
Appendix:

**YKY17_Yorkshire Water
response to the Wildlife
and countryside link
Blueprint for Water**



YorkshireWater

Navigating this document



This Appendices document is separate to and supports the main business plan document.

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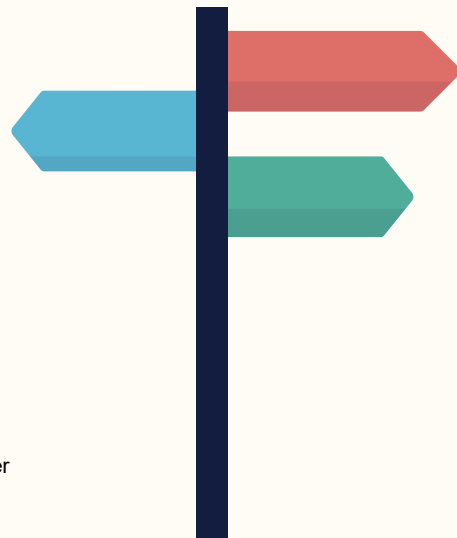


Business plan links

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More detail on this subject can be found in [Chapter 6: Customer and stakeholder engagement](#)



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1. Yorkshire Water response to the Wildlife and countryside link Blueprint for Water

1.1 WCL blueprint for PR24 manifesto response

Blueprint for Water – PR24 Manifesto breakdown & feedback sheet

DELIVERING A TRANSFORMATIONAL PRICE REVIEW

2. Incorporate a natural capital approach to cost benefit assessments

- Cost Benefit Assessment should be based on Natural capital, not just financial costs
- Build on AMP7 trials to adopt an industry-wide approach for PR24

Will your Business Plan reflect this ambition? 5=Completely, 4 =significantly, 3 = partially, 2 = a little, 1= not at all. Why?

4 = Significantly

We are going to continue to use our 6 Capitals framework in evaluating the impacts, costs and benefits of our plan. Within this 6 Capitals framework is Natural Capital, and the other five Capitals are: Social, Human, Manufactured, Financial, and Intellectual.

We are also capturing the carbon emission volume and costs, which falls under Natural Capital, of our capital and operational expenditure. This helps us understand the impacts of additional investment requirements relative to the long-term goal of Net Zero (operational carbon).

For our Water Industry National Environment Plan (WINEP24) submission, we have ensured that our 6 Capitals framework aligns with the Environment Agency's (EA) Wider Environmental Outcomes (WEO) approach in capturing and monetising the Natural Capital Benefits of solutions being proposed under WINEP. We have also considered and reported other benefits relevant to the WINEP solutions that have not been captured under the EA's wider environmental outcomes approach, such as social benefits from reduced flooding risks or amenity benefits from greenspace due to Sustainable Drainage Systems (SuDs). In several cases, the "preferred" option is a Blue/Green solution since the net-benefit and cost-benefit ratio of these options are greater than the least cost (usually a Grey or traditional solution).

Ofwat's PR24 Final Methodology is also requiring companies to report on and consult with customers on the "Best Value Plan" alongside the "Least Cost Plan". The Best Value Plan will reflect additional Capitals benefits and not just Natural Capital, and capturing benefits according to different Capitals will allow us to understand the different drivers of benefits.

For a few WINEP Phosphorous reduction schemes in AMP7, we have started to use outputs of site-specific Biodiversity Net Gain (BNG) assessments to inform the impact assessment (and by connection, the 6 Capitals valuation) of our investment options. The data on site habitat baseline and site habitat creation allows us to express these changes as impacts on Natural Capital in the context of Ecosystem Goods and Services. For example, the selection of a wetland type solution for the Clifton wastewater treatment works has been informed by the results of a BNG

assessment and the associated Capitals assessment (<https://www.yorkshirewater.com/news-media/news-articles/2021/yorkshire-water-to-introduce-nature-based-treatment-at-clifton-works/>).

We are intending to continue to develop the use of BNG assessments to inform our 6 Capitals valuation for AMP8.

Do you have any examples of best practice you are planning to adopt? (What barriers do you face here?)

The evidence base on the Capitals in terms of metrics and benefits valuation is continually evolving. We are working towards aligning with more “centralised” approaches (e.g. Enabling a Natural Capital Approach guidance) or industry-wide approaches where we are not already. In our experience, there is a compromise between a “fit for all” approach and one that allows us to capture nuances in metrics and benefit values to capture more local circumstances. We promote a pragmatic approach, as outlined in the Water Industry Forum Natural Capital Principles: <https://bit.ly/3AvVoun>

We also would like to highlight that there may be some cases where existing regulatory constraints (e.g. compliance dates) are not in line with promoting the longer-term blue/green approach.

3. Invest in nature-based solutions

- An increased proportion of the industry’s £1bn WINEP annual investment should be used to deliver high-quality C&NBS
- Companies should adopt as a matter of course or provide good evidence that they cannot be incorporated

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We will build on our experience of delivering C&NBS in AMP7.

We utilise a hierarchy of intervention which promotes intervention at source (e.g. catchment solutions) ahead of end of pipe interventions. We have successfully discharged catchment interventions over many AMP periods to manage the risk of deteriorating raw water quality in our upland and lowland catchments, protecting and enhancing water quality in groundwater, river and reservoir catchments. Our WINEP plans for AMP8 continue to deliver catchment solutions.

