Catchment Strategic Plan

Part of our Drainage and Wastewater Management Plan (DWMP)

Co-creating resilient wastewater catchments

A long-term Strategic Plan for the **Crossness** System

Thames Water

Contents

Foreword

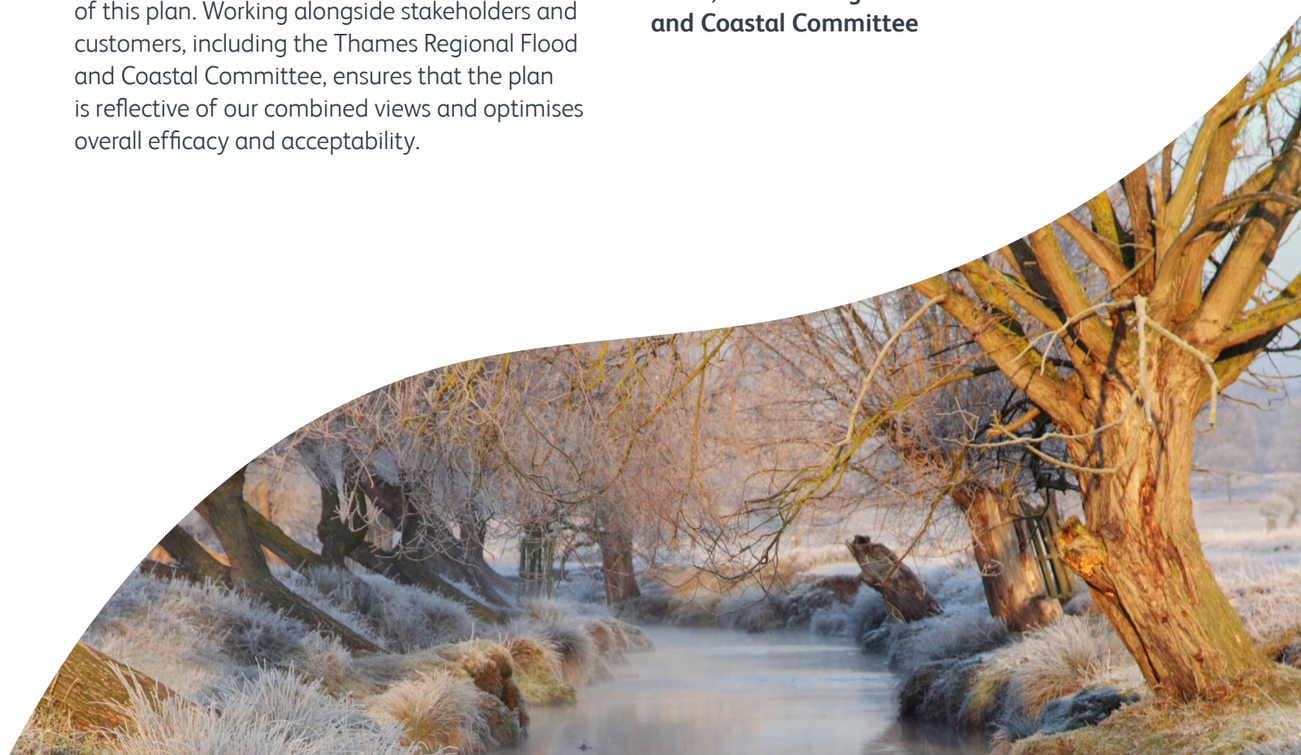
Thames Water has been making considerable progress to bring to fruition their drainage and wastewater management plan (DWMP). The DWMP vision is to co-create a 25-year plan for drainage and wastewater that benefits communities and the natural environment in London and the Thames Valley. We can all agree 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.

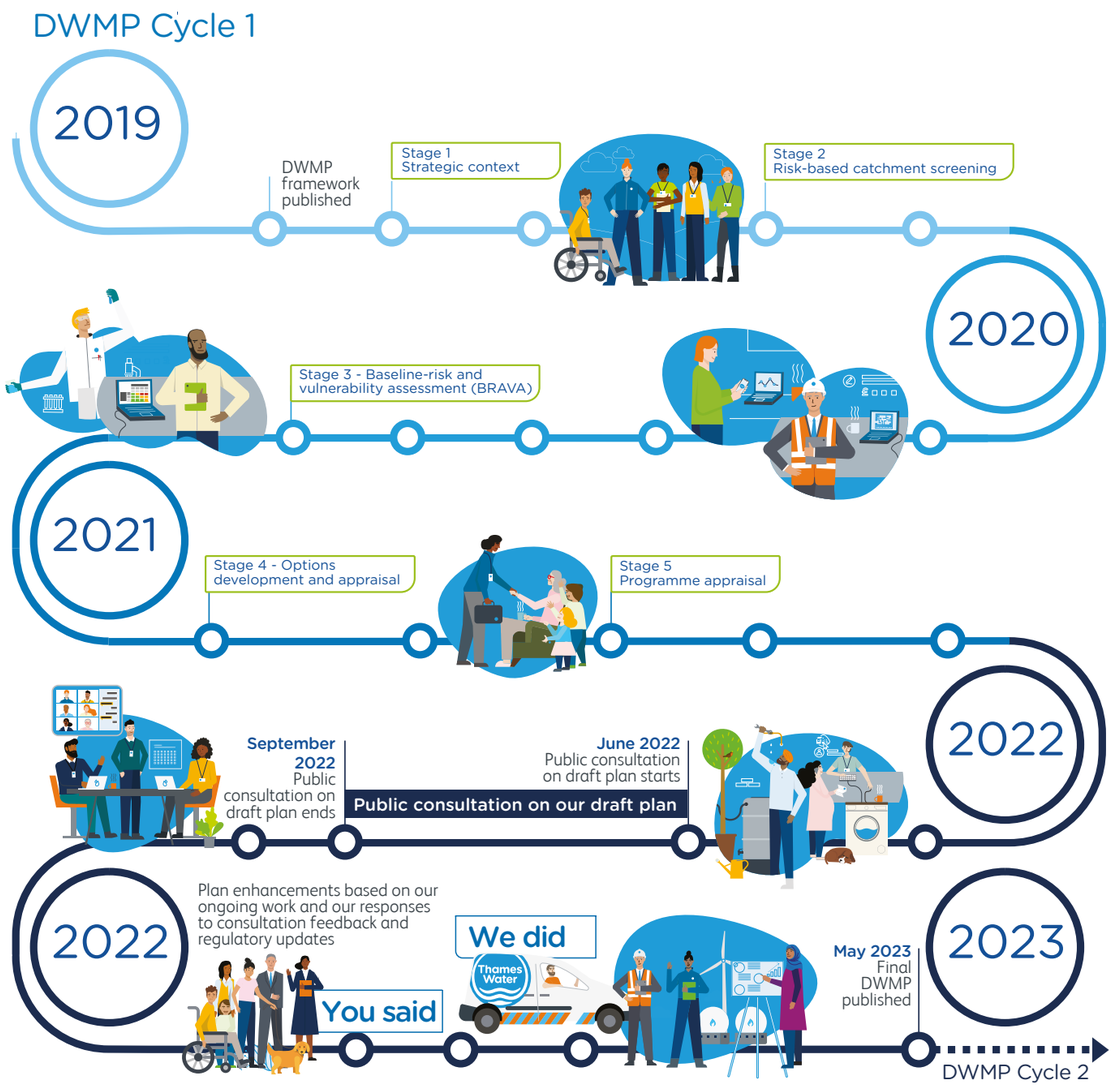
We'd like to say a big thank you to everyone who got involved and collaborated with us in the development of our shared plan. We're really happy it's having a positive impact already, and encouraged by the shared benefits we can deliver in the future as we continue to move forward together.

