Our Drainage and Wastewater Management Plan

A summary of our DWMP24 for customers

Published June 2022

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Welcome to our draft Drainage and Wastewater Management Plan, DWMP24.

This document provides a summary of our DWMP, our first published long-term drainage and wastewater plan.

You can find the full technical, non-technical plan and consultation here:
yorkshirewater.com/about-us/drainage-and-wastewater-management-plan/

Yorkshire Water and our DWMP

We are proud to play water's role in making Yorkshire a brilliant place to be – now and always. Today, every day and forever, it is our job to make sure that everyone in Yorkshire has the water they need for their busy lives. When they have used it, it is our job to take it away and return it safely back to Yorkshire's environment.

Water is one of life's most basic essentials and we care deeply about taking care of it in the right way for everyone, all of the time.

Every day we collect and treat around 1 billion litres of wastewater and rainwater from homes and businesses, which flows into our 52,000km of sewers. We operate over 2000 wastewater pumping stations and 617 wastewater treatment works, to safely collect, and treat wastewater and rainwater before returning it safely back to the environment.

Yorkshire is a beautiful and diverse region, comprising of small rural villages through to large urban and industrial areas. All with varying topography, weather systems, geology and infrastructure which make the drainage requirements and challenges of each area unique.

The challenges we face

Population

Significant future population growth and development will add pressure to our existing drainage and wastewater systems.

Climate change

Climate change is expected to bring warmer, wetter winters and hotter, drier summers to our region. Rainfall events will likely become more intense and these more intense events are likely to occur more frequently, increasing the risk of flooding and potential for storm overflow operation. Storm overflows allow excess flows to spill into rivers or the sea in times of heavy rainfall. This helps to protect people's homes from flooding. Whilst the use of storm overflows has served us well in the past, their use is increasingly considered unacceptable.

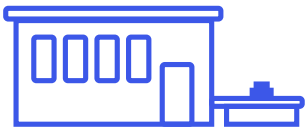
Rising sea levels

Rising sea levels and more frequent storms will make our systems vulnerable due to increased flood risk and accelerated coastal erosion.

The impact of these changes varies across our region. Our DWMP helps us to improve our understanding of the current and future challenges and to ensure our drainage and wastewater systems are robust and resilient, now and for the long-term.

Every day we collect and treat around **1 billion litres** of wastewater and rainwater from homes and businesses

This flows into our **52,000km of sewers**



We operate **617 wastewater treatment sites**, and over **2000 wastewater pumping stations** to safely collect, and treat wastewater and rainwater before returning it safely back to the environment.

Why we developed our DWMP?

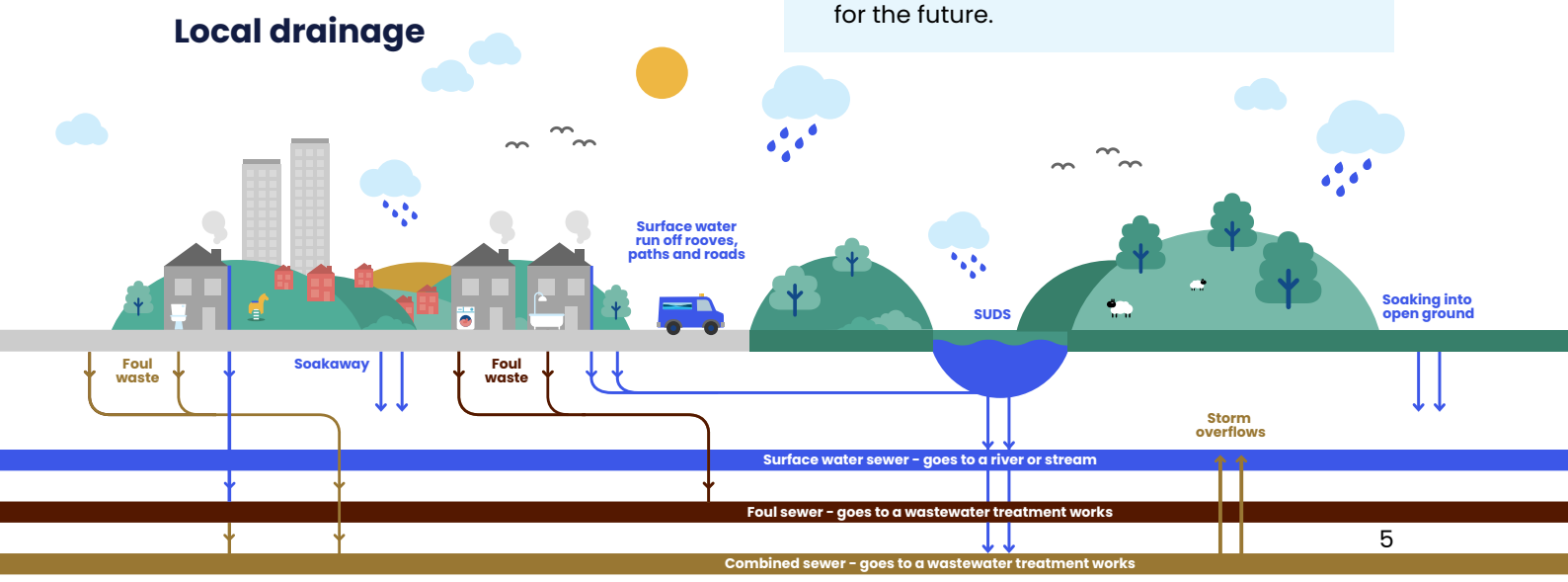
In 2018 the water sector produced a framework, working with WaterUK, to help companies produce consistent Drainage and Wastewater Management Plans. The first cycle of these plans have been developed and published for consultation.