We have sought to promote catchment solutions for wastewater components of our WINEP plan where applicable. NBS have been considered within our optioneering. Under some regulatory drivers and in some circumstances, they are not appropriate and have therefore not been taken forward. This could be due to circumstances where the driver requires an end of pipe solution (e.g. some drivers under the Urban Waste Water Treatment Directive (UWWTD)); or the population equivalent is such that a NBS would be too large and land availability is a constraint, or where a NBS will not meet the new permit requirements. Unfortunately, most of our requirements under UWWTD drivers are too large or permit limits too stringent to allow NBS to

be a feasible option. However, where the use of NBS is feasible, these options have been progressed. For example, under the driver for improvement to septic tank discharges direct to surface water, 15 of 31 sites have NBS as the preferred solution.

In delivering the requirements of the Storm Overflow Discharge Reduction Plan (SODRP), we are aiming to deliver 20% of our interventions with components of blue-green infrastructure during AMP7. This will increase over the remainder of the 20 years of the plan. We consider a 20% target to be stretching as delivering surface water removal and attenuation requires co-design and co-delivery. Building effective partnerships and working with local communities to deliver interventions takes time. In order that we can increase the proportion of green-blue infrastructure solutions in the future, we will seek to build and develop plans and partnerships that will facilitate increased delivery of green-blue infrastructure solutions in AMP8 and beyond.

Our hierarchy of intervention does promote C&NBS as a priority, although delivery of traditional grey infrastructure solutions will remain an important component of our intervention hierarchy in the future where C&NBS may not be applicable. Local circumstances, for example in densely populated urban environments where land may not be available, may restrict the suitability of C&NBS.

Do you have any examples of best practice you are planning to adopt? (What barriers do you face here?)

Yorkshire Water are involved in numerous catchment-based initiatives that incorporate Nature Based Solutions. These are often co-designed and delivered with members of the Catchment Partnerships (CaBA) and meet the aims of wider communities. Examples include biodiversity enhancement programmes, SUDS, Invasive species control, and whole river connectivity/fish pass initiatives.

We are increasingly delivering our responsibilities through working in partnership and focussing on the wider needs of communities and the environment, rather than only addressing our own assets and compliance. This partnership approach has the following advantages:

- delivers a wider range of benefits which can be measured by our 6 Capitals valuation
- leverages additional funding, so represents better value for our customer
- unlocks the full potential of our WQ investment by addressing historic legacy issues and key constraints that limit ecological potential
- Ensures measures deliver optimal outcomes for communities

Through direct funding of catchment officers as described in question 5 of this section (Increase biodiversity net gain targets), we are helping to build resilience into both the environment and the organisations that protect it. We recognise that resilience is a legitimate outcome and have included specific schemes in the WINEP to fund these activities.

We specify certain outcomes (public engagement, increase in skills, environmental gains etc) but the specific outputs are determined by the Trusts, taking into account the priorities of the CaBA and therefore the needs of wider communities.

The Living with Water Partnership in Hull has developed and implemented a co-creation and engagement plan working with communities from the outset of designing nature-based solutions to mitigate surface water flood risk.

This process of engagement has been developed across multiple stakeholders from councillors and MPs, residents, through to a bespoke educational LWW lesson at key stage 2 school age. The partnership is also in the process of delivering a digital 'co-creation' tool to enable further outreach and engagement that deepens education around flood awareness.

Education arounds NBS including design solutions within this plan is critical to its success and the vision of LWW to build resilience, showcase place and drive sustainable solutions. Empowering local communities and giving a voice during the design phase enables consultation to take place in an informative way and a solution to be delivered to a community that understand the reasons behind NBS becoming another way of working to the traditional solutions often used.

In AMP7, the selection of a wetland type solution for the Clifton wastewater treatment works has been informed by the results of a BNG assessment and the associated Capitals assessment (<https://www.yorkshirewater.com/news-media/news-articles/2021/yorkshire-water-to-introduce-nature-based-treatment-at-clifton-works/>). The new integrated constructed wetland provides a natural, sustainable and low-carbon way to treat water before returning it to the environment. It covers an area approximately the size of three Olympic swimming pools featuring interconnected ponds and is planted with over 20,000 wetland plants. The successful delivery of this scheme is being built on with further wetland solutions proposed for AMP7 and AMP8.

4. Align funding mechanisms

- Options appraisal should give increased weighting to schemes that contribute to the recovery of nature, such as through Local Nature Recovery Strategies and catchment management plans

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As a business, we strongly recognise the importance of nature recovery, and rely on functioning natural ecosystems to provide the services we deliver to our customers. We have welcomed the growth of the various strategic plans and partnerships that help us, and others, deliver against this outcome and have embedded supporting their outcomes within our PR24 submission.

With Local Nature Recovery Strategies not yet in existence across Yorkshire, and catchment management plans of variable detail and scope across the catchments in which we operate, we recognise we have a responsibility to help ensure they are produced in a way that will lead to meaningful outcomes for biodiversity. As such, we have provided 5 years staff time funding to Catchment Partnership officers at various CaBA host rivers trusts, to give them the time to co-create their catchment management plans and ensure they are as effective as they can be.

As a company we sit on numerous CaBA partnership and Local Nature Partnership (LNP) steering and working groups, and are starting to get involved in the development of the four Local Nature Recovery Strategies (LNRS) covering our operational area. The latter is both through staff resource but also through a service level agreement with our regional Local Ecological Records Centres, free access to data including our aquatic monitoring records but also habitat and species survey records across our landholding.