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.

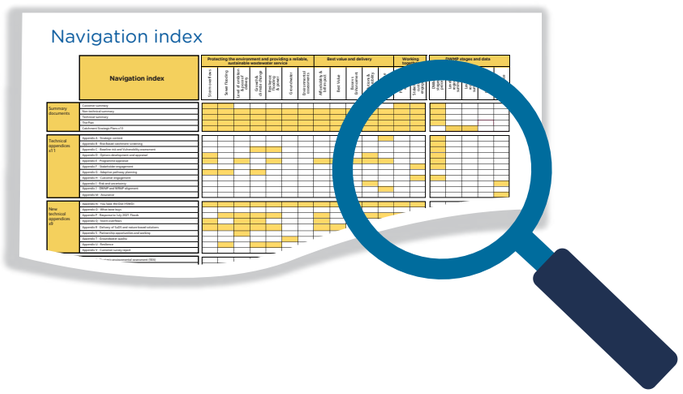
Preface

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

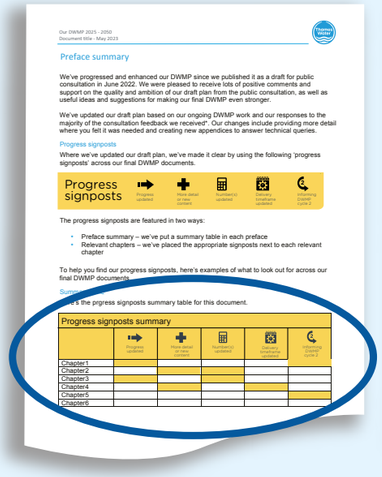


Progress signposts

- Progress updated
- More detail or new content
- Number(s) updated
- Delivery timeframe updated
- Informing DWMP cycle 2

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 Crossness system that encompasses Putney to the west, Thamesmead to the east, and Bromley to the south.

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're doing this as future challenges such as climate change, population growth and urban creep are expected to impact our region over the next 25 years.

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 of 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 Crossness 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 Crossness system

The Crossness system is located to the south of the River Thames in South London between the boroughs of Richmond upon Thames and Bexley. It flows southwest to northeast from New Malden also draining parts of Croydon.

The Crossness system has over 11,600 km of sewer network and 129 pumping stations. This is a conventional gravity system with a trunk sewer network and many assets over 100 years old. Crossness 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.

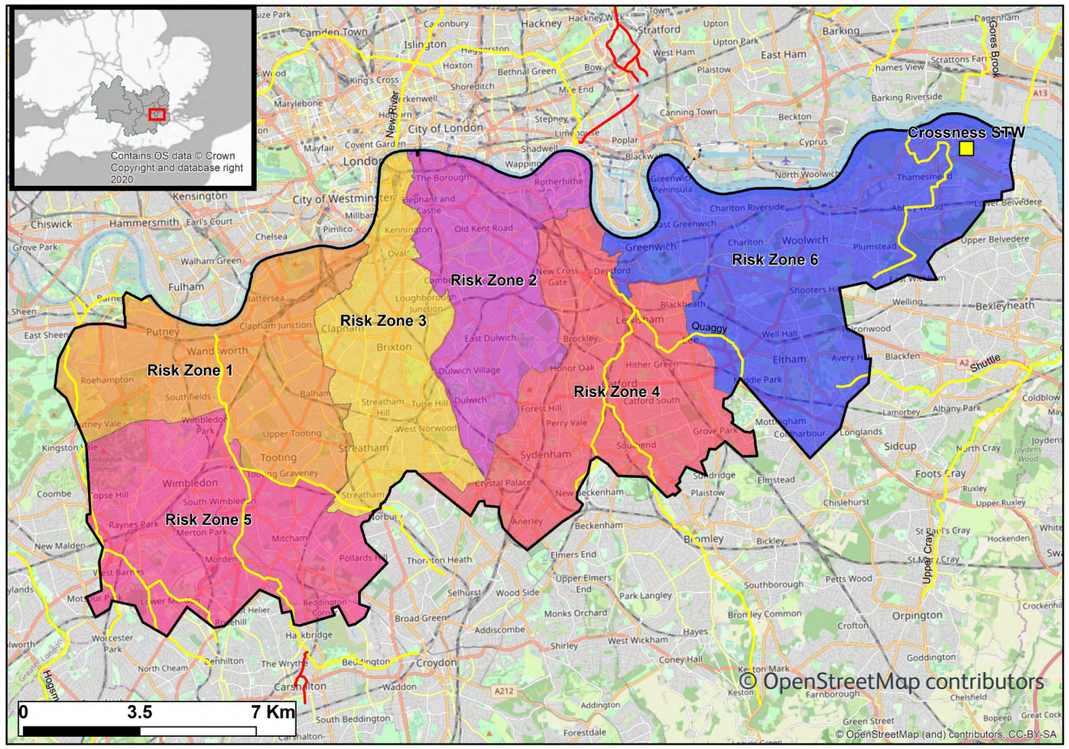
Crossness sewage treatment works (STW) is the second largest in Europe serving a population of 2 million over a catchment area of 230 km^2. The treatment works is located in the northeast of the catchment by the south bank of the River Thames near the town of Thamesmead.

The area which Crossness serves is a densely populated area with key, financial, historical and retail sites in addition to substantial urban and suburban areas.

Crossness STW serves a number of London boroughs wholly or in part, including: Bexley, Bromley, Croydon, Greenwich, Lambeth, Lewisham, Merton, Southwark, Sutton and Wandsworth.

The region overview map below highlights the watercourses in this area that are typically heavily modified and have river water quality status as moderate.

The map also shows the sub-division of the Crossness system into six 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, Natural England, Department for Environment, Food and Rural Affairs (Defra), Greater London Authority, Transport for London, Thames Water Consumer Challenge Group (CCG), Thames21, South East Rivers Trust, Bexley Council, Royal Borough of Greenwich, Lewisham Council, Southwark Council, Lambeth Council, Wandsworth Council, Merton Council, Beverley Brook Catchment Partnership, Wandle Catchment Partnership, Ravensbourne Catchment Partnership, Marsh Dykes and Thamesmead Catchment Improvement Group.

Environment Agency · Natural England · Thames21 · Department for Environment Food & Rural Affairs · Consumer Council for Water · south east rivers trust · Bexley · Royal Borough of Greenwich · Lewisham · Southwark Council southwark.gov.uk · Lambeth · The Brighter Borough Wandsworth · merton · Transport for London · Greater London Authority

- Beverley Brook Catchment Partnership
- Wandle Catchment Partnership
- Ravensbourne Catchment Partnership
- Thames Water Customer Challenge Group (CCG)
- Marsh Dykes and Thamesmead Catchment Improvement Group

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 records all of the plans and policies and how they align with the DWMP.

> "It is a good aim to work to achieve. As the aim is to restore to the original intent. If the aim was to obtain a higher standard (e.g., 1 in 100-year design standard) with consideration for climate change, I'd rate this higher."

> "Include joint monitoring schemes for tricky areas where a solution to the flood risk may not be deliverable immediately. Development of 'joint' smart data scheme."