Multiple agencies are responsible for the management of water within the wider Yorkshire region. In order to develop the most successful and cost-effective solutions, particular attention will be given to sewer flooding priority areas, sewerage escapes, storm overflows, and protecting the environment. In order to do this we will seek to work in partnership with others. Setting out our long-term plans through our DWMP will support us in establishing partnerships that will ensure we deliver long-term solutions with the best value and benefits for our customers and the environment.

The Drainage and Wastewater Management Plan that we have developed will help us to:

- **Meet our long-term ambitions** of reducing sewer flooding and protecting and enhancing the environment; by considering the operation and impact of our wastewater treatment works and storm overflows.
- **Prepare and adapt to the future challenges** that we face, notably climate change and a growing population.
- **Facilitate greater collaboration and partnership** working with stakeholders to ensure targeted investment which benefits our environment and local communities more effectively.
- **Understand customer and stakeholder expectations and requirements** and set out how we will work to meet these expectations - particularly around priority areas linked to sewage flooding, sewage escapes, storm overflows and protecting the environment.
- **Align with strategies and regulations set out by Government and the Environment Agency** to achieve a common set of objectives and goals.
- **Develop a plan which considers a wide range of options,** balancing the needs of customers and communities today and for the future.

Local drainage



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How our DWMP has been produced

The basic building blocks of our DWMP are the 617 Level 3 wastewater treatment works catchments in Yorkshire, which are grouped into 17 larger Level 2 strategic planning areas. Our DWMP considers all aspects of our wastewater networks (foul, combined and surface water) as well as our wastewater treatment works.

Our DWMP has been produced following an industry developed national framework[1]. This includes a series of screening stages and risk assessments which use existing performance data and hydraulic modelling results. This allows us to identify and focus on the catchments with the highest levels of immediate and emerging risk.

Our DWMP considers the latest guidance, scientific understanding, and modelling techniques to evaluate our levels of risk in relation to:

- Hydraulic internal and external sewer flooding of customers properties. Hydraulic flooding is caused by the capacity of the sewer being exceeded.
- The operation of storm overflows.
- Compliance with our wastewater treatment works permits.

Our DWMP shows the risk level now and how it is predicted to change by the year 2050. This helps us to plan what we need to do to manage our current risks and the risks that may emerge over this time period.

Our solutions will look to address the increasing pressures on the sewer and drainage networks as a result of climate change, population growth and development. Throughout the creation of our DWMP we have engaged with customers and a number of key local stakeholders including Lead Local Flood Authorities, The Rivers Trust and the Environment Agency. We will look at how we can deliver solutions in partnership with other agencies wherever possible, use sustainable nature-based solutions and provide the best value for our customers.

Level 1
Yorkshire region

Level 2
17 Strategic Planning Units (River Basin & urban area alignment)

Level 3
617 Tactical Planning Units (WwTW Catchments)

[1] water.org.uk/policy-topics/managing-sewage-and-drainage/drainage-and-wastewater-management-plans/

Summary of our DWMP

We have considered four scenarios with different targets for 2050 within our DWMP. They represent different levels of service and therefore different potential levels of investment needed to address the risks identified:

Scenario 1

Annual average of no more than **10 spills** per storm overflow and **reduced** levels of property flood risk from hydraulic sewer flooding and ensure our WwTWs have sufficient capacity to allow us to remain compliant with our current environmental permits.