Within our business plan we have then used data arising particularly from the LNRS steering groups but also from evidence from LNPs, CaBA partnership CMPs and also bespoke nature recovery strategies that are in existence (for example the Nidderdale AONB Nature Recovery Strategy, The multi-agency North Yorkshire Crayfish strategy or the Yorkshire Water Vole Strategy produced by the Yorkshire Wildlife Trust) to shape the measures we intend to deliver during AMP8 and beyond. Our consultations with these various groups and through reviewing the various plans illustrated both a pressing need for action on the ground, but also a lack of data, particularly around freshwater species and habitats. As a result of this, in addition to direct conservation of habitats and species, our WINEP submission includes support for strengthening our region's LNRS's through:

- extensive citizen science monitoring, directly targeted at likely gaps in the evidence base being used by LERCs to assist their authorities in producing their LNRS,
- in making public our ArcOnline GIS showing the condition and distinctiveness of habitats within our c.25,000 ha ownership
- building on work done with Rivers Trusts this AMP, further support to eDNA metabarcoding surveys
- continued close working with the EA and Natural England on updating regional knowledge of priority headwater stream, river and wetland aquatic habitats across our region, and investment in mitigating our direct and indirect impacts on these sites
- including LNRS outcomes as key criteria within our relevant WINEP Action Specification Forms that have been drawn up in draft with the Environment Agency
- including LNRS outcomes as key criteria in the options appraisal process determining where we invest through our biodiversity and land management programmes (voluntarily overseen by Environment Agency and Natural England technical specialists).

Do you have any examples of best practice you are planning to adopt? (What barriers do you face here?)

Whilst we run extensive aquatic ecological monitoring programmes and work closely with the Environment Agency with even more extensive networks, we recognise that at best this is still only a snapshot of the health of our rivers, and often focused around the primary driver through which the monitoring was commissioned (e.g drought baseline monitoring). As such, we have worked closely this AMP with a number of CaBA partnerships and voluntary groups to help facilitate the extent of and quality of citizen science monitoring. The outcomes from these programmes have not only included improved knowledge of our own impacts, leading to future investment, but also more engaged customers and partners, helping us work jointly on solutions to restore nature. For example:

- Helping fund the Ilkley Clean River Group to undertake water quality monitoring along the length of the River Wharfe, which was used as a key element of the submission for bathing water status, and providing training in the use of eDNA methods to add additional data components to the monitoring
- Working with the Esk & Coastal Streams Catchment Partnership to set up a multi-agency monitoring approach to the river Esk, particularly focused on the endangered Freshwater Pearl Mussel. A combination of YW, EA and citizen science monitoring has taken place to build the evidence based for significant YW investment under the 25-year plan driver for water quality upgrades in AMP8. YW has been able to support the training of volunteer monitoring groups as well as setting up data share mechanisms and allowing the North

York Moors National Park to commission their own independent monitoring to validate results.

The outcome from these projects has been improved ecological understanding of the systems in which we operate and impact, leading to an appropriate weighting of investment to drive change and the inclusion of significant investment within our PR24 submission. Further to that all evidence has been made freely available to CaBA partners and LERCs to ensure it can be added to the evidence base of developing LNRS.

5. Increase biodiversity net gain targets

- The sector should show environmental leadership by adopting a target of 20% Biodiversity Net Gain for the Price Review

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We believe the Blueprint team will be aware of the limitations of the current Natural England biodiversity metric, particularly those members who have been involved in the OFWAT Biodiversity Performance Commitment Task & Finish group.

Whilst the Blueprint Manifesto recommends the industry hits a target of 20% as something '*fitting for a sector that benefits from a healthy water environment*' the calculations within the metric ,whilst perhaps appropriate for typical development, lead to a focus on easily achievable habitat types such as scrub, and the condition assessment categories do not lend themselves to focusing on best ecological outcomes.

PR24 and the WINEP provide an incredible opportunity to benefit biodiversity, with a combination of land management, nature-based solutions, the new OFWAT Biodiversity Performance Commitment and a planned £27m WINEP conservation programme, being our largest ever investment in biodiversity. Yorkshire Water has worked closely with its external Biodiversity Advisory Group (BAG) (made up of representatives of the Rivers Trusts, Wildlife Trusts and Catchment Partnerships in our operational area) to co-create this programme.

Fundamentally, it is already difficult to achieve 10% BNG on our projects due to the constraints of creating meaningful ecological outcomes on our typical treatment sites. The Biodiversity Advisory Group is clear that it wants the company to focus on meaningful outcomes and to ensure we maintained a focus on conservation of the habitats on which we rely to provide our services. Whilst it could be possible for the company to commit to 'easier' schemes which meet the minimum BNG requirements (such as creating wildflower meadows on nutrient rich sewage works) the advisory group instead want our focus to be on wider locations across Yorkshire and Derbyshire.

As such we are already working on our rural estate and with Local Authority and NGO partners, to offset these impacts through the purchase of biodiversity credits. By increasing the target from 10% to 20%, we would just be replicating our conservation spend but in a more inefficient manner both for biodiversity and for customers.

We would strongly encourage the national policy officers on the Blueprint team to speak with their local area based colleagues such as at the Yorkshire Wildlife Trust or local Rivers Trusts when scoring this element of our submission to gain their opinion about our performance on biodiversity and whether it is showing environmental leadership.

Do you have any examples of best practice you are planning to adopt? (What barriers do you face here?)

During the current AMP we have already worked closely with our conservation partners to identify how best we can play our part in reversing species decline in Yorkshire and restoring and protecting key habitats. Through consultation with our BAG, we identified that the most efficient use of our biodiversity funding would be to help provide long term core staff time to Rivers and Wildlife Trusts across the region, to allow them to collect evidence, plan strategies and write bids to bring in funding far in excess of our own contributions.

As things stand in AMP7 we are funding roles such as fisheries officers, biosecurity officers, INNS LAG convenors, agricultural officers, catchment partnership officers and a crayfish officer. So far this has unlocked around £5m in external funding, as well as resulted in widespread citizen science surveys of our rivers, volunteer engagement, habitat creation, data sharing, joint strategic planning and a more informed PR24 submission.