Partners' policies

Management Plan (Hyperlink)	Key aspects that align with the DWMP
Sustainability and Planning	
Thames Estuary TE2100 Plan	• 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
The London Plan	• This plan is an integrated economic, environmental, transport and social framework for the development of London over the next 20-25 years.
Local Flood Risk Management Strategies	
London Borough of Merton Local Flood Risk Management Strategy London Borough of Wandsworth Local Flood Risk Management Strategy Lambeth Local Flood Risk Management Strategy Southwark Council, Local Flood Risk Management Strategy Lewisham Local Flood Risk Management Strategy	• The purpose of these strategies is to set out the approach to managing flood risk from local sources in both the short and long term.
Royal Borough of Greenwich, Local Flood Risk Management Strategy (Draft for consultation) London Borough Of Bromley, Local Flood Risk Management Strategy London Borough of Richmond upon Thames, Local Flood Risk Management Strategy (Draft for consultation) Local Flood Risk Management Strategy, London Borough of Bexley	• The purpose of these strategies is to set out the approach to managing flood risk from local sources in both the short and long term.
Surface Water Management Plans	
Surface Water Management Plan, London Borough of Richmond Upon Thames Surface Water Management Plan, Prepared For London Borough of Wandsworth	• These plans enable the LLFA to carry out their responsibilities by proposing potential mitigation measures and an Action Plan to reduce flood risk in the area, as well as suggesting methods for working collaboratively with partners and stakeholders.

Management Plan (Hyperlink)	Key aspects that align with the DWMP
Surface Water Management Plan, London Borough of Lambeth Surface Water Management Plan, London Borough of Southwark	• These plans which outline the preferred surface water management strategy for London boroughs of Lambeth and Southwark include consideration of flooding from sewers, drains, groundwater and runoff from land, small watercourses and ditches that occurs as a result of heavy rainfall.
Surface Water Management Plan, London Borough of Lewisham	• This plan sets out the causes and effects of surface water flooding and agrees the most cost-effective way of managing surface water flood risk for the long-term.
River Catchment Partnership Plans	
Marsh Dykes & Thamesmead Catchment Plan	• The catchment vision is 'sustainable wildlife-rich waterways for future generations'.
Darent and Cray Partnership	• Develop sustainable water management within the catchment • Have communities that enjoy, engage with and protect the river
Ravensbourne Catchment Plan	• 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	• "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
The Beverley Brook	• Connecting communities • Catchment planning

Management Plan (Hyperlink)	Key aspects that align with the DWMP
SuDS Design and Evaluation Guides	
Sustainable Drainage Design & Evaluation Guide, Merton	• 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.
Guidance for SuDS in Southwark	• This guidance provides an overview of common types of SuDS measures, which may be suitable for installation within the borough.
Guidance for SuDS in Bromley	• This guidance provides an overview of common types of SuDS measures, which may be suitable for installation within the borough.
Delivering SuDS in Richmond	• Outlines the way to deliver SuDS in Richmond • Sets out their key intent as an area

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 for opportunities to utilise future technologies and engineering solutions.

Risk							
Risk Zone	**Storm Overflow Performance**	**Internal Sewer Flooding**	**External Sewer Flooding**	**Resilience (1 in 50-year storm)**	**Surcharging**	**STW Quality Compliance**	**STW DWF Compliance**
0 (STW)	Yes	N/A	N/A	N/A	N/A	Yes	Yes
1	Yes	Yes	Yes	No	Yes	N/A	N/A
2	No	Yes	Yes	Yes	Yes	N/A	N/A
3	No	Yes	Yes	No	No	N/A	N/A
4	No	Yes	No	No	No	N/A	N/A
5	No	No	No	No	No	N/A	N/A
6	No	No	No	No	No	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.

The ability of STW to treat and dispose of sewage in line with current water quality and dry weather flow (DWF) discharge permit conditions was assessed. The results presented indicate that the DWF permit will be breached in 2045 and that water quality performance exceed the current Thames Water target of being less than 80 % of the permitted level in 2025 and will breach the permit by 2035. An upgrade is currently in delivery as our 2020 limits are above our 80 % target position.

Our forecast network performance metrics are summarised opposite. By 2050 we forecast that, across the region, over 9 % of properties will be at risk of hydraulic sewer flooding in a 1 in 50-year storm.

Crossness STW water quality and DWF compliance

	2020	2025	2030	2035	2040	2045	2050
Water Quality (SS* & BOD*)	77 %	93 %	97 %	100 %	104 %	108 %	113 %
Water Quality (AmmN*)	76 %	93 %	97 %	100 %	104 %	108 %	113 %
DWF	89 %	92 %	94 %	95 %	98 %	102 %	106 %

* 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.

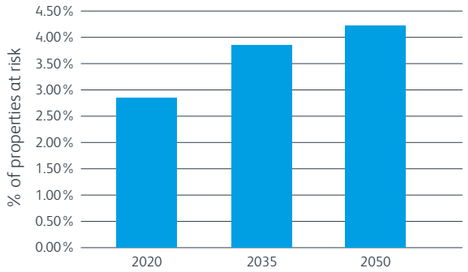
Therefore, there is an evident need for long-term planning and the implementation of the DWMP, to protect this region and support its future growth.

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

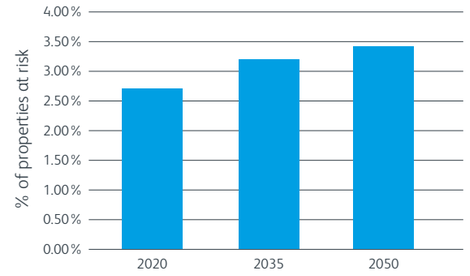
DWMP Practitioner portal

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

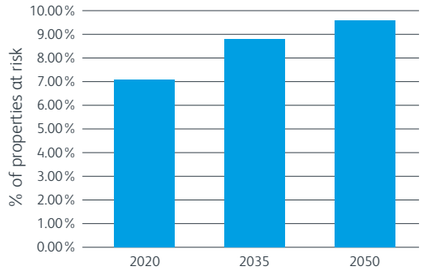
Internal hydraulic sewer flooding (1 in 30-yr storm) - i.e > 3.3% chance of happening each year [RZ 1, 2, 3 & 4 only]



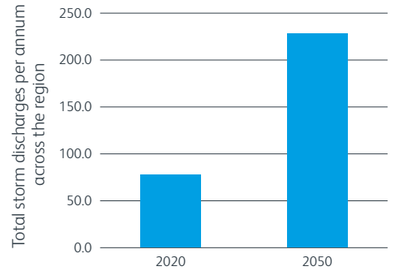
External hydraulic sewer flooding (1 in 30-yr storm) - i.e > 3.3% chance of happening each year [RZ 1, 2, 3 & 4 only]



Hydraulic sewer flooding (1 in 50-yr storm) - i.e. > 2% chance of happening each year [RZ 1, 2, 3 & 4 only]



