



DRAINAGE &
WASTEWATER
MANAGEMENT PLAN

Draft Drainage and Wastewater Management Plan 2024

Customer Summary

July 2022



IN PARTNERSHIP WITH

rps

ATKINS
Member of the SNC-Lavalin Group

wsp



Introduction

We all need and use water every day, for eating and drinking, taking a shower, washing our clothes, for recreation and for work.

One of the most important things Welsh Water does is to protect public health by taking away waste water, and the materials it contains, from our homes and businesses, so that it can be treated and safely returned to our rivers and the sea. We do so through a network of around 36,000km of sewers, 2,500 pumping stations and over 800 wastewater treatment works.

“ The Drainage and Wastewater Management Plan (DWMP) is a long-term planning study, which looks at drainage and sewerage needs over the next 25 years. It considers future trends, such as climate change, sets out an approach of working together with others to plan for the future, and identifies options for the sustainable management of drainage and sewerage services. ”

In our urban areas, a large proportion of these sewerage systems date from when the properties were first constructed, using materials and approaches that were common at that time.

Property that was built before the mid-20th Century mainly relies on a system of “combined sewers”; drainage systems that collect sewage and rainwater from roofs and roads in a single pipe. Those combined sewerage systems were constructed with overflows into our rivers, to reduce the risk of sewer flooding during heavy rain. There are over 2,000 of these across our operating area and they can have an impact on rivers and coastal areas.

In those parts of communities where separate drainage systems exist for sewage and rainwater, local authorities, environmental regulators, land and property owners may also have a role in maintaining or managing them. We will need to identify those areas where support from others will be needed.

As the climate changes, and new developments increase flows in our sewers, the rate at which rainfall enters the drainage systems will need to be slowed, or the size of those pipes will need to be increased. We also need to find more sustainable ways of delivering these improvements, such as using sustainable drainage systems (SuDS) to minimise their carbon impact and deliver wider environmental benefits.

Our own aspirations to improve our environmental performance, tighter regulation, together with increasing public awareness and expectation around flood risk and environmental protection, are all increasing the pace of investment needed.

Our Drainage and Wastewater Management Plan (DWMP) aims to develop a long-term strategy for managing these issues. In combination with our longer-term vision, outlined in Welsh Water 2050¹, the DWMP sets out the scale of investment needed to protect our environment for future generations and considers how best to manage the pace of these improvements to ensure they are affordable to our customers

¹ <https://corporate.dwrcymru.com/en/about-us/our-plans>

What is a DWMP?



This is a customer centric Plan that will set out how we intend to manage future challenges brought about by **population growth, urban creep and climate change**.



It will set out how we intend to **extend, improve and maintain drainage and wastewater systems**.



It plans for the **long-term**, setting out targets that are appropriate to the risks we face, but for a minimum period of **25 years** that covers both England and Wales.



It is a best practice approach built on processes already established such as **Water Resources Management Plans** and **Sustainable Drainage Plans**.



It demonstrates **transparency, robustness and line of sight** to investment decisions that affect our customers.



Developing this plan will help us work towards our **Welsh Water 2050 vision to "earn the trust of our customers everyday"** and to achieve our mission of becoming **"a truly world-class, resilient and sustainable service for the benefit of future generations"**.

Above: What our DWMP sets out to deliver.

This is the first time that we have created a DWMP, and it is the most complex drainage plan that Welsh Water has ever produced. The DWMP contains a lot of detailed technical information, so we have created this document to give you an introduction to our plan.