Scenario 2

Annual average of no more than **10 spills** per storm overflow, plus **no environmental harm** from storm overflows and **reduced** levels of property flood risk from hydraulic sewer flooding and ensure our WwTWs have sufficient capacity to allow us to remain compliant with our current environmental permits.

Scenario 3

Annual average of no more than **10 spills** per storm overflow and **maintain** regional level of property flood risk from hydraulic sewer flooding and ensure our WwTWs have sufficient capacity to allow us to remain compliant with our current environmental permits.

Scenario 4

Annual average of no more than **10 spills** per storm overflow, plus **no environmental harm** from storm overflows and **maintain** regional level of property flood risk from hydraulic sewer flooding and ensure our WwTWs have sufficient capacity to allow us to remain compliant with our current environmental permits.

We have considered two main approaches to achieve our scenario targets:

- Increase the capacity of our network through traditional 'grey' solutions, i.e. building bigger pipes, storage tanks and upgrading our existing assets.
- Adopt blue-green solutions to manage and reduce the amount of rainfall entering our network to reduce our levels of risk (e.g. through the use of nature-based solutions or Sustainable Drainage Systems (SuDS) which look to manage flow in a cost-effective way whilst benefitting the environment and surrounding communities), then utilise traditional grey solutions to meet the target if still necessary.

Our customers and stakeholders have expressed a preference to use SuDS and nature-based solutions to address the challenges we face.

It is widely accepted that these options provide wider social and environmental benefits than traditional grey solutions although they will not always be appropriate for specific locations and may not provide the best value.

We have undertaken a series of assessments to establish which of the scenarios provides the best value for our customers and the environment (now and in the future) and which of the two solution approaches (grey or grey and blue-green solutions) should be used within each of the higher risk Level 3 wastewater treatment works catchments.

Short-term plan

This document supports publication of our draft DWMP, with the publication of our final DWMP in March 2023. Between now and the publication of our final plan we will continue to develop our plans further and incorporate the feedback and comments we receive through the consultation process.

We will continue to work closely with Defra and the Environment Agency to ensure that our final DWMP accurately reflects the evolving requirements for storm overflows.

Through our established partnerships, we will continue to work with others to collaboratively develop and deliver solutions and will proactively identify opportunities for new partnerships, laying the foundations for future collaborative working.

Alongside these changes to our DWMP we will be developing our Business Plan for 2025-2030, this will set out in detail how we manage all aspects of our wastewater service. It will contain a detailed view of how we plan to deliver the first five years of the long-term 25-year ambition set out in our DWMP.

Medium- & long-term plan

The next cycle of DWMP development will commence in April 2023. This will make use of newly available datasets, including new climate change projections and will incorporate learning and feedback from the completion of our first DWMP.

We have identified the potential levels of investment required in the medium and long-term to reduce our risks and achieve our long-term targets. Through subsequent cycles of our DWMP, we will adapt our DWMP based on the outcomes of investigations, continued monitoring of scheme impacts, emerging risks and increase our certainty about the impacts of climate change and population growth by monitoring against current projections.

We will also monitor new and emerging technologies to see where these offer opportunities to provide best value.

Through the continued engagement with our customers and stakeholders and partnership working we will ensure that we deliver the best value solutions to communities, customers and the environment.

How much do we need to invest?

Having detailed our scenarios, we can now share with you a minimum and maximum cost range for each scenario across a 25-year timeframe. Our decision-making framework tool has selected a combination of blue-green and grey solutions for each high priority catchment within each scenario to address the issues we have identified.

These costs are based on a best value plan approach for all scenarios.

Level 1 - 25-Year Best Value Plan Cost Range		
Scenario 1	£28.8 billion ⟷	£47.9 billion
Scenario 2	£30.1 billion ⟷	£50.1 billion
Scenario 3	£23.1 billion ⟷	£38.5 billion
Scenario 4	£24.3 billion ⟷	£40.5 billion

These costs show our least cost approach cost for all scenarios.

Level 1 - 25-Year Least Cost Range		
Scenario 1	£21.2 billion ⟷	£35.3 billion
Scenario 2	£22.8 billion ⟷	£37.9 billion
Scenario 3	£9.7 billion ⟷	£16.2 billion
Scenario 4	£11.8 billion ⟷	£19.6 billion

We will look to be flexible, by using an adaptive planning approach, and change our plan as required to meet the differing need across the 25-years. Affordability and regulatory requirements will be factored into our price review process alongside this plan to shape our investment in the next AMP period. We will look to adapt and change our plan as we progress and utilise any new technologies that emerge to support our strategic plan development.

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