Annual storm overflow performance



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

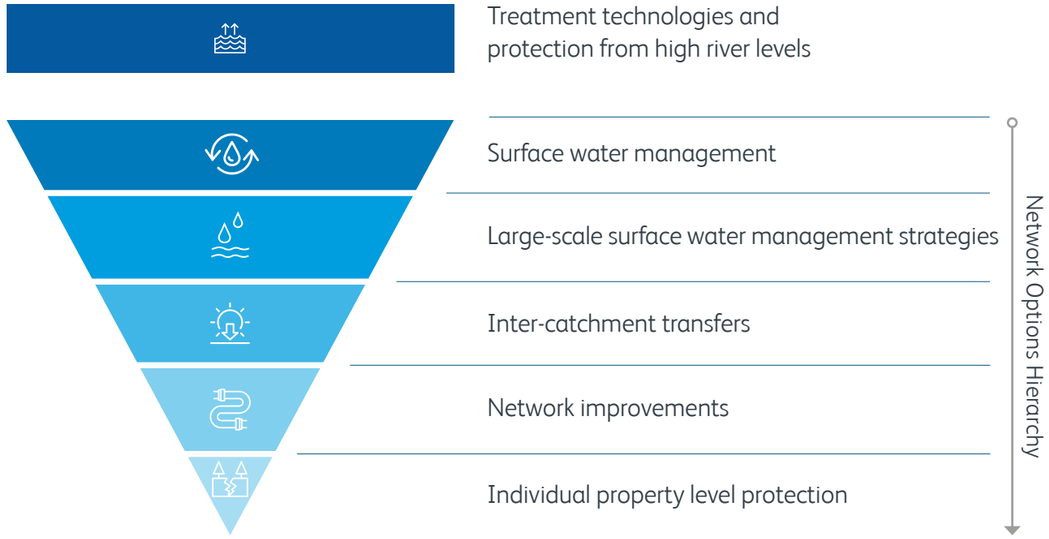
Sustainable solutions

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.
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 rural/urban mix in this catchment aligns to balancing SuDS with traditional engineering solutions, predominantly in urban areas. The common sustainable solution options we've considered for this area are outlined below. Further information on Options Development and Appraisal stage is available on our DWMP portal.



Solution options considered in optioneering

Surface water management

Surface water separation and the installation of features to collect, store and/or infiltrate surface water from buildings and impermeable areas, such as driveways and car parks as part of enhancing our surface water sewerage system. This option also looks to reinforce the fundamental basis of our sewerage systems being separate by addressing property misconnections of surface water into the foul sewer system or foul to surface water.

Large-scale surface water management strategies

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.

Inter-catchment transfers

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.

Network improvements

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.

Individual property level protection

Providing vulnerable homes with active and passive sewer flood protection measures such as flood proof doors, self-sealing bath/shower systems (non-return valves) and installation of household pumping stations.

Treatment process technologies and protection from high river levels

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.

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.

Southwark Camberwell SuDS

The London Borough (LB) of Southwark has identified opportunity areas for the use of SuDS within Camberwell to reduce the flood risk by slowing the flow of rainwater into the combined sewer system. Covering three separate sites in East, West and Central Camberwell, this project installed features ranging from blue-green roofs to bio-retention rain gardens.

The locations for these sites were identified by detailed modelling, and the next step in this project is to further enhance the model so that additional solutions can be developed.

The Southwark Surface Water Management Plan (2022) identified several surface water flooding hotspots in the Camberwell Station Road area. The area currently drains to the combined sewer as there are no existing surface water sewers in close proximity.

Working in partnership with Southwark Council is essential to develop collaborative SuDS schemes that can collectively provide environmental and social benefits, through the attenuation of surface water captured from the carriageway within rain gardens and tree pits, and gradually released back into the existing sewer at a controlled flow rate, using localised hydro-brakes to restrict the runoff rate.

Southfields Grid SuDS

This opportunity will aim to provide a combination of highway SuDS in Southfields Grid, in Merton and Wandsworth offering a collaborative working approach between the local highway authorities. It is proposed to offer multiple environmental and social benefits and to help ensure improvements for water quality, local amenities, and enhance biodiversity. The scheme will help attenuate inflow and options including rain gardens and tree pits to promote environmental diversity.

Water will be treated before flowing into the surface water and foul sewer network, which ultimately drains to the River Wandle. The opportunity involves interception of surface water runoff that is resulting in foul and surface water flooding at the surface at multiple locations. In addition, the opportunity will also provide benefit to the Thames Water network by easing pressure of foul sewer and surface water.

Opportunity	Partners
Queenstown Road and/ Roberston Street Tooting Bec Common	Wandsworth Council
Lower Morden Integrated Scheme	Merton Council and Thames Water
Raynes Park (Merton)	Merton Council
Sydenham Wells Park Verdant Lane	Lewisham Council
Southfields Grid	Merton Council
Animating America Street	Better Bankside
Camberwell Station Road SuDS	LB of Southwark

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 Crossness 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 to us in delivering that balance include:

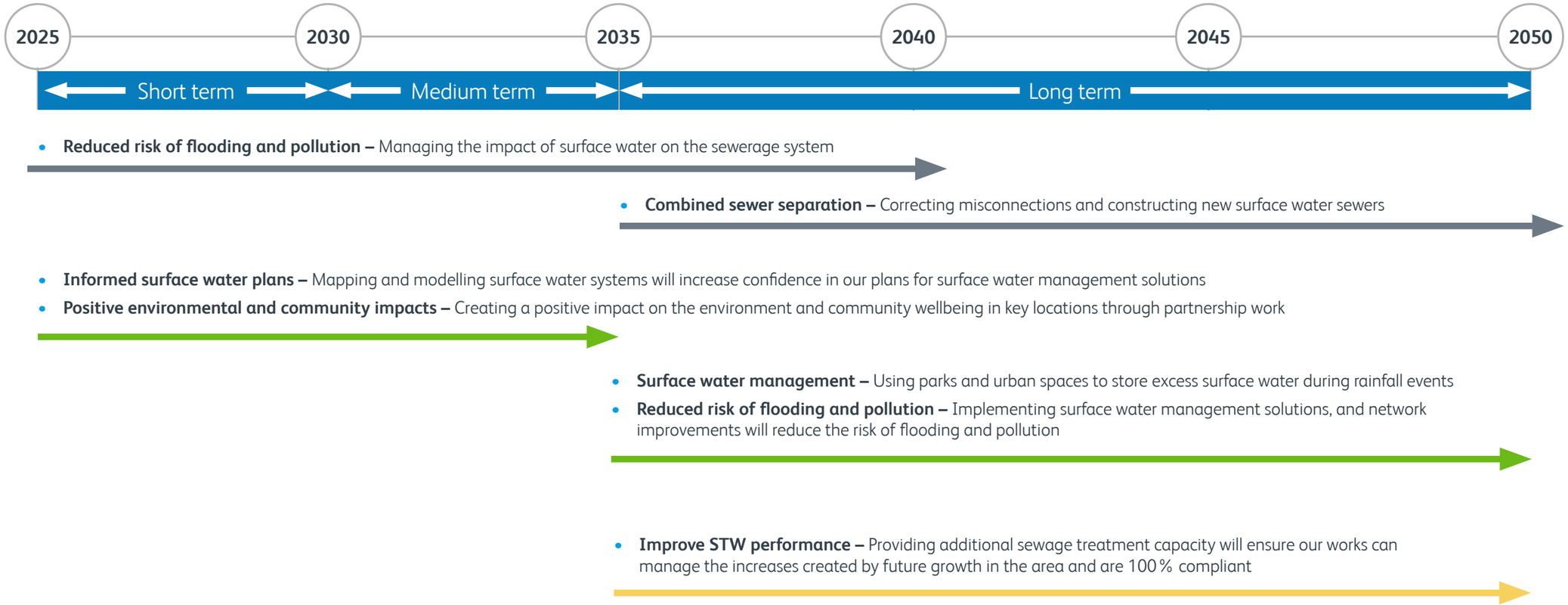
- Population growth uncertainties
- Incomplete mapping of surface water systems e.g. sewer, highway or land drainage and the extent of our hydraulic surface water sewerage network model coverage
- Location of property level misconnections
- Ownership and maintenance of SuDS

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.