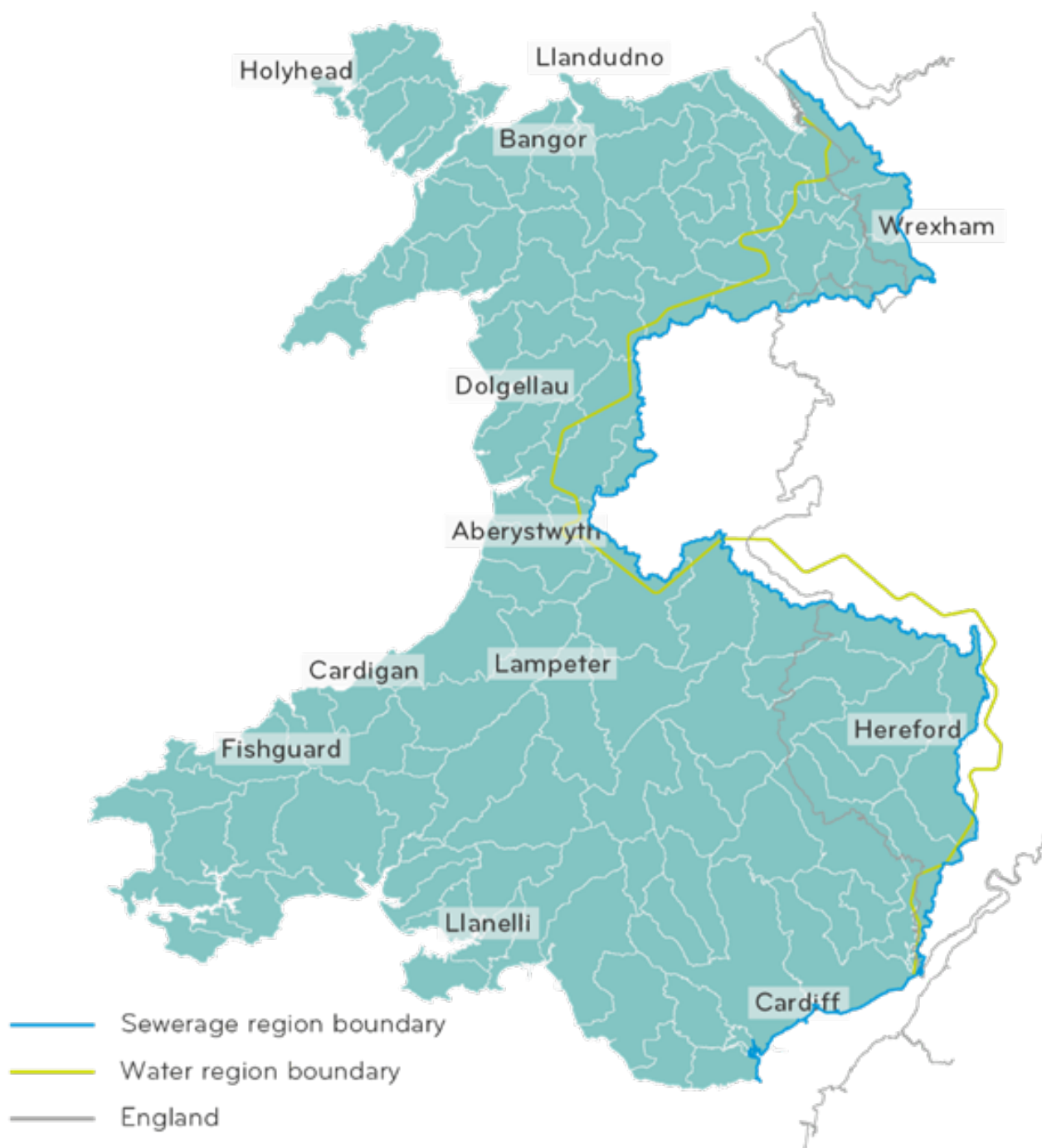
Through the following pages we will provide a summary of how our DWMP has evaluated the challenges and risks that are likely to impact our sewerage system, what that assessment tells us about where we need to invest, and our preferred approach for the next 25 years to ensure our sewerage systems remain fit for the 21st Century.



Our Operating Area

We are the statutory water and sewerage company for around 1.4 million customers in Wales and some parts of England. Our operating area is shown in the map below and this contains some of the most important rivers, and the best bathing waters, in the UK.

Part of our role is to prevent our sewerage systems from causing harm to rivers and to manage sewer flood risk in our communities.



Above: Map showing Welsh Water's operating area



Future challenges

Future uncertainties, such as climate change, environmental protection and increasing public expectations, are likely to have a big impact on what we do, and the service we provide to our customers. It is important that we consider both the challenges and opportunities that these uncertainties present, so that we can continue to meet customer needs now and in the future.

The key future trends and risks, which we have considered as part of the development of our broader Welsh Water 2050¹ plan, are shown below. In this first DWMP we have been able to consider how we will respond to some, but not all, of these risks.



Regulatory changes

The UK Environment Act (2021), and several other regulatory changes which will become law in a post-Brexit Wales by 2025, are likely to bring tighter environmental standards, driving significantly increased monitoring and investment costs.



Increasing customer and stakeholder expectations

Keeping up with accelerating customer expectations around service levels and technology, while ensuring we retain customer and stakeholder trust..



Combined storm overflows (CSOs)


Managing issues of river water quality and pollution, linked to many of our oldest sewers, which accept rainwater from roads and property and combine it with sewage. Their impact on the environment will grow with climate change and we are facing increasing public pressure and expectations to resolve such issues.



Changing climate patterns

The increasing frequency and severity of extreme weather events such as drought and flooding, which affect rivers and other drainage systems that Welsh Water does not manage, together with the sewers that we do.

¹ <https://corporate.dwrcymru.com/en/about-us/our-plans>

 <h3>Environmental responsibility</h3> <p>Managing the impact of our activities on freshwater biodiversity and ecosystems. Considering the overall environmental responsibility of DCWW in our operations.</p>	 <h3>Affordability and potential trade-offs</h3> <p>The constraints of balancing affordability concerns for customers, price caps imposed by regulators limiting necessary investment, and the need to invest in initiatives such as improving infrastructure and environmental protection.</p>
 <h3>Decarbonisation and sustainable business practices</h3> <p>The resource cost and trade-offs linked to implementing the necessary move towards net zero carbon to achieve our 2050 target, as well as the need for delivering nature-based solutions, energy efficiency, circular economy practices, and sustainable supply chains.</p>	 <h3>Emerging and persistent contaminants</h3> <p>Continuing to find solutions to legacy contaminants such as microplastics and pharmaceutical compounds. This includes issues with recycling of biosolids/sludge recycling, micropollutants, nitrate vulnerable zone designations and potential associated changes in regulations.</p>
 <h3>Demographic and behaviour changes</h3> <p>The growth of homeworking and its implications and preparing for a growing and ageing population.</p>	 <h3>Legacy Infrastructure</h3> <p>Considering the set of risks posed by aging infrastructure and the lack of remaining capacity in our existing sewerage systems.</p>

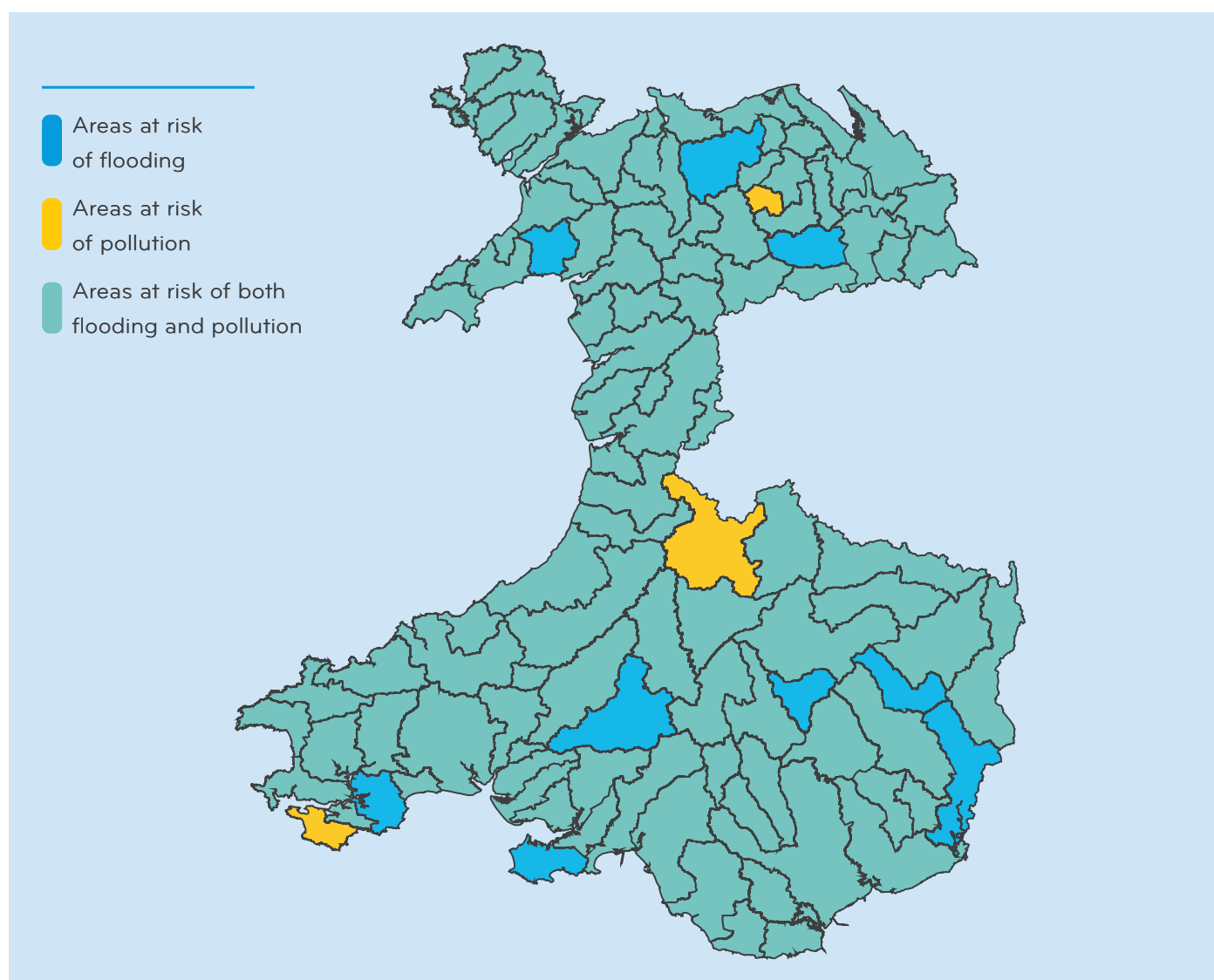
Above: Table summarising the key future challenges and the need for action

Over the last 2 years, whilst preparing our first DWMP, we have consulted with customers and regulators to discuss their changing expectations, have assessed the impacts of climate change on our sewerage systems, and put forward proposals for responding to the most significant environmental and customer impacts in an affordable way. To do so has meant identifying the areas that are worst affected and developing an approach to prioritising where to invest first.



What these challenges mean for us

By assessing the impact of key future challenges over the next 25 years we have been able to identify the areas that will be at increased risk of sewer flooding (where our sewers would be overloaded by the amount of rainfall draining into them) and pollution (where discharges to the environment, from our storm overflows and treatment works, would not meet acceptable standards) by 2050, if we do not invest and take preventative measures. The map below shows that most of the area we serve, which we have broken down into 106 planning zones, will have increased risk of flooding, pollution, or both, without the DWMP process and investment.



Above: Map showing areas at risk of flooding and pollution in 2050 if we do not invest to manage these risks.

Because the map above is an aggregation of risks from more localised analysis, some individual catchments within these zones may not have increased flooding or environmental risks. The DWMP sets out to focus attention on the areas with the highest impact issues and to develop a programme of improvements, to be delivered at a pace which is affordable for our customers.



Priorities for investment

Our overall goal is to ensure that we can protect our customers and the environment in all the areas where we operate. However, we cannot address all current and predicted issues affecting our drainage systems at once, without unacceptable increases in customer bills and intolerable disruption to every street and town.

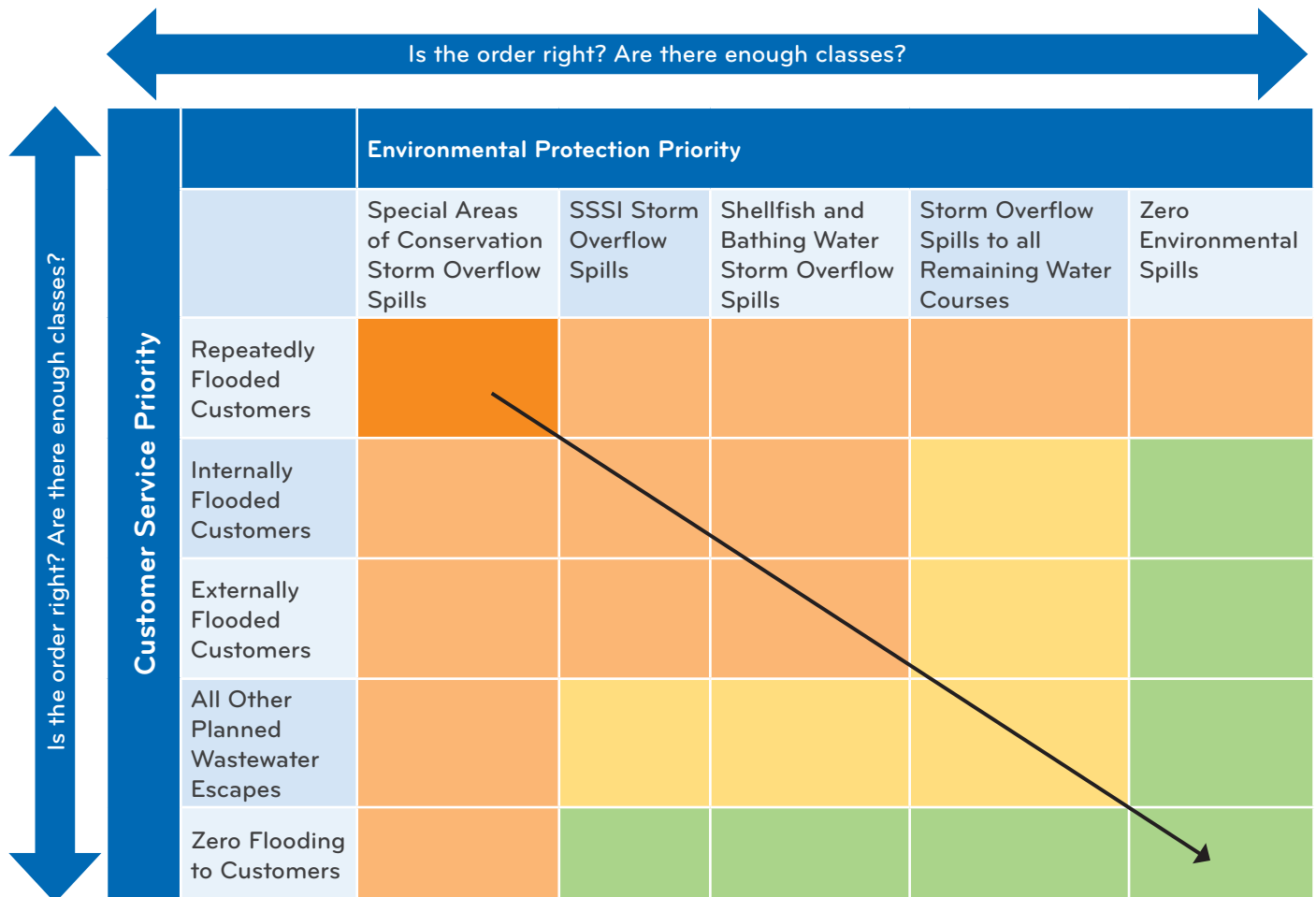
Our preferred approach, set out in the matrix below, allows us to maximise the benefits we can deliver for both customers and the environment at the same time. This means that initially we will concentrate on the places with the worst levels of sewer flooding and the greatest environmental sensitivity (such as shellfish and bathing waters).