Outside of NBS, our PR24 plan specifically includes increased levels of support to our catchment partnerships, as well as additional monitoring and resource support to help Local Authorities develop LNRS together with large scale wetland creation, species conservation, fish passage and river restoration programmes. To be clear though, none of the above would lead to a direct increase in biodiversity net gain on our construction work above the 10% statutory minimum.

To put this into the context of Biodiversity Net Gain and why Yorkshire Water do not intend to put a specific target in place above the statutory minimum, next AMP we are planning to invest in the upgrade of a river intake on the River Derwent (A SAC). Our sites are generally spatially constrained, so we may need to purchase two biodiversity habitat units and one biodiversity river unit (which would be £45,000 and £106,000 respectively using local authority tariffs in our region). If we were to increase this to hit a 20% target, these would obviously be higher. Whilst the purchase of those units should lead to a benefit to biodiversity, it would be a significant sum of customers money.

For a similar monetary value, our PR24 conservation submission includes a commitment to maintain the excellent native plant nursery at Nosterfield nature reserve run by the Lower Ure Conservation Trust. The Trust has rescued almost regionally extinct wetland plants from across North Yorkshire, and worked with horticulturalists to identify effective propagation techniques, providing plants and design advice to NGO groups across the region and to help ensure our own NBS wetland can include regionally distinct and rare plants.

Another action of a similar value is our support to Yorkshire Wildlife Trust sites such as the Wheldrake Ings SSSI on the Derwent, where we have helped them purchase Nofence grazing

collars to improve their management regime, and also to conduct appropriate habitat management to preserve the site.

Neither of the above projects would result in a biodiversity net gain. Whilst the former has huge implications for species diversity, if they are being used in ponds that have for example, more than 10% duckweed or have non-natural habitats within 10 metres of the pond perimeter, then the methodology would prevent a significant biodiversity unit benefit. Likewise, Wheldrake Ings is already a good condition floodplain meadow a few kilometres from our abstraction, so any investment here can never improve the biodiversity value under the metric. Both actions however help develop a more sustainable outcome for biodiversity, as well as having direct links to helping Yorkshire Water mitigate the impact of its abstractions and improving the water quality of our wetlands and rivers.

6. Adopt nature-based solutions to achieve net zero carbon emissions

- Adopt NbS to reduce operational emissions, protecting green & blue carbon stocks.
- Factor in Scope 3 carbon impacts (indirect emissions).

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We are setting out our Long-Term Delivery Strategy including our pathway to net zero aligned to the UK Government's 2050 target. This requires deep decarbonisation of all emission scopes and the delivery of reductions of at least 90%. Emission removals through offsets or insets can account for no more than 10% of the delivery of net zero.

Our focus throughout AMP7 has been on reducing both our operational carbon emissions (scope 1 and 2) and the embedded carbon emissions (scope 3) from our capital projects. We model carbon across the whole life of our assets (looking at both embedded and operational emissions) and where feasible adopt nature-based solutions.

Throughout AMP7 we have grown our awareness of Nature-based Solutions (NBS) and our capabilities to implement them within our Capital Programme. For example, we have held several Net-Zero Carbon collaboration and knowledge sharing workshops between Yorkshire Water teams and our Strategic and Contract partners. These sessions have included a substantial focus on NBS including case studies of projects delivered. This included our Integrated Constructed Wetland (ICW) project at Clifton, which removes phosphorous from wastewater and improves the quality of water returned to the environment with no chemicals required and low energy costs.

We are now progressing additional NBS solutions across the Yorkshire region in the form of two constructed wetlands to treat wastewater at Thornton-le-Beans.

This will provide a foundation to build on in AMP8 where we expect to implement a greater number of ICW solutions than in AMP7.

We will continue to apply the Six Capitals into decision making within our project end-to-end process. This approach looks beyond the traditional financial balance sheet to ensure that operational and embedded carbon (as part of natural capital) are incorporated into cost benefit analyses that determine best whole life value. Calculating whole life carbon emissions and setting a lifetime cost of carbon aligned to Government Green Book figures has also helped to balance decision making at the optioneering stage of projects, and our forward plans include a balance of both NBS and conventional solutions balancing whole life cost and carbon.

We recognise that NBS provide opportunities to reduce our operational emissions. For example, NBS help avoid emissions associated with energy use (e.g., by using gravity feeds that reduce the need to pump water) or through avoiding the need for chemicals and their associated process emissions.

Our ambition is for woodland, peatland, grassland and soil programmes to help contribute the required 10% of net off emissions by 2050, and we are actively registering schemes to validate the carbon sequestered over the lifecycle (this can be for up to 80-100years).

In terms of wider scope 3 emissions aligned to the wider Greenhouse Gas Protocol categories, we have been measuring our emissions and working with our supply chain and business partners to influence emission reduction.

See answers to Question 3 in this section for further information on our approach to C&NBS.

Do you have any examples of best practice you are planning to adopt? (What barriers do you face here?)

During AMP7 we were one of only two water and wastewater companies to set out a plan to reduce embedded carbon emissions arising from capital projects. This included an ambitious target to reduce emissions by 23% against our original AMP7 business plan.

Our work towards achieving this target has included various approaches including avoiding building where possible, building less, building more smartly, and building efficiently. We have also embraced the use of alternative solutions, including NBS and use of alternative low carbon materials or technologies, to help avoid emissions.

An example of the benefits of this is a reduction in embedded emissions associated with a NBS compared to a conventional engineered solution. For example, the construction of an ICW can require less carbon intensive materials such as concrete, steel or GRP, while also enhancing local biodiversity.