In the short and medium term, we will focus on our hotspots in the short to medium term to deliver the maximum benefit of reducing sewage escapes to the environment in the shortest possible time for our customers. Those assets linked to the most sensitive water courses will be prioritised.

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



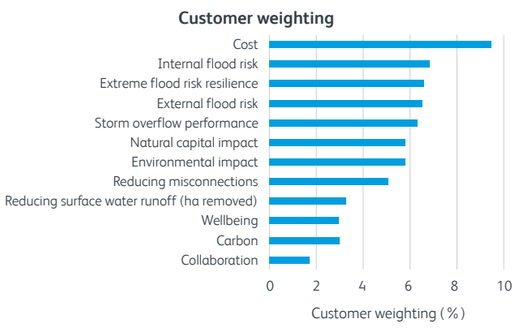
Developing our preferred plan for Crossness

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.

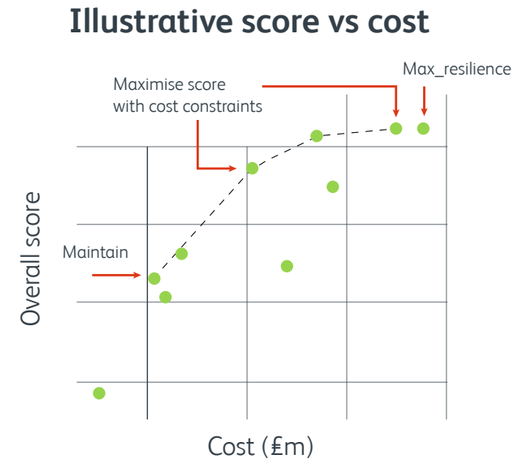
Natural capital (NC) impact
We used data from Natural England on the existing NC in the catchment and assessed whether the option would improve or reduce this baseline based on additional green space generated. Surface water management schemes scored highly whilst new sewers and tanks scored lower.

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 alternative plans

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.



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 Crossness

From the first iteration of our preferred plan for the Crossness system, we estimate that to tackle growth and climate change we need to invest an additional £3.4bn over the period 2025 - 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 catchments in London is to deliver a storm dicharge 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 and benefit from sustainable urban drainage solutions.

- £938m 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
- £2.35bn on improvements to surface water management
- £79m on upgrading the Crossness STW
- £2m on individual property level protection

Storm overflow performance
Reduce the number of average annual storm dicharges by 32. By 2050, none of the 60 storm dicharge locations in this catchment will overflow more than ten times per annum on average

Property flooding
Protect 17,275 properties from internal sewer flooding up to a 1 in 30-year storm event
Protect 11,696 properties from external sewer flooding up to a 1 in 30-year storm event
Protect 32,033 properties from sewer flooding up to a 1 in 50-year storm event
If we don't invest, over 6.9 % 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 3.8 %

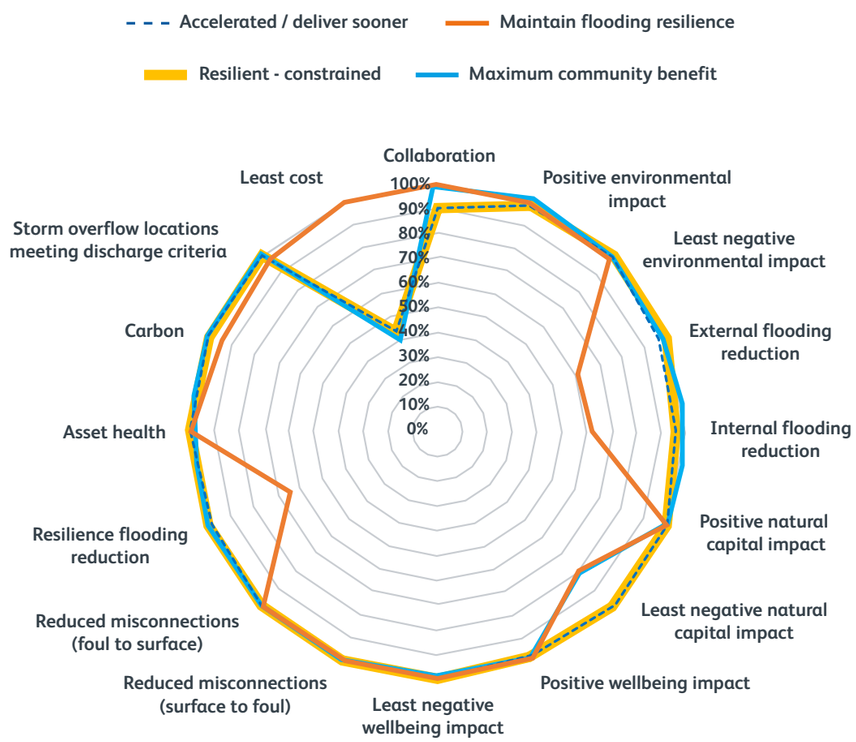
Treatment capacity enhancements and/or protection from high river levels at the STW
Upgrade the Crossness STW by 2050

Reduce misconnections / Reduce surface water runoff
2,412 ha (equivalent to 160,800 properties) to be disconnected from our sewers and reconnected to a surface water sewer with attenuation or to a soakway

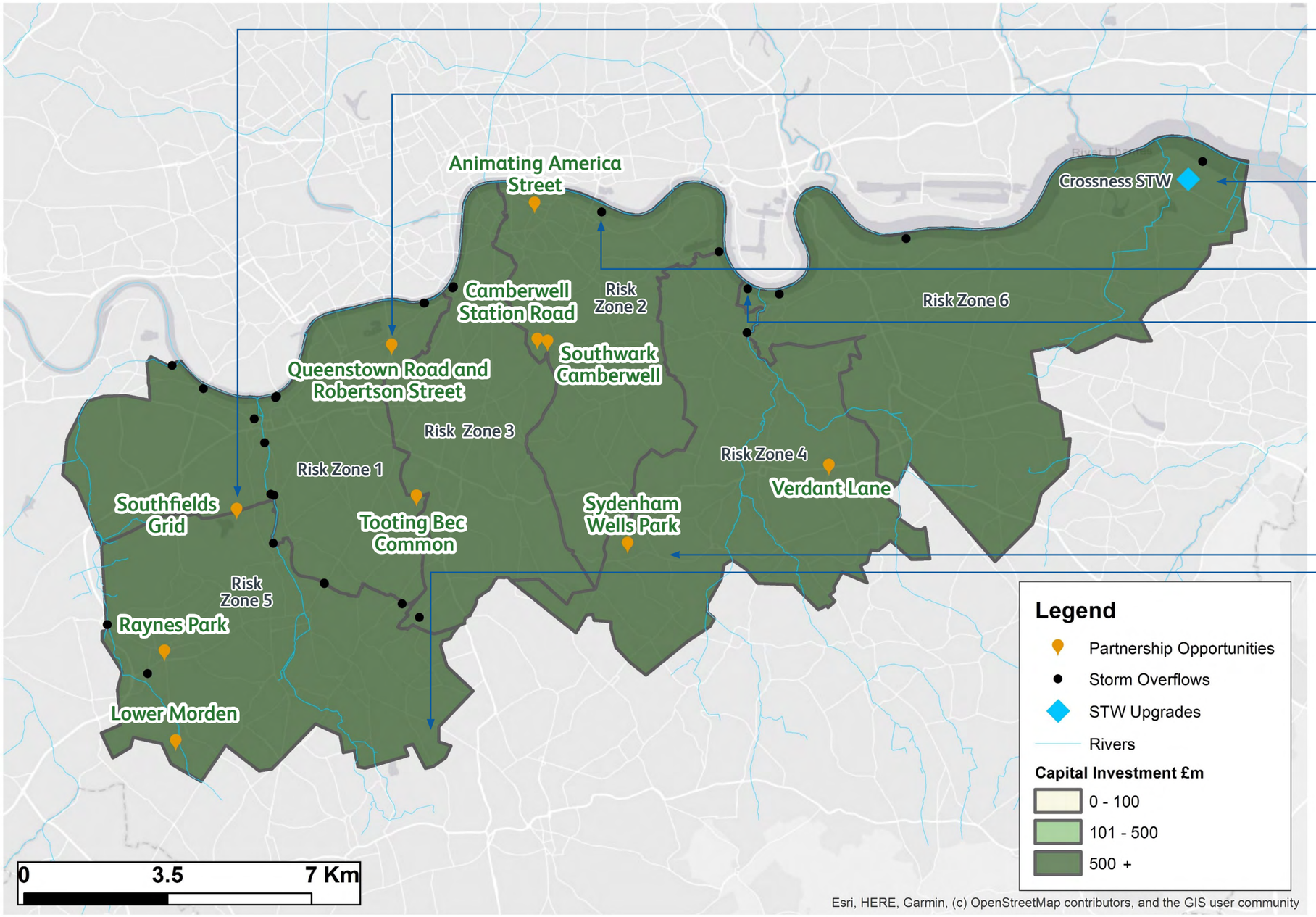
Carbon
441,900 tonnes of carbon embodied in delivering the plan, with 9,325 tonnes of carbon sequestered in delivering the plan

