-level planning including mapping and modelling

SWM = Surface water management

LSSWM = Large-scale surface water management

NI = Network improvements

DT = Deep tanks and tunnels

SL = Sewer lining

STW = Treatment process technologies and protection from high river levels

Navigation index

We've developed a comprehensive document suite to share our final DWMP. This includes five summary documents, that contain increasing levels of detail, as well as Catchment Strategic Plans. To help you to navigate around our document suite and to find key DWMP content, we provide a navigation index below.

Navigation index		Protecting the environment and providing a reliable, sustainable wastewater service						Best value and delivery				Working together		DWMP stages and data						
		Storm overflows	Sewer flooding	Level of ambition & pace of delivery	Growth & climate change	Resilience: flooding & power	Groundwater	Environmental assessments	Affordability & bill impact	Best Value	Base vs Enhancement	Solutions & deliverability	Programme alignment	Partnership working	Stakeholder & customer engagement	DWMP stages & process	Level 2 regional summaries	Level 3 regional summaries	Data tables	Risk & Assurance
Summary documents	Customer summary																			
	Non-technical summary																			
	Technical summary																			
	The Plan																			
	Catchment Strategic Plans x13																			
Technical appendices x11	Appendix A - Strategic context																			
	Appendix B - Risk-Based catchment screening																			
	Appendix C - Baseline risk and Vulnerability assessment																			
	Appendix D - Options development and appraisal																			
	Appendix E - Programme appraisal																			
	Appendix F - Stakeholder engagement																			
	Appendix G - Adaptive pathway planning																			
	Appendix H – Customer engagement Part A – Draft DWMP																			
	Appendix I - Risk and uncertainty																			
	Appendix J - DWMP and WRMP alignment																			
Appendix M - Assurance																				
New technical appendices x9	Appendix N - You Said, We Did (YSWD)																			
	Appendix O - What base buys																			
	Appendix P - Response to July 2021 Floods																			
	Appendix Q - Storm overflows																			
	Appendix R - Delivery of SuDS and nature-based solutions																			
	Appendix S - Partnership opportunities and working																			
	Appendix T - Groundwater quality																			
	Appendix U - Resilience																			
Appendix V – Customer engagement Part B – Consultation Survey Report																				
Environmental assessments	Appendix K - Strategic environmental assessment (SEA)																			
	Appendix L - Habitats regulations assessment (HRA)																			
Portals and data	Customer portal																			
	Practitioner portal																			
	Data tables																			
	Data tables commentary																			



Work with us

We want to continue to draw on your expertise and local knowledge and invite you to work further with us to meet the future needs of drainage and wastewater services in our region.

Please get in touch with us or provide feedback on this document by emailing our DWMP team at DWMP@thameswater.co.uk

For more information on our DWMP work or to share your views, please visit the DWMP portal on our website [here](#).