
Appendix

YKY53_Business Resilience



YorkshireWater

Navigating this document



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

Links outside of this report

Read more links

This icon can be clicked on to link to any further documents or resources outside of this report



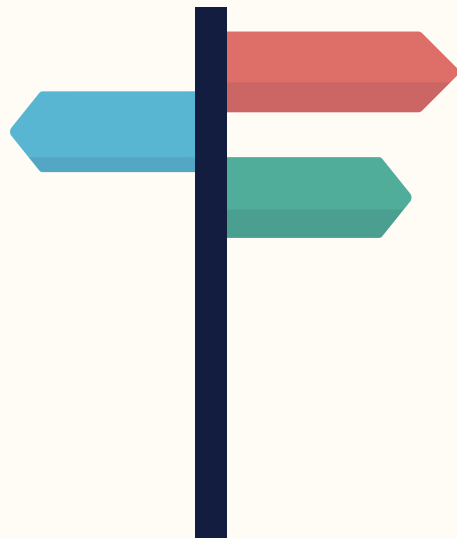
Read more about this at [websiteaddress.com](#) or link

Business plan links

This icon can be clicked on to go to the main Yorkshire Water Business Plan document where more information can be found.



More detail on this subject can be found in [Chapter 8 of our business plan](#).



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1. Introduction

Every day, come rain or shine, we supply exceptionally clean drinking water to our customers across Yorkshire and safely collect, treat and dispose of those customers' waste and storm water. We do this with such a high degree of reliability that most people are unaware of the work to sustain this life-supporting service.

Yorkshire Water is proud to be a resilient company. We have spent the last five years building upon the solid foundation set out in our PR19 submission to continue to evolve our business so that we take long term, sustainable and resilient decisions, and continue to deliver these services for our customers for generations to come.

The need for an operationally resilient business and supply chain has been continually in focus throughout AMP 7, with a succession of challenging events impacting our business and our customers (domestic and commercial). Throughout exceptional events like the COVID-19 pandemic, the macro-economic impacts of the invasion of Ukraine, and the more normalised impacts of climate warming such as storm Arwen and the drought of 2022, we have continued to maintain high levels of service, protect the environment and financially support our customers. We take our resilience duties seriously and have spent time refining our processes and approach to ensure we are monitoring and managing threats to our business such as extreme weather, climate change, population growth, cyber threats, complex international supply chains and global financial instabilities, see our process for managing risk and uncertainties.

Throughout AMP 7 we have reinvested efficiencies created through our base maintenance expenditure to modernise our business. This has seen us create greater organisational resilience and capabilities in asset information, systems, processes and decision-making, to our approach to strategy and planning, and risk management. We will discuss the contribution of each of these later. We will continue to use our base maintenance investment to improve our resilience throughout AMP 8.

Through extensive consultation with our customers, we know that resilience is one of their highest priorities. Our customers want us to go above our statutory duties and have supported 'best value' plans in both WRMP and DWMP plans that go further than least cost plans. We also see two specific areas where we believe there is a need for enhancement investment in order to maintain resilience. These are our water supply system, and our Living With Water partnership funding, both of which are designed around creating greater resilience for customers. The Living with Water enhancement case can be found here.



The Living with Water enhancement case can be found here.

<http://www.yorkshirewater.com/Chapter-8-Living-With-Water-enhancement-case>

2. Why and how do we measure resilience?

2.1 BS65000 and YW's Resilience Framework

At Yorkshire Water, we take our resilience as a company seriously, and in the lead up to PR19 we undertook two interlinked pieces of work to externally assess our maturity at that point against a best practice approach to resilience. This has allowed us to build a framework for the future.

Initially the Emergency Planning College carried out a baseline review of our organisational resilience against BS65000: Organisational Resilience Code of Practice. This returned an overall scoring of 3: Established, against the maturity scale from the standard, as shown in the figure below. This level suggests that we manage our resilience well and have a clear understanding of the changing risk environment. However, we could improve our management of resilience further, for example, through building relationships for managing risks associated with multiple directorates and/or function activities.

We also worked with our partners, ARUP to build a Resilience Framework around our 16 internal functions, or systems, broken down into three distinct areas of the business – Corporate, Financial and Operational. This was then broken down into individual areas of the business under these three headings and a score provided on where our maturity level sat and where we aimed to be both in 2025 and 2050. These targets gave us a platform to work to in the medium and long terms (see Figure 1 below). An initial baseline from 1989 was used as a starting point to demonstrate our progression from initial privatisation.