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



Our preferred 25 year plan for Crossness



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.

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.

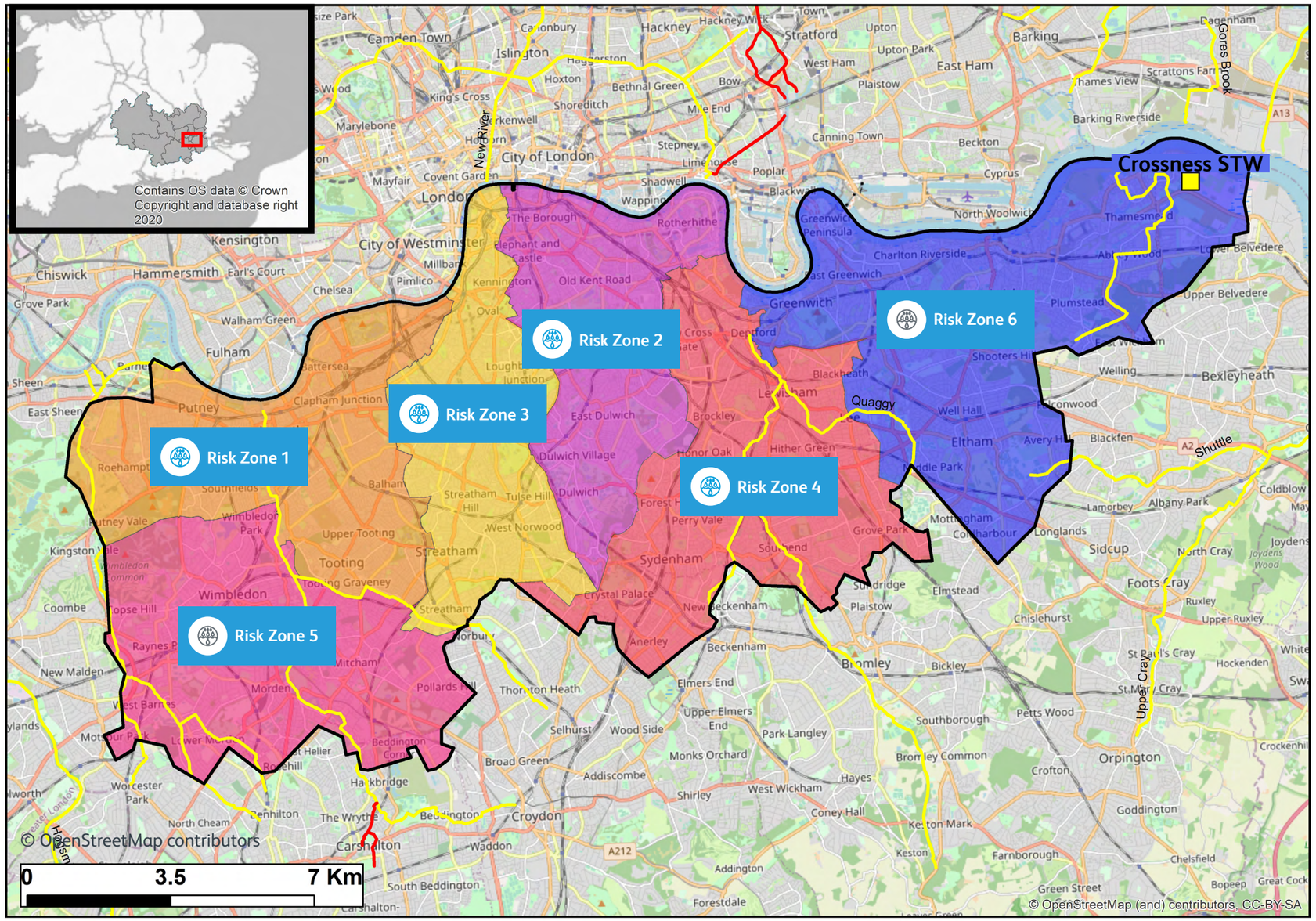
Future iterations on the plan will address elements that can't be progressed due to funding restrictions, as well as changes in customer priority or technical issues.

Our shared plan at catchment level

The map shows 6 risk zones, but only risk zones 1 to 4 have been identified as not meeting flooding targets and are included in the descriptions below.

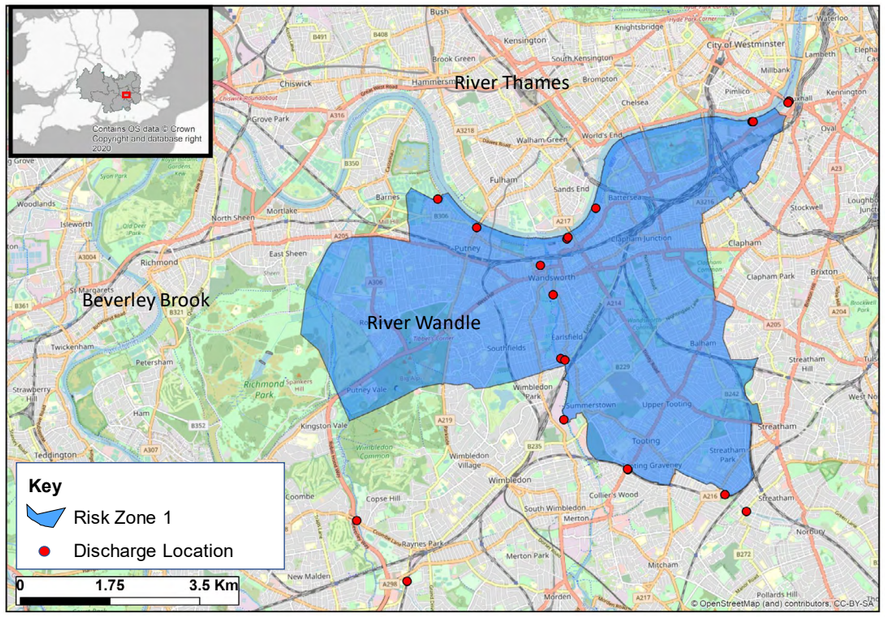
Use this interactive map by clicking on the blue boxes to find out more about our plans for the four risk zones that are predicted to breach our targets.