After that we will look at customers affected by less frequent sewer flooding and areas of less environmental sensitivity and so on, until we reach our very long-term end destination: zero spills to the environment and zero sewer flooding.

The investment needed to get to zero spills and zero flooding is significant and will take far longer than 25 years to reach. It will also involve other drainage operators, such as local authorities, with whom we need to work collaboratively to manage rainwater in our combined sewers. Ultimately, we will also need customers, and business owners, to play their part in reducing the amount of rainwater from their roof, yard, patio, or driveway, which enters our sewerage system.



The matrix below provides a visual overview of how we will reach that destination, starting in the darkest orange (our initial priority areas for investment) and gradually working towards the green, zero impact destination. We have assessed our current situation and have risks identified in each priority box.



Above: Matrix showing customer service and environmental protection priorities. Even addressing the highest priority box will take several AMP cycles to achieve.

For the areas where our sewerage system will not adequately protect customers from repeated internal sewer flooding, or Special Areas of Conservation from the impacts of our storm overflows (darkest orange box, above) we have worked out what we need to do, but even for those issues we will need to spread the investment over the next 25 years.

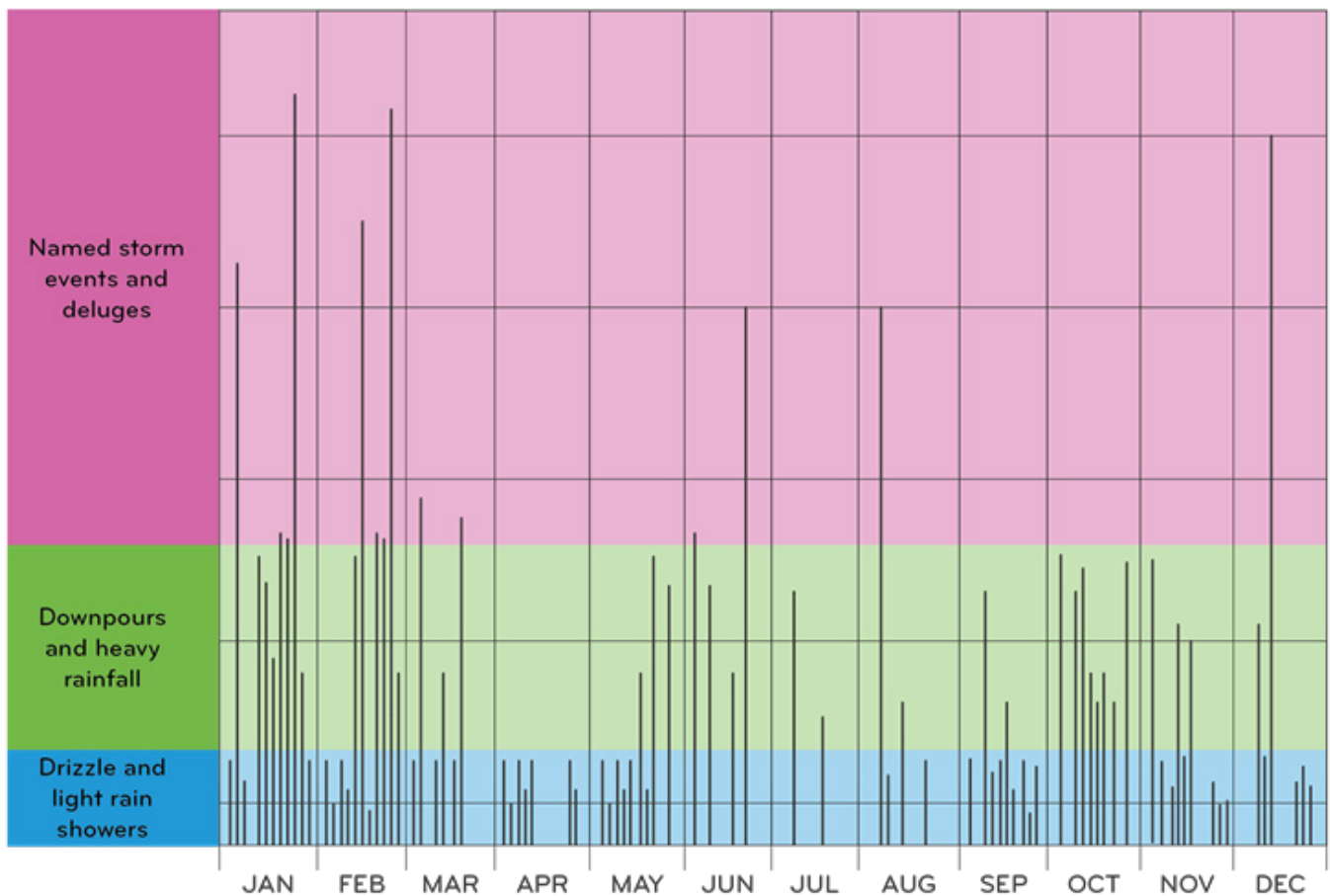
We have had to plan when solutions to those issues can be delivered, and in which order. We have done so, taking into account how this pace of investment is likely to affect customer bills, especially now that the cost of living is increasing so sharply.