Our Nature-based waste-water treatment project at Clifton is a key example of where we have been able to meet the treatment needs and comply with challenging discharge consents. We are actively looking to implement similar schemes at other locations, and one key barrier we have faced is the ownership of the land and landowner reluctance to allow use or sell for us for use for similar reed-bed solutions.

Other barriers include the scale of land required to meet discharge tight consents. Levels of uncertainty associated with the performance of NBS can also prove a barrier to their implementation, especially where regulatory timescales for compliance may be short – this does not give time for NBS schemes to be developed and tested. There are also barriers associated

with the approach to environmental permitting of NBS. As we gain more experience in the development and deployment of NBS across the water sector it is anticipated that some of these barriers will be more easily overcome in the future.

8. Embed a safe and sustainable circular economy into water industry practice

- Review current sludge and bio-solids treatment practice, & ensure your operations are not contributing to an increase in contaminants (e.g., persistent organic pollutants and microplastics) in the environment.

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In our draft AMP8 business plan we commit to reviewing whether our current sludge and bio-solids treatment practice and operations are contributing to an increase in contaminants (e.g., persistent organic pollutants, or POPs, and microplastics) in the environment. We also commit to carry out investigations into the impact of sludge and bio-solids application to agricultural land, including concentrations of POPs and microplastics in soil and groundwater.

These investigations will be carried out in partnership with the nine other water and sewerage companies (WaSCs) in England and Wales through United Kingdom Water Industry Research (UKWIR). The output of these investigations in 2027, in the form of concentrations of POPs and microplastics in soil and groundwater, will allow us to assess the impact of our current sludge and bio-solids treatment practice and operations against environmental standards, where they exist, for those contaminants.

As stated, the above plans are in our draft plan and may change after discussions with regulators and stakeholders.

Do you have any examples of best practice you are planning to adopt? (What barriers do you face here?)

We currently follow best practice as stated in the Sewage sludge in agriculture: code of practice for England, Wales and Northern Ireland Published 23 May 2018.

WATER USE

1. Take ambitious action that reduces abstraction needs

- Set milestones (2030,2040,2050) towards achieving Environment Act targets, reducing leakage, PCC & NHH use.
- adopt a long-term target of reducing PCC to 100 l/p/d or less by 2050.

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Our PR24 Business Plan will be consistent with our Water Resources Management Plan (WRMP) 2024, which is currently being updated from draft to revised draft for publication in mid-May 2023. Our draft WRMP24 focussed demand reduction options on meeting the policy objectives set out in the National Framework for Water Resources, specifically halving leakage by 2050 compared to 2017/18 levels, and reducing per capita consumption (PCC) to 110 l/hd/day also by 2050. Our strategy for reducing non-household use by 9% by 2037 in line with Environment Act targets is still under development.

However, delivering these demand reduction objectives remains uncertain and we cannot rule out the risk of demand increasing in the future. We have taken account of this uncertainty in our adaptive planning approach, representing this in our WRMP as an alternative pathway.

Our final planning scenario assumes a year-on-year reduction in leakage that will achieve the policy requirement through a combination of new and existing techniques, for example, active leakage control, pressure management, mains renewal/relining and acoustic logging.

The PCC objective can only be met if we can provide our customers with measures to reduce their water use and if external factors, such as government policy changes, provide a benefit.

Our final planning scenario assumes the combined benefit of our actions and government policy will reduce PCC further than predicted in our baseline scenario and achieve an average PCC of 106 l/h/d by 2050. Through our own actions and assuming no benefit from government initiatives our projections show we could achieve a PCC of 112 l/h/d by 2050.

Our actions to achieve the PCC policy requirement include installing smart meters in households in our supply area, described in more detail under question 2, below. However, the benefits of both increased meter penetration and a move to smart metering will only be realised if we provide our customers with information on the water they use and advice on how they might be able to reduce their use. We are therefore combining smart metering with behaviour change initiatives and offering our customers water efficiency devices that could help them reduce their water use.

For a PCC of 110 l/h/d to be achieved by 2050 other factors affecting water use will also require change, including Government implementation of proposed efficiency labelling of products using water – such as dishwashers, washing machines and other devices like toilets, showers and taps. The labelling is intended to provide consumers with information that encourages the purchase of more water efficient goods. This should help drive technology so

that the goods available to customers are more efficient in the future. We have therefore assumed a benefit of water efficiency labelling in our final plan.

In total, our WRMP24 demand reduction ambition aims to achieve a benefit of approximately 160MI/d between 2025 and 2050. The largest proportion of this (95MI/d) reduction will be from our additional effort to lower leakage levels across our network. Our smart metering and water efficiency activity will contribute 31MI/d and the government initiative on the labelling of white goods, 39MI/d.

Do you have any examples of best practice you are planning to adopt? (What barriers do you face here?)

Detail provided above.

2. Remove restrictions on metering

- Provide straightforward, readily accessible information to customers on their water usage and benchmarks.
- Offer every newly metered customer a home water saving audit.
- Work with water retailers to ensure the top 200,000 businesses have smart meters by the end of AMP8.

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Yorkshire is not currently considered to be a 'water stressed' area by Defra and the Environment Agency, and therefore we cannot compulsorily install meters for charging purposes. During the most recent consultation on 'water stressed' areas, our feedback to Defra/EA was that we should be given the option to consider compulsory metering even though we are not yet considered 'water stressed' – however, disappointingly, it was made clear that the Defra/EA policy on this would not be changing. Despite this, we remain committed to continuing to roll out metering to optant customers and on new developments.

All new houses built in our area are already fitted with a water meter and we are rolling out a programme that means smart meters will be installed by default. Similarly, any households that are unmetered and choose to switch to a metered supply (optants) will receive a smart meter from 2025 onwards. We will also start a programme of retrofitting existing meters so that all metered properties will have a smart meter installed by 2040. We will retrofit both household and non-household metered properties over a 15-year period. Existing meters that are at the end of their asset lives and would previously have been replaced with a new non-smart meter, will instead be replaced with a smart meter.

As stated above, the benefits of both increased meter penetration and a move to smart metering will only be realised if we provide our customers with information on the water they use and advice on how they might be able to reduce their use. We are therefore combining smart metering with behaviour change initiatives and offering our customers water efficiency devices that could help them reduce their water use.

Our strategy for reducing non-household use by 9% by 2037 in line with Environment Act targets is still under development, although as stated above our draft WRMP24 does align our non-household meter retrofit policy (over a 15-year period) with our household metering policy.

Do you have any examples of best practice you are planning to adopt? (What barriers do you face here?)

Detail provided above.

4. Deliver ambitious wholesale abstraction reform

- Ensure WRMPs address future environmental needs, as well as addressing existing impacts.
- Commit to relocating groundwater abstractions impacting on the ecological health of our rare chalk streams.
- Investigate, and test with customers, the benefits of reducing chalk stream abstraction (including to zero).

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As a water supplier we recognise that we must consider the impact that our licenced abstractions have on the environment. We affect the rivers that we take water from, but also impact the wider environment through the energy and chemicals that we use to treat water and get it to where it is needed.

Where abstractions could have an unsustainable impact, we may need to reduce the amount of water that we take from those sources or find other ways to mitigate the impacts. This reduces our available water supplies. Therefore, we must find alternative, more sustainable sources, whilst also working hard to reduce demand. We have an ambition to achieve net zero operational carbon emissions by 2030 and our future use of water must support this objective.

Our draft WRMP24 reflects the requirements of 'Environmental Destination' as articulated through the National Framework for Water Resources and the Water Resources North regional planning process. This builds on the existing Water Industry National Environment Plan (WINEP) process that requires water companies to consider the impact of their abstractions in the short term (usually the next five-year period). In order to protect the environment, the WINEP has led to some reductions in available water supply, known as sustainability reductions. As part of a longer-term approach to strategic planning, environmental destination looks at the impacts of water abstraction beyond the next five years. It considers the impacts at a regional scale and could identify a need for further reductions beyond the first five years of the planning period.

We have reviewed national Environment Agency model scenarios to explore the changes in abstraction that might be required in the long term under the environmental destination driver.

We have included reductions in existing supplies as a result of the environmental destination requirements in our draft WRMP24. The licences most likely to be reduced under the business-as-usual scenario include groundwater abstractions in North and South Yorkshire and an abstraction from the River Derwent in North Yorkshire.

However, there remains uncertainty about the impact that environmental destination will have on some of the licences we hold. Therefore, we have created an enhanced scenario to

represent a greater impact and associated loss of resource and a low scenario to represent minimal loss.

Yorkshire is home to the most northerly chalk streams in England and we have an ongoing programme that is investigating the potential impact of our abstractions on chalk streams in our region, although these chalk streams are under far less pressure from abstraction than some of those elsewhere in the country. We are committed to supporting the CaBA chalk stream restoration strategy and are working closely with the Environment Agency, Natural England and local stakeholders (including Yorkshire Wildlife Trust as CaBA host) to develop a programme of further activity in the headwaters of the River Hull around Driffield, to further restore and enhance chalk streams in that catchment, building on previous collaborative work.

Whilst we understand the desire to reduce abstraction from chalk streams / aquifers where they are having significant adverse environmental impact, we have reservations over a 'one size fits all' approach such as reducing chalk stream abstraction to zero, due to the potential for unintended consequences of such a policy. For example, there are areas, including residential properties, that could be at risk of flooding if abstraction is reduced. In addition, whilst we are committed to demand reductions, the water to supply customers must still come from somewhere and there is a risk that the environmental impacts of pumping water over long distances – such as construction, carbon, energy, impact on sources elsewhere, etc. – to supply customers who are currently supplied from chalk sources could outweigh any benefits from reducing chalk stream abstraction. Environmental benefits and impacts need to be considered in the round and on a case-by-case basis to ensure that the most appropriate long-term solution is arrived at.

Do you have any examples of best practice you are planning to adopt? (What barriers do you face here?)

Detail provided above.

WASTEWATER

2. Improve classification and investment in Sewage Discharge Infrastructure

- Classify the condition of all Combined Sewer Overflows (CSOs) and make assessment information open and transparent.
- Put investment in place to bring all CSOs to 'satisfactory' asset standards by 2030.
- To maintain Protected Areas, deliver C&NBS through the WINEP & use NbS where tertiary treatment is cost prohibitive.

Will your Business Plan reflect this ambition? 5=Completely, 4 =significantly, 3 = partially, 2 = a little, 1= not at all. Why?

3 = Partially

As part of the Defra Storm Overflow Taskforce, an expectation was set that all storm discharges would be classified according to the Environment Agency Guidance 'Water companies: environmental permits for storm overflows and emergency overflows' (2018). We have carried out an assessment of our assets in line with this guidance. A small number of

discharges were classified as 'unsatisfactory' and were all included in our AMP7 WINEP plan for improvements.

A number of overflows were classified as 'sub-standard', these assets are subject to routine maintenance and will be managed to prevent them becoming unsatisfactory.

Our PR24 plan incorporates the requirements of the Storm Overflow Discharge Reduction Plan (SODRP) as issued by Defra in August 2022 detailing milestones to be achieved in AMP8 and beyond. This has formed a significant part of our WINEP submission for PR24. We aim to integrate Blue-Green Infrastructure components into 20% of our SODRP interventions in AMP8.