The risk zone table summarises the performance in all six risk zones and includes the solutions proposed in risk zones 5 and 6 to address storm overflow performance and maintain the current flood risk to 2050.



Risk Zone 1 - Wandsworth

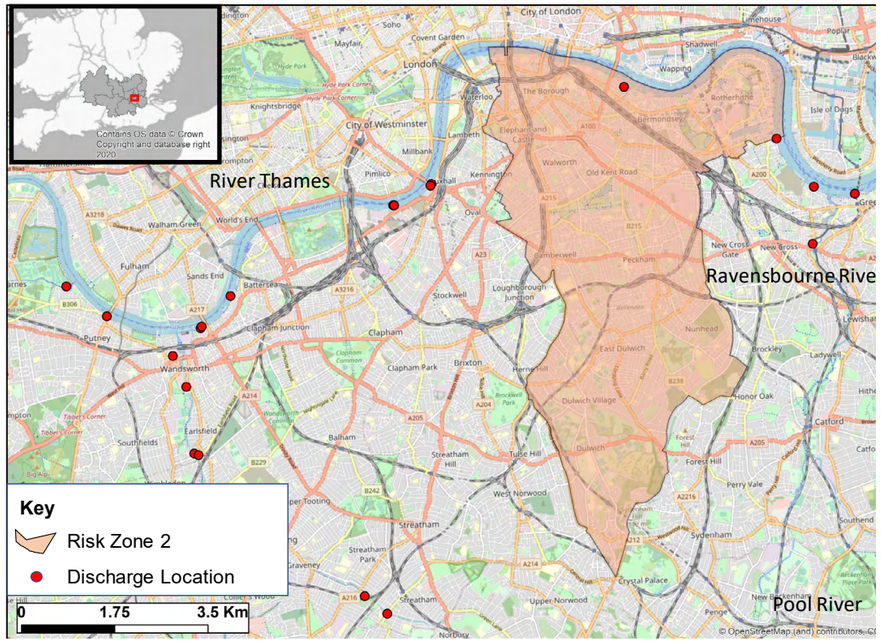
What are the challenges?	• Increased internal hydraulic sewer flooding - from 1.9% to 2.8% of properties: Calculated as increased modelled risk of internal hydraulic sewer flooding from 1.9% of properties (3693) at risk up to a 1 in 30-year storm in 2025 to 2.8% of properties (5369) at risk by 2050 • Increased external hydraulic sewer flooding - from 2.0% to 2.7% of properties: Calculated as increased modelled risk of external hydraulic sewer flooding from 2.0% of properties (3877) at risk up to a 1 in 30-year storm in 2025 to 2.7% of properties (5156) at risk by 2050 • Increased hydraulic sewer flooding - from 5.4% to 7.3% of properties: Calculated as increased modelled risk of internal hydraulic sewer flooding from 5.4% of properties (10293) at risk up to a 1 in 50-year storm in 2025 to 7.3% of properties (13833) at risk by 2050 • The thirteen overflows in this area discharged 350 times in 2021
Which of our solutions are best suited?	• Surface water management • Network improvements • Construct deep tanks and tunnels • Construct new surface water sewers • Use parks and urban spaces to store excess surface water • Property level protection measures to prevent individual buildings from sewer flooding



Timescale	2025 – Short term	2030 – Medium Term	2035 – Long Term	2050
What targets are we seeking?	To: • 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?	We will: • 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 • Construct deep tanks and tunnels to store combined sewage • Implement property level protection measures	We will: • 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 to increase network capacity • Continue to construct deep tanks and tunnels to store combined sewage	We will: • Reduce the risk of hydraulic sewer flooding by removing surface water from our foul sewer systems through the implementation of surface water management solutions • Continue to provide sewer network improvements by installing larger sewers • Continue to construct deep tanks and tunnels to store combined sewage • Construct new surface water sewers for combined sewer separation • Use parks and urban spaces to store excess surface water during rainfall events • Implement property level protection measures	

Risk Zone 2 – Southwark

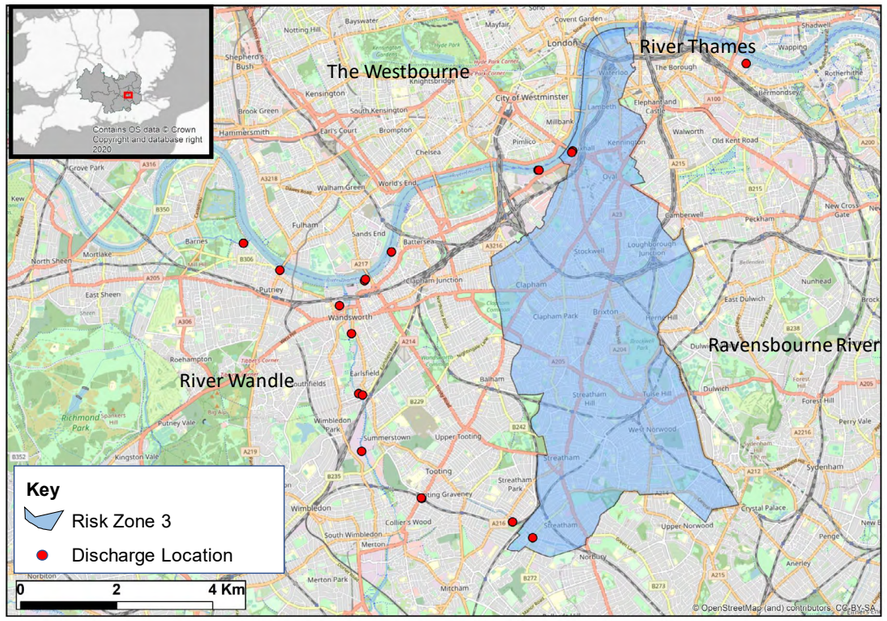
What are the challenges?	• Increased internal hydraulic sewer flooding - from 2.8 % to 4.2 % of properties: Calculated as increased modelled risk of internal hydraulic sewer flooding from 2.8 % of properties (5263) at risk up to a 1 in 30-year storm in 2025 to 4.2 % of properties (7868) at risk by 2050 • Increased external hydraulic sewer flooding - from 2.9 % to 3.9 % of properties: Calculated as increased modelled risk of external hydraulic sewer flooding from 2.9 % of properties (5460) at risk up to a 1 in 30-year storm in 2025 to 3.9 % of properties (7326) at risk by 2050 • Increased hydraulic sewer flooding - from 7.9 % to 11.1 % of properties: Calculated as increased modelled risk of internal hydraulic sewer flooding from 7.9 % of properties (14907) at risk up to a 1 in 50-year storm in 2025 to 11.1 % of properties (20953) at risk by 2050 • The two overflows in this area discharged 55 times in 2021
Which of our solutions are best suited?	• Surface water management • Network improvements • Construct new surface water sewers • Property level protection measures to prevent individual buildings from hydraulic sewer flooding



Timescale	2025 – Short term	2030 – Medium Term	2035 – Long Term
What targets are we seeking?	To: • 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?	We will: • 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 • Implement property level protection measures to prevent individual buildings from hydraulic sewer flooding	We will: • 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	We will: • Reduce the risk of hydraulic sewer flooding by removing surface water from our foul sewer systems through the implementation of surface water management solutions • Construct new surface water sewers for combined sewer separation