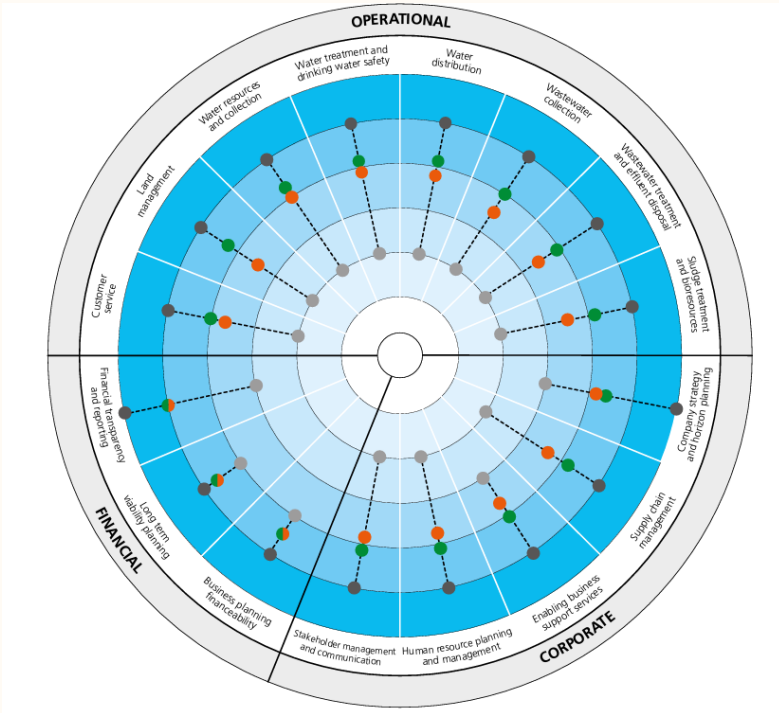
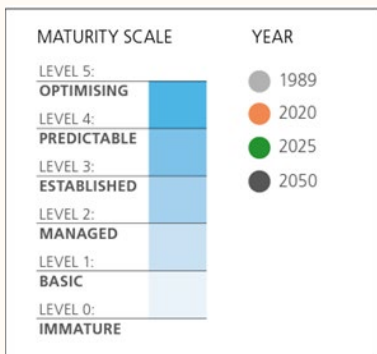


Figure 1 - Maturity scale and the results of the Yorkshire resilience framework



Read more about this at <https://www.yorkshirewater.com/environment/resilience/>

Aligned with the delivery of our modernisation programme, we will be revisiting the maturity assessment in 2025 to check our progress against our original targets.

3. Asset Management Maturity Assessment (AMMA)

In 2020 OFWAT carried out an Asset Management Maturity Assessment (AMMA) of the whole Water Industry to provide a snapshot of how we were performing against a range of measures

including Strategy and Planning, and Risk and Review. From this assessment Ofwat provided a breakdown of our performance (see Figure 2 below).

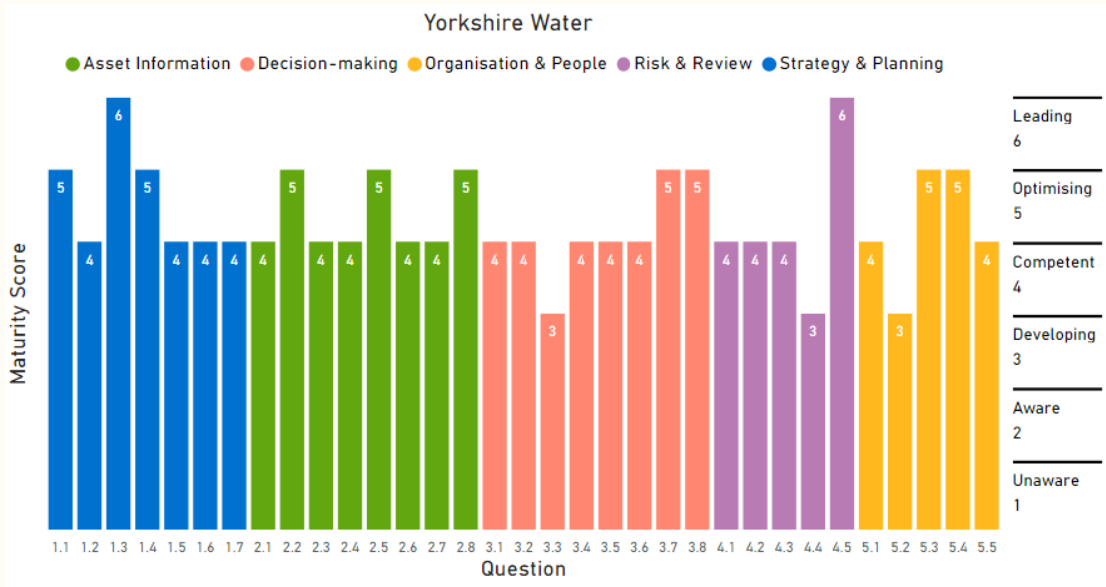


Figure 2 - Maturity Score

We performed well in the majority of areas, and achieved “leading” in two, Ofwat did provide us with ten very useful actions that would help us to improve our performance further. A recent review by the Risk and Compliance team reported that all actions are being addressed and will help to further increase our organisational maturity and resilience.

Ofwat raised a key action around cascading consequences and how events beyond our control can impact on our ability to provide services to our customers. We introduced a proactive, repeatable process, learning from our successful response to the Covid pandemic, to respond to the interrelated risks arising from the invasion of Ukraine. This process identified and assessed all relevant risks, mapped the controls, agreed and monitored cross-cutting actions and set clear triggers for both escalation and de-escalation. This included an assessment of the resilience of our supply chain.

To further enhance our resilience in this area we have introduced a range of measures to monitor supplier performance. As a preventative measure our procurement team have introduced a monitoring system using a Gold, Silver, Bronze and Blue level of supplier criticality. Gold represents the highest impact – e.g. single source of supply, health and safety risk – and blue is the lowest impact, e.g. multi source supply, everyday items. Our suppliers are monitored more or less frequently according to risk. Gold level suppliers are actively managed monthly, Silver are actively managed quarterly, Bronze are managed less proactively and more passively with routes to escalate should they be needed and Blue not actively managed as these are either easily replaced or low risk/low impact suppliers should we not be able to use their services.

This process allows us to proactively monitor suppliers and highlight any issues before they arise.

A second action from Ofwat as part of the AMMA was to look at how we capture lessons learned as part of our Asset Management review process, and to aid with this we have created a dedicated Lessons Learned SharePoint page. This Lessons Learned page is available to the company as a whole and adds to our resilience by “closing the loop” following an incident and allowing us to look at what we did well, what we didn’t do so well and how we can use this information for the future.

4. Our approach for managing risks and uncertainties

Throughout our Organisation, we are committed to strong risk management which allows us to consistently meet customer needs, whilst keeping our colleagues safe and well, regardless of the circumstances. It is at the heart of our ways of working, improving our ability to predict and prepare for challenges, but it is not about refusing to take risks. The Board sets and monitors the amount of risk YW is prepared to accept in pursuing its strategic objectives through the implementation of its risk appetite.

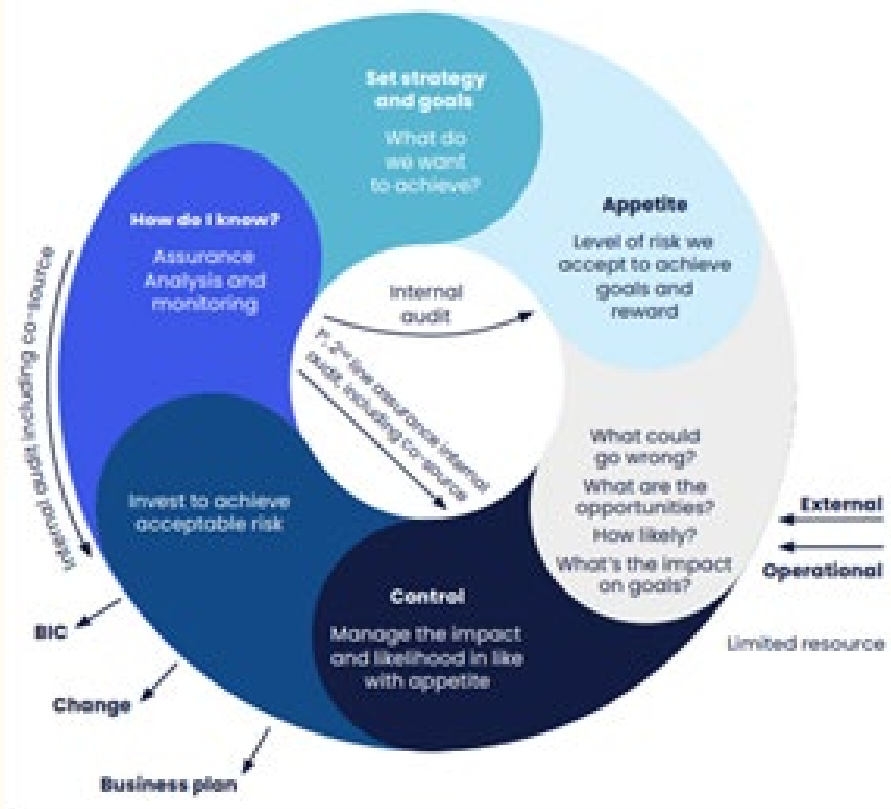


Figure 3 - Our approach to managing risk and uncertainties

5. Our risk management framework

The Audit and Risk Committee is responsible for overseeing the effectiveness of the risk management and control framework. The framework promotes resilience through early identification of what could go wrong and putting controls in place to mitigate the effects before they happen. Risks are monitored against the agreed appetite and escalated to be managed at the right level.

The Board maintains oversight of risk management through a programme of deep dives across all its committees. Risk identification is both bottom up and top down. It is embedded in all our operational systems and subject matter experts conduct horizon scans to identify emerging risk. A standard risk assessment matrix ensures consistent measurement of both impact and likelihood. Strong systems of internal control are in place to mitigate risk to the acceptable level. Risk owners monitor early warning signs and implement focused mitigation.

A structured approach to risk appetite allows leadership teams to monitor a series of key risk indicators to take timely action to mitigate risk as it moves out of tolerance. Oversight is provided by the Audit and Risk Committee and the Board six-monthly.

Our coordinated three lines of assurance tests the design and operation of our control framework and the mitigation plans, recommending improvement actions where needed. The Audit and Risk Committee has oversight of the achievement of actions and the quality of the risk and assurance processes. An Internal Audit gave significant assurance over corporate risk management in 2022.

6. Our principal risks

Our principal risks are those individual or aggregated risks which have the potential to threaten resilience or take the business significantly beyond risk appetite. We have 11 principal risks, plotted on the indicative heat map to show plots our current risk exposure after controls have been applied. Here is a summary of the controls that we deploy for managing both the water supply risk and the sewer flooding risk.

6.1 Principal Risk Summary

1. Cyber security
2. Environmental protection, pollution and flooding
3. Political, regulatory, or statutory change
4. Financial sustainability
5. Customer experience
6. Organisational Change and Modernisation
7. Climate change and carbon transition
8. Public and colleague safety and wellbeing
9. Enough clean, safe drinking water
10. People: talent, culture, succession and retention
11. Governance, conduct and organisational resilience