Our investment priorities between 2025 and 2030

The DWMP has helped show that many of the future performance risks to our sewerage systems result from rainwater entering our sewers. The impacts, and our proposed response to them, have been grouped under three separate scenarios:

1. Where the pipes were not designed to deal with the extent of our urban areas or the current population and are too small to deal with even dry weather or minor amounts of rainfall (blue zone of chart below). These are our highest priority.
2. Where the pipes can cope with small amounts of rain but are overwhelmed with the amount of rainwater draining into them during heavy rainfall (green zone of chart below).
3. Where the pipes can cope well in heavy rainfall but are overwhelmed when torrential rain occurs, such as during named storms and sudden cloudbursts, which we increasingly see in summer due to changes in our climate, or when streams and other drainage systems overflow into them (pink zone of chart below). These are our lowest priority.



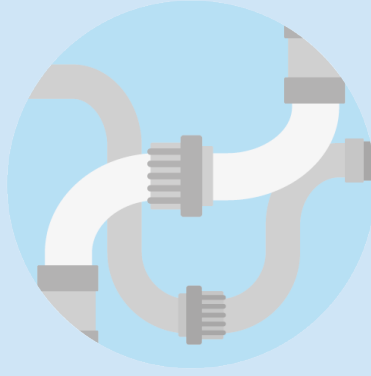
Above: Chart showing a typical year of rainfall and defined areas of rainfall intensity and frequency

As a result of this assessment, we have broken our preferred plan down into three separate investment plans:



Sewage

The 'sewage' plan is about how we protect customers and the environment under normal rainfall conditions. We particularly want to make sure that we can prevent sewage spills in dry weather when they are most likely to have the greatest impact on the environment.



Drainage

The 'drainage' plan is how/where we need to work with others to manage drainage, not just in our sewers, but also in other urban drainage systems (such as highway drains) to reduce their impact during heavy rainfall.



Flood

The 'flood' plan is how we work with others to reduce the risk of our sewers being overwhelmed, causing flooding in severe storms. This can affect the communities we serve. In this first plan we have focused on the sewage and drainage plans. When we update our plan in the future we will include a flood plan.

Customers who face the most frequent flooding, and locations where our Combined Storm Overflows (CSOs) often discharge into the most environmentally sensitive areas, tend to be in areas most at risk from climate change and housing growth. Our preferred plan is to focus our initial investment in these areas, ensuring that our pipes can cope with normal rainfall conditions, with most of our investment between 2025 and 2030 being targeted at our "sewage" plan.

This approach has emphasised the need to address the capacity of our sewers to manage flows and limit the volume of discharges to the environment. In the second cycle of our DWMPs, which will follow the publication of this first plan, we will be looking more closely at environmental water quality impacts, such as nutrients, especially from our wastewater treatment works.

Within the “sewage” part of our DWMP we plan to:

- Make improvements to our CSOs wherever we need to reduce the impacts of our discharges on the environment. We want to prevent harm to the water quality of our rivers and beaches.
- Use catchment approaches and innovative permitting to enable us to explore nature based solutions as part of our aim to reduce nutrients entering rivers and coastal waters.
- Use nature based and low carbon solutions wherever possible.
- Work with planning authorities to stop the problem of surface water from growing, seeking to prevent additional surface water being connected to our foul and combined sewers.
- Facilitate population growth and new development through sustainable connections to our sewer network.

Within the “drainage” part of our DWMP we plan to:

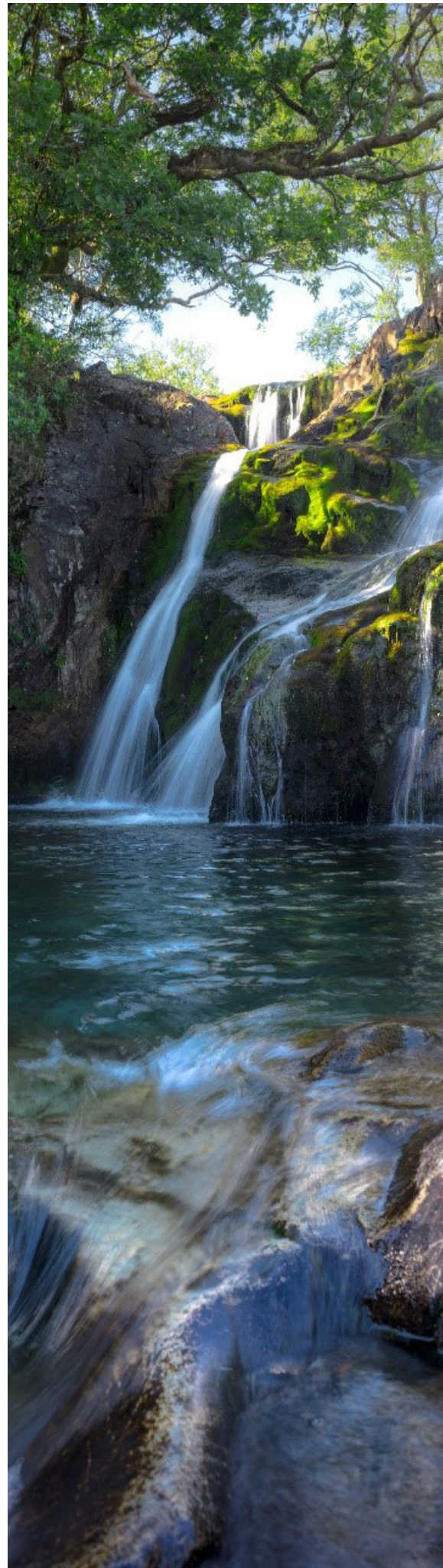
- Work with others to remove surface water from our combined sewer network wherever possible, and in partnership with local authorities and others, set up appropriate governance arrangements to support this collaboration.
- Implement approaches that provide adaptation to the effects of climate change, especially where those measures will reduce the frequency of sewer flooding and improve the resilience of the service we provide.

Within the “flood” part of our DWMP we plan to:

- Continue to work with Natural Resources Wales, the Environment Agency, local authorities, and other key agencies to improve our preparation and response to significant rainfall events.

The DWMP has allowed us to develop estimated costs for the initiatives outlined above. The pace at which we deliver these improvements will be heavily influenced by our 5-yearly price review submission, which is currently being prepared. That submission will need to balance the aspirations set out above, the level of bills that our customers can afford, and the expectations of our economic regulator, Ofwat, who will scrutinise and influence our proposals.

Only after that scrutiny process will we be able to set out in more detail where our investment will be targeted and the pace at which it can be delivered.



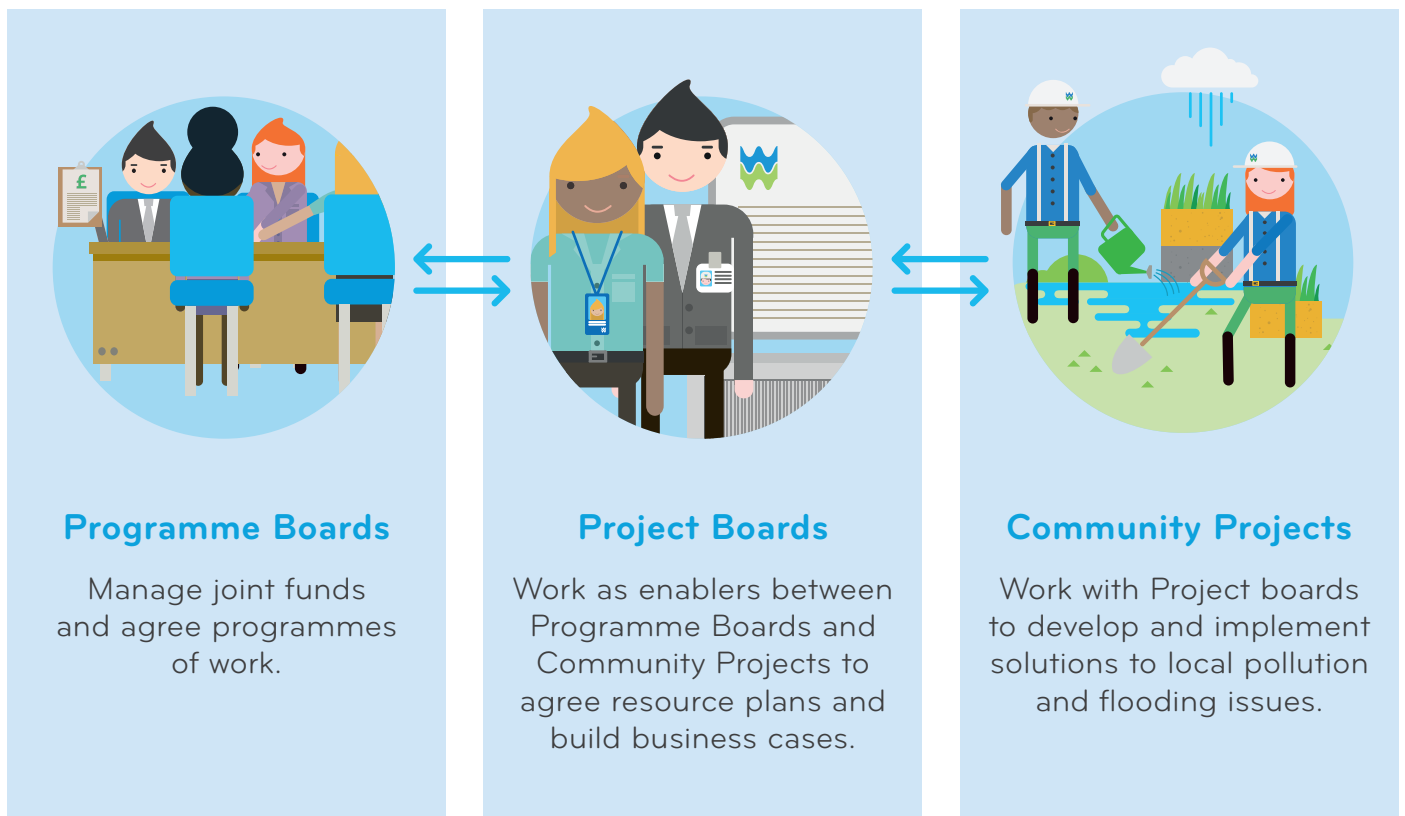


The support we need from others

Ownership of drainage systems is complex and, to meet our aims, we need to plan and work with other drainage authorities, such as Natural Resources Wales, the Environment Agency, and local authorities, for the benefit of the customers and communities we all serve.

We have already talked to many of these organisations about how we can work together. This engagement work will continue after this draft plan is published, to ensure that the needs of different stakeholder groups, and the impact of our plans on them, have been fully considered.

To support this, our aim is to have a joint working approach with stakeholders and local communities, which will allow them to influence the plan and decisions about the projects delivered in their area. We aim to develop a structured approach that will ensure local projects can be integrated to deliver the maximum benefit for communities and the local environment.



We expect that these governance arrangements will help develop the collaborative ways of working necessary to support the aspirations of our "drainage" plan. However, coordinating our plans with other stakeholders will also have value in maximising the benefits of our "sewage" and "flood" plan initiatives.

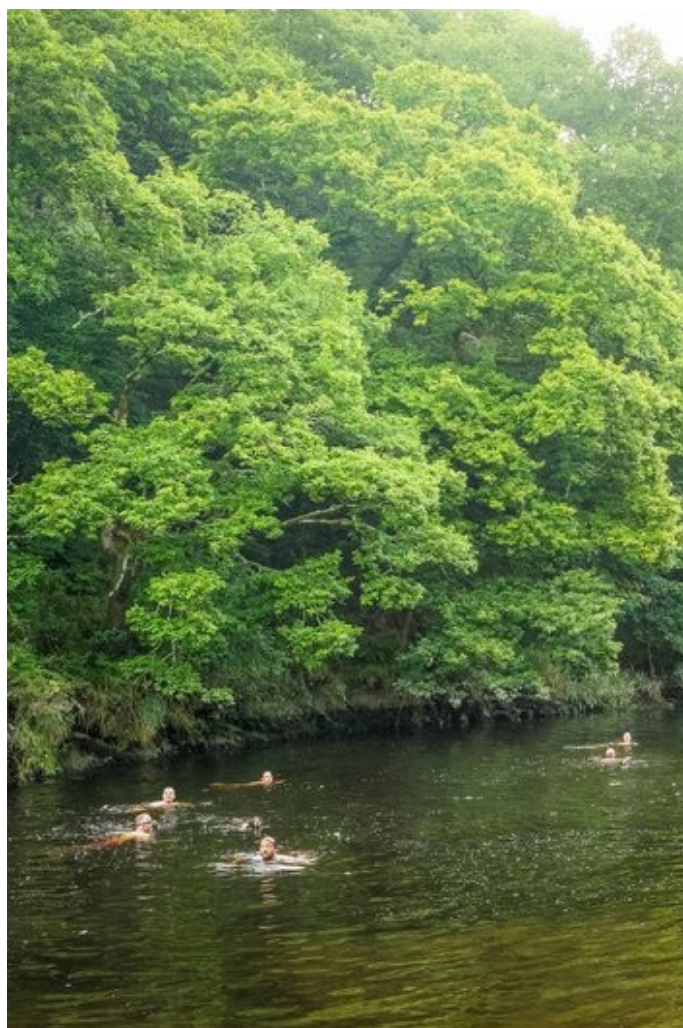


Your views

We have set out our preferred approach in this summary. Now we would like to know whether you support this approach and the principles we have used to establish this plan.

Your views are important and will help shape the plan we eventually adopt.

To respond to this consultation and to find out more about the DWMP, please visit <https://www.dwrcymru.com/en/our-services/wastewater/drainage-and-wastewater-management-plan>





Dŵr Cymru
Welsh Water



DWMP@dwrcymru.com



www.dwrcymru.com/dwmp