Risk Zone 3 – Lambeth

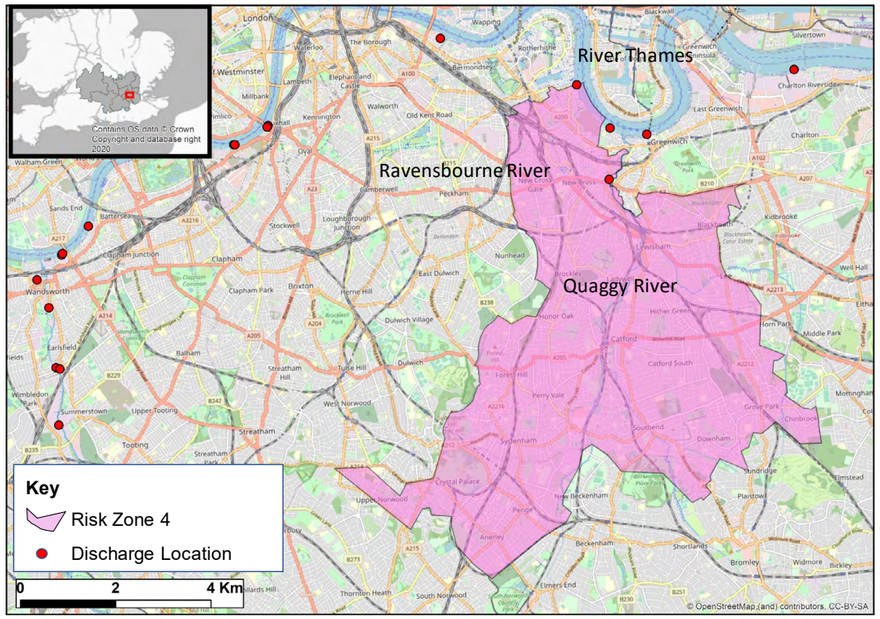
What are the challenges?	• Increased internal hydraulic sewer flooding - from 2.1% to 3.2% of properties: Calculated as increased modelled risk of internal hydraulic sewer flooding from 2.1% of properties (4112) at risk up to a 1 in 30-year storm in 2025 to 3.2% of properties (6210) at risk by 2050 • Increased external hydraulic sewer flooding - from 2.6% to 3.1% of properties: Calculated as increased modelled risk of external hydraulic sewer flooding from 2.6% of properties (5063) at risk up to a 1 in 30-year storm in 2025 to 3.1% of properties (5890) at risk by 2050 • Increased hydraulic sewer flooding - from 6.1% to 7.9% of properties: Calculated as increased modelled risk of internal hydraulic sewer flooding from 6.1% of properties (11739) at risk up to a 1 in 50-year storm in 2025 to 7.9% of properties (15256) at risk by 2050 • The three overflows in this area discharged 136 times in 2021
Which of our solutions are best suited?	• Surface water management • Network improvements • Construct deep tanks and tunnels • Construct new surface water sewers



Timescale	2025 – Short term	2030 – Medium Term	2035 – Long Term	2050
What targets are we seeking?	To: • 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?	We will: • 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	We will: • 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 to increase network capacity	We will: • Reduce the risk of hydraulic sewer flooding by removing surface water from our foul sewer systems through the implementation of surface water management solutions • Continue to construct deep tanks and tunnels to store combined sewage • Construct new surface water sewers for combined sewer separation	

Risk Zone 4 – Lewisham

What are the challenges?	• Increased internal hydraulic sewer flooding - from 2.4 % to 3.3 % of properties: Calculated as increased modelled risk of internal hydraulic sewer flooding from 2.4 % of properties (4559) at risk up to a 1 in 30-year storm in 2025 to 3.3 % of properties (6301) at risk by 2050 • Increased external hydraulic sewer flooding - from 2.0 % to 2.3 % of properties: Calculated as increased modelled risk of external hydraulic sewer flooding from 2.0 % of properties (3781) at risk up to a 1 in 30-year storm in 2025 to 2.3 % of properties (4314) at risk by 2050 • Increased hydraulic sewer flooding - from 5.5 % to 6.9 % of properties: Calculated as increased modelled risk of internal hydraulic sewer flooding from 5.5 % of properties (10431) at risk up to a 1 in 50-year storm in 2025 to 6.9 % of properties (13036) at risk by 2050 • The only overflow in this area discharged 24 times in 2021
Which of our solutions are best suited?	• Surface water management • Network improvements • Construct deep tanks and tunnels • Construct new surface water sewers



Timescale	2025 – Short term	2030 – Medium Term	2035 – Long Term	2050
What targets are we seeking?	To: • 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?	We will: • 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	We will: • 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	We will: • Reduce the risk of hydraulic sewer flooding by removing surface water from our foul sewer systems through the implementation 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 • Construct new surface water sewers for combined sewer separation	

Progress +

Risk zone summary table

	2025 modelled baseline (no.& % of properties)					2050 Performance without DWMP (no.& % of properties)					2050 Performance with DWMP (no.& % of properties)				Preferred solutions			
Risk Zone	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 (£)
Crossness RZ1	3693 (1.9%)	3877 (2%)	10293 (5.4%)	13	350	5369 (2.8%)	5156 (2.7%)	13833 (7.3%)	21	105	2181 (1.1%)	2794 (1.5%)	6821 (3.6%)	<=10	CP, DT, IPP, NI	CP, DT, NI	CSS, DT, IPP, NI, SWM, URB	High
Crossness RZ2	5263 (2.8%)	5460 (2.9%)	14907 (7.9%)	2	55	7868 (4.2%)	7326 (3.9%)	20953 (11.1%)	2	7	2127 (1.1%)	2810 (1.5%)	9093 (4.8%)	<=10	CP, IPP, NI	CP	CSS, SWM	High
Crossness RZ3	4112 (2.1%)	5063 (2.6%)	11739 (6.1%)	3	136	6210 (3.2%)	5890 (3.1%)	15256 (7.9%)	4	13	1896 (1%)	3379 (1.8%)	8390 (4.3%)	<=10	CP, DT, NI	CP, NI	CSS, DT, SWM	High
Crossness RZ4	4559 (2.4%)	3781 (2%)	10431 (5.5%)	1	24	6301 (3.3%)	4314 (2.3%)	13036 (6.9%)	1	0	2295 (1.2%)	2368 (1.3%)	7267 (3.9%)	<=10	CP	CP	CSS, DT, NI, SWM	High
Crossness RZ5	1888 (1.6%)	720 (0.6%)	1214 (1%)	8	187	2559 (2.2%)	1031 (0.9%)	1941 (1.7%)	24	218	2559 (2.2%)	1031 (0.9%)	1941 (1.7%)	<=10	CP	CP, DT, NI	DT, STR, STW	High
Crossness RZ6	97 (0.1%)	1847 (1.1%)	5164 (3.2%)	4	206	146 (0.1%)	2560 (1.6%)	6133 (3.8%)	8	43	120 (0.1%)	2199 (1.4%)	5607 (3.5%)	<=10	CP, DT, NI	CP, DT, NI	DT, SWM	High

CP = Catchment-level planning including mapping and modelling

SWM = Surface water management

NI = Network improvements

DT = Deep tanks and tunnels

STW = Treatment process technologies and protection from high river levels

STR = Additional storage at our sewage treatment works

URB = Use parks and urban spaces to store excess surface water

CSS = Combined sewer separation

IPP = Individual property level protection

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																		■	

Find all the documents in our DWMP suite on our website.

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.