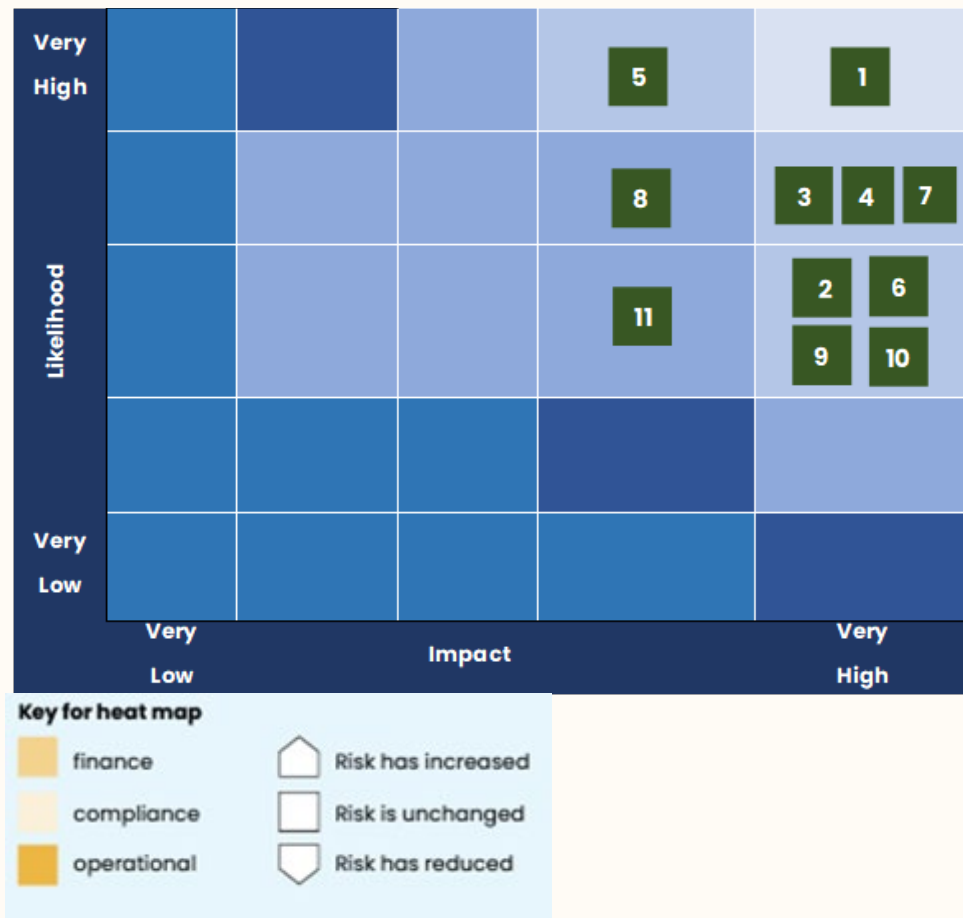


Figure 4 - Principal risks

Two key principal risks are key to our core purpose are “Enough clean safe drinking water” and “Environmental protection and flooding”, which align with the areas we have submitted

enhancement funding cases to improve resilience. Below are two case studies detailing the consequence of these risks, along with what we are doing to control those risks.

6.2 DEEP DIVE 1 – Enough clean safe drinking water

A problem with our system could cause a failure to meet the quantity or quality of water our customers need.

Our success in maintaining supply of clean safe drinking water to all our customers through the sustained dry weather through 2022 demonstrated that our controls are sufficient to meet demand for clean safe drinking water, but the impact on the business was more than expected. We have reduced our assessment of the likelihood this risk will manifest, but acknowledged the potential that the impact on the company will be higher. The overall risk level has increased. To ensure resilience we carry out the following tasks:

- We undertake detailed water resources planning and carefully monitor demand, raw water quality and asset availability to meet our customers' needs.
- We use our flexible grid network to move water across Yorkshire to where it is needed.
- We operate a risk-based prioritisation process for the maintenance and replacement of our assets.
- We monitor the effectiveness of our asset management through asset health measures.
- We have improved our proactive maintenance programme.
- We are ISO55000 (asset management) certified, demonstrating that we follow best practice.
- We have well established business continuity plans and use our corporate incident management process to respond and recover.

6.3 DEEP DIVE 2 - Environmental protection and flooding

We may harm the water environment through unsafe abstraction or discharge leading to pollution, or failure to adapt to flood inundation of our assets.

We've outlined our commitment to reducing the number of pollution incidents year-on-year through the Pollution Incident Reduction Plan. It focuses on improving day-to-day compliance with our ISO9001 and ISO14001 assured operational procedures. This is being overseen by a business-wide pollution hub, monitoring and governing benefits realisation. We are investing £180m over the remainder of the AMP7 to improve the performance of our combined sewer overflows. We operate a risk-based prioritisation process for the maintenance and replacement of our assets, and as part of our new corporate strategy, are moving to more proactive maintenance of assets. We monitor the effectiveness of our asset management through asset health measures. In 2023, we have improved our proactive maintenance programme. We are ISO55000 certified, demonstrating that we follow best practice. We have well established business continuity plans and use our corporate incident management process to respond and recover. We have invested to protect our vulnerable assets from flooding and work actively with the EA and other partners, including through schemes such as Living With Water, to reduce the impact of flooding for others where we can.

7. Changing risks

The context in which we operate remains volatile. Geo-political tensions, macro-economic uncertainty, supply chain fragmentation, the climate crisis, the after-effects of the global pandemic and cybersecurity scares all create a hugely challenging network of risks. This uncertainty is reflected in our heightened risk landscape: four principal risks increased during FY23, and we introduced a new risk for macroeconomic uncertainty and the cost of living. Additionally, we are aware that risks are not independent, so to boost our resilience through scenario planning we worked with WillisTowersWatson to develop the Interconnected Risk Review. This is a repeatable and quantifiable means of capturing risk interconnections and identifying future risks. We also recognise that as a single body it's not easy to access the breadth of expertise and analytical quantification of interconnected risks needed to interrogate our own risk perspectives, identify the full range of opportunities and strengthen long-term resilience. This innovation combined data-driven risk modelling and informed challenge from external expert perspectives to interrogate interconnected risks, revealing unseen co-dependencies, exposures and opportunities.

The model below, which shows the relationships between our current top risks combined with the external, deep expert challenge, allowed us to build better, more informed scenarios to test

our medium and longer-term resilience. These were used practically as part of our FY23 long-term viability assessment and are woven into our longer-term delivery strategy and adaptive decision-making.

Q4. Please choose up to 3 combinations of risk pairs from the list, where you feel there is the potential for unexplored but significant consequences between risk pairs.

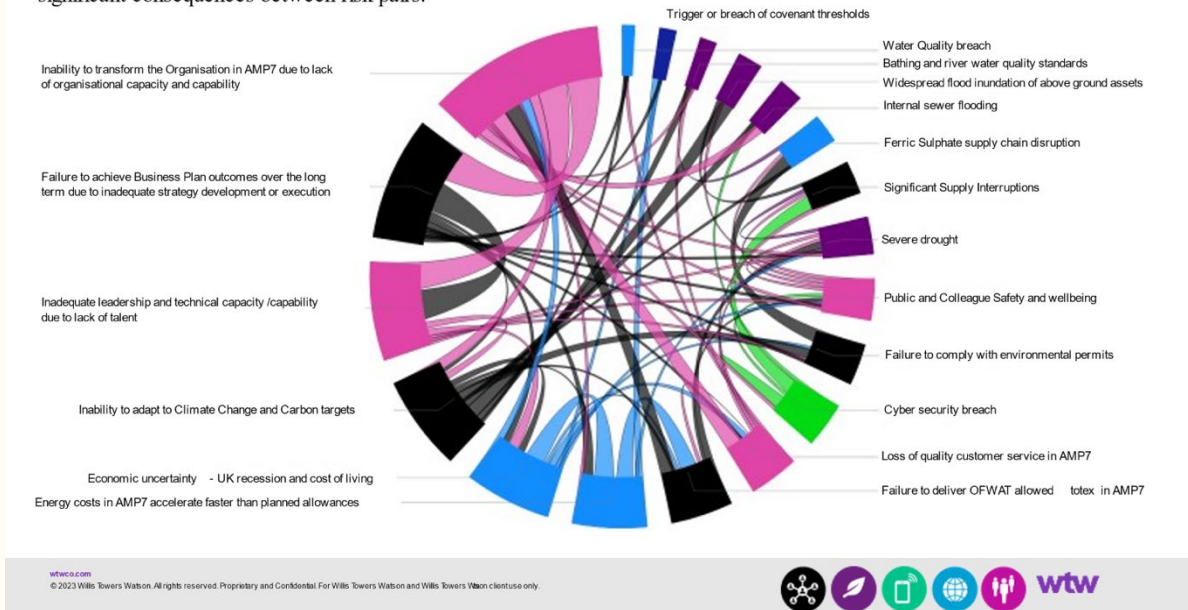


Figure 5 - Relationship between risk and expert challenge

7.1 Our resilience in action

In this section we will delve into our key strategies for delivering resilience, how we use our accredited asset management systems and processes to routinely deliver for us through successive extreme events and also business performance issues.

Our Integrated Management System (IMS) serves as the central repository for all our documented policies and procedures for how we need to operate and is used as an everyday tool for colleagues. The IMS is there as a standard and a “just the way we work” approach. To improve resilience, the IMS has recently moved to a more accessible and Tech-enabled SharePoint platform which colleagues find user friendly and flexible. This allows for operational colleagues to access the right processes and procedures for their sites offline which is incredibly important, as some of our more rural locations can mean that internet access is not available. This will support our resilience as it means that our field workers can access this information wherever they are using their Toughbook or mobile phone, regardless of signal.

For additional resilience, key emergency and business continuity procedures are stored as copies within Resilience Direct. This also enables us to work collaboratively with wider civil protection practitioners in the event of any significant events or incident escalation, removing geographical and organisational boundaries. It also ensures storage of business-critical documentation in a cloud-based platform should there be any risk or impact to our own internal document storage, building additional resilience to the threat of cyber-attacks. Planning for emergencies and business continuity incidents is an integral part of our key business practices and overall ethos of resilience in action. Incidents do occur which threaten our service standards and expectations of our customers. As a business, we need to react swiftly, take control of the situation and form a recovery response as soon as possible. Our Company Incident Management Plan (CIMP) provides a framework to effectively manage incidents that have the potential to, or have, impacted the businesses' ability to delivery service.

The objectives of the plan are to;

- Recognise a risk (to the point where it is likely to materialise) and take appropriate steps to mitigate that risk and/or its impacts
- Effectively manage all operational incidents and facilitate a controlled return to normal operations as soon as possible
- Ensure compliance with legislative and regulatory requirements
- Ensure a process of continual improvement

- Ensure the company adopts a culture of prudent over reaction to an incident or crisis

When triggers are hit to activate the CIMP, an incident management team will form proportionate to the level or risk the incident is presenting. Our escalation and command levels run from bronze (operational), silver (tactical), through to gold (strategic). The structure aligns to the wider multiagency and national escalation levels allowing a coordinated and collaborative response.

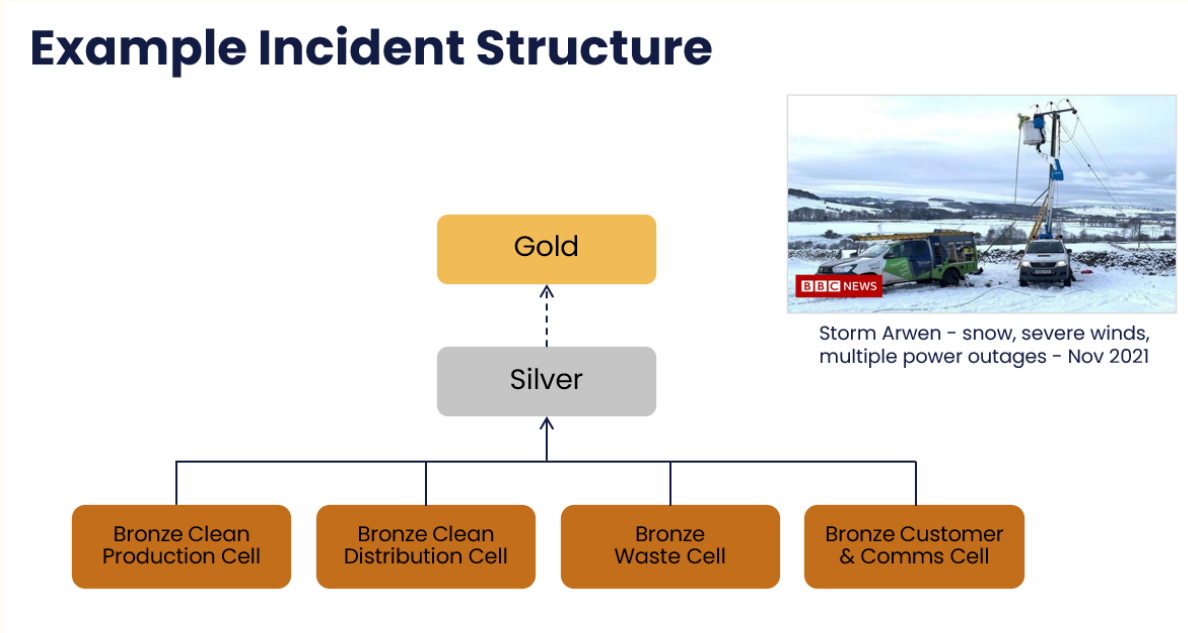


Figure 6 - Example Incident Structure

Our CIMP framework, tools and incident management training adopt the Joint Emergency Services Interoperability Programme (JESIP) principles and standards outlined within the joint doctrine, enabling full interoperability in the event of any multiagency response.