Do you have any examples of best practice you are planning to adopt? (What barriers do you face here?)

There are barriers which limit the number and extent of blue-green infrastructure (BGI) solutions we can deliver. Our experience through Living with Water (LWW), shows that it takes time to develop successful partnerships and deliver the cultural alignment between organisations, to co-design and co-deliver these types of solutions. Regulatory timelines and compliance dates can make the adoption of GBI solution high risk. There are also practical constraints to be considered such as the availability of land or the suitability of a site for GBI solutions. Where catchment and NBS are delivered in partnership, alignment of funding and resources across partners has also proved challenging.

3. Develop plans for decommissioning particular CSOs so that they no longer discharge at all

- Remedy (not just monitor) the most environmentally harmful CSOs, in AMP8, mainstreaming e.g. SuDS to deal with these.
- Replicate the Bathing Water designation target from the Sewage (Inland Waters) Bill in Business Plans (2/yr).
- Ensure DWMP priorities (not just for CSOs) are reflected in Business Plans.

Will your Business Plan reflect this ambition? 5=Completely, 4 =significantly, 3 = partially, 2 = a little, 1= not at all. Why?

3 = Partially

We are complying with the requirements of the storm overflow discharge reduction plan (SODRP) as issued by Defra in August 2022. This plan does not include decommissioning any CSOs, instead reducing the number of spills in line with the numeric targets or going further where it results in 'environmental harm'.

This SODRP incorporates inland bathing targets alongside bathing water targets and targets for priority overflows. These will drive to achieve no more than 10 spills and no harm from storm overflows alongside 2/3 spills from coastal assets in bathing season and 1 spill per bathing season for inland bathing sites.

We have submitted a WINEP plan for AMP8 based on achieving the targets for AMP8 with a focus on priority overflows. 20% of these solutions will have a NBS. We will be looking to increase this to 50% from AMP9 onwards.

Our DWMP reflects a long-term 25-year strategic plan focused on modelled hydraulic risk relating to sewer flooding from YW assets, discharges from storm overflows and flow and quality compliance at our Wastewater Treatment Works.

Do you have any examples of best practice you are planning to adopt? (What barriers do you face here?)

We have already started work on the River Wharfe at Ilkley, the UK's first riverine bathing water. In AMP7, we are investing up to £13 million within the Ilkley catchment including infrastructure improvements to reduce spills from a storm overflow within the immediate vicinity of the bathing water; upstream disinfection and misconnection surveys. We are also working in partnership with the Yorkshire Dales Rivers Trust and the Environment Agency, to look at additional impacts within the catchment including work with the agricultural sector.

Our WINEP submission looks to extend our investment on the River Wharfe at Ilkley, by adopting the targets of the Storm Overflow Reduction Plan, as well as looking at potential additional inland bathing water locations both through further investigations and infrastructure improvements including storm overflow reduction.

4. Set targets for zero pollution incidents by 2030

- Set a target for zero pollution incidents (categories 1, 2 and 3) by 2030.

Will your Business Plan reflect this ambition? 5=Completely, 4 =significantly, 3 = partially, 2 = a little, 1= not at all. Why?

3 = Partially

The Environment Agency expects all water companies to prevent serious pollution incidents and requires us to have effective pollution reduction plans to minimise category 3 incidents. Using 2016 performance as a baseline, the Environment Agency expects a 40% reduction in total pollution by 2025. For Yorkshire Water this represents having no more than 150 pollutions per year by 2025, however, we're committed to going further and plan to outperform this target so that we have no more than 103 incidents per year by 2025.

We are working towards finalising our pollution targets for AMP8 and expect to continue to deliver significant improvements through AMP8.

Do you have any examples of best practice you are planning to adopt? (What barriers do you face here?)

One example per wastewater asset type below.

SPS - Intelligent Pump Reversal

Even with wet well cleaning, pump blockages often occur on wastewater pumping systems due to the inappropriate disposal of wet wipes, sanitary products, and kitchen waste such as fats, oils and grease. When this happens, an Operator is sent to site to unblock the pump to prevent a pollution incident. We're installing equipment to provide automatic recognition of a blockage which will then mean the pump flow can be reversed, thus relieving the blockage

prior to any potential pollution. This gives us more time to deploy a colleague to site to fully resolve the cause. We've committed to installing this on all our pumping stations by 2025.

Sewers - Network Visibility

We have installed 1,000 network monitors at high-risk manholes close to watercourses. This allows us to spot when blockages are forming, so that we can respond and remove them before they cause a pollution incident. We intend to continue to look for low-cost network monitoring solutions that will enable us to spot and respond to failure before it impacts on the environment.

STW - Power Outage Restarts

One of the problems created by power failures is that when the power is reconnected often the asset will be in a failed mode and require a human intervention to start running again. What we're doing over the next three years is to ensure that our pumps start back up as soon as the power supply is restored. This will minimise downtime and prevent any additional environmental impact.

CSO - Blockage Predictor

The build-up of fats, oils and greases along with un-flushable wipes and other material not intended for the sewer network build up to create restrictions which in turn can lead to sewage escapes. Blockages are the biggest cause of sewer escapes in the industry and that is why this is a key initiative. By monitoring the level within our sewer network, we can understand where restrictions are forming prior to a pollution. We currently monitor the levels at around 3,500 points on the network which our processes constantly analyse to highlight where restrictions are forming so we can intervene proactively.

Rising Mains - Pressure Monitoring

We've installed pressure monitors on 60 of our highest risk rising mains which will provide us with live performance information. Using pre-set triggers, the system highlights where an asset is drifting outside of its expected operating envelope, which can be an indication of failure or a developing problem. This enables us to respond quickly to any developing issues and resolve them before they cause a pollution incident.

5. Set out plans to achieve Environment Bill wastewater targets on nitrate and phosphorus as a minimum

- Including by treating more water to tertiary standards, using NbS, and protecting habitat via First-time sewerage.

Will your Business Plan reflect this ambition? 5=Completely, 4 =significantly, 3 = partially, 2 = a little, 1= not at all. Why?

4 = Significantly

The Environment Act EnvAct_IMP1 driver requires us to reduce phosphorus levels from our continuous discharges by 80% by 2037 on a 2020 baseline. Our AMP7 interventions will reduce our discharges by circa 54%. The interventions proposed in our WINEP programme for PR24 will remove approximately a further 9%. The remaining 17% will be planned in for PR29.

There are three AMP7 schemes where we hope to employ NBS for nutrient reduction. This number will be greater in AMP8 and it is hoped that it will be greater still in AMP9. One of the

reasons for proposing a greater level of reduction in AMP9 than AMP8 is so that we can take the learning from the NBS solutions delivered in earlier AMPs.

There is no current requirement for YW to deliver any nitrogen removal. If this situation changes, we will plan for this in PR29.

Do you have any examples of best practice you are planning to adopt? (What barriers do you face here?)

We have built a wetland at Clifton STW (<https://www.yorkshirewater.com/news-media/news-articles/2021/yorkshire-water-to-introduce-nature-based-treatment-at-clifton-works/>) to achieve a phosphorus limit of 2mg/l. This is working well, and we intend to utilise a constructed wetland approach at two further sites in AMP7. We will learn from these solutions and build upon this at a greater number of sites in AMP8 and we hope to expand this program further in AMP9 to help us towards the EnvAct_IMP1 target.

ENGAGING COMMUNITIES

D1. Develop nature-based solutions in partnership with local communities

- Invest in quality engagement with local communities wherever nature-based solutions are being considered

Will your Business Plan reflect this ambition? 5=Completely, 4 =significantly, 3 = partially, 2 = a little, 1= not at all. Why?

4 = Significantly

YWS are actively involved in numerous catchment-based initiatives that incorporate Nature Based Solutions. These are often co-designed and delivered with members of the Catchment Partnerships (CaBA) and meet the aims of wider communities. Examples include biodiversity enhancement programmes, SUDS, Invasive species control, and whole river connectivity/fish pass initiatives.

We are increasingly delivering our responsibilities through working in partnership and focussing on the wider needs of communities and the environment, rather than only addressing our own assets and compliance. This partnership approach has the following advantages:

- delivers a wider range of benefits which can be measured by our 6 Capitals valuation
- leverages additional funding, so represents better value for our customer
- unlocks the full potential of our WQ investment by addressing historic legacy issues and key constraints that limit ecological potential
- Ensures measures deliver optimal outcomes for communities
-

We recognise that resilience is a legitimate outcome and have included specific schemes in the WINEP to fund these activities. We specify certain outcomes (public engagement, increase in skills, environmental gains etc) but the specific outputs are determined by the

Trusts, taking into account the priorities of the CaBA and therefore the needs of wider communities.

The Living with Water Partnership (LWW) in Hull (<https://livingwithwater.co.uk/projects>) has developed and implemented a co-creation and engagement plan working with communities from the outset of designing nature-based solutions to mitigate surface water flood risk.

This process of engagement has been developed across multiple stakeholders from councillors and MPs, residents, through to a bespoke educational LWW lesson at key stage 2 school age. The partnership is also in the process of delivering a digital 'co-creation' tool to enable further outreach and engagement that deepens education around flood awareness.

Education arounds NBS including design solutions within this plan is critical to its success and the vision of LWW to build resilience, showcase place and drive sustainable solutions.

Empowering local communities and giving them a voice during the design phase enables consultation to take place in an informative way and a solution to be delivered to a community that understand the reasons behind NBS becoming an alternative to the traditional solutions often used.

Do you have any examples of best practice you are planning to adopt? (What barriers do you face here?)

We have included a scheme in the WINEP to deliver a Chalk Stream Strategy for the Upper Hull catchment, one of the most northerly chalk streams in England. The river is subject to numerous pressures, with agriculture and poor habitat condition being the main challenges.

Given we abstract water from this system, we have already been working closely with a number of regional partners to help improve the resilience of the ecosystem, largely through NBS which are both sustainable as well as safeguarding the visual and amenity value of the stream. For example, during AMP6 we have worked alongside Natural England, the Environment Agency and the Yorkshire Wildlife Trust, to help purchase a fish farm on the river and transform it to a wetland nature reserve opposite the existing YWT Skerne wetlands site. This has not only helped reconnect floodplain habitat with the river, but removed the pressures of abstraction and water quality that arose from the fish farm. We funded further work to put in place large woody debris to improve habitat heterogeneity and natural bank protection to limit sediment input.

During AMP7 we have funded the restoration of a section of chalk stream to its natural meandering path where it had previously been artificially constrained into a straight channel along the boundary of a golf course. Monitoring has shown that restoring the natural function of the stream has increased biodiversity and geomorphological benefits and helped ensure that the stream is more resistant to high magnitude pressures such as dry weather events.

During the remainder of AMP7 and onwards, we recognise that creating and delivering a wider scale long-term strategy for the river will involve extensive consultation with relevant stakeholders and communities. Facilitated workshops and site visits with stakeholders are already planned with the aim of identifying priorities and options for delivery. NBS will be fundamental to the success of the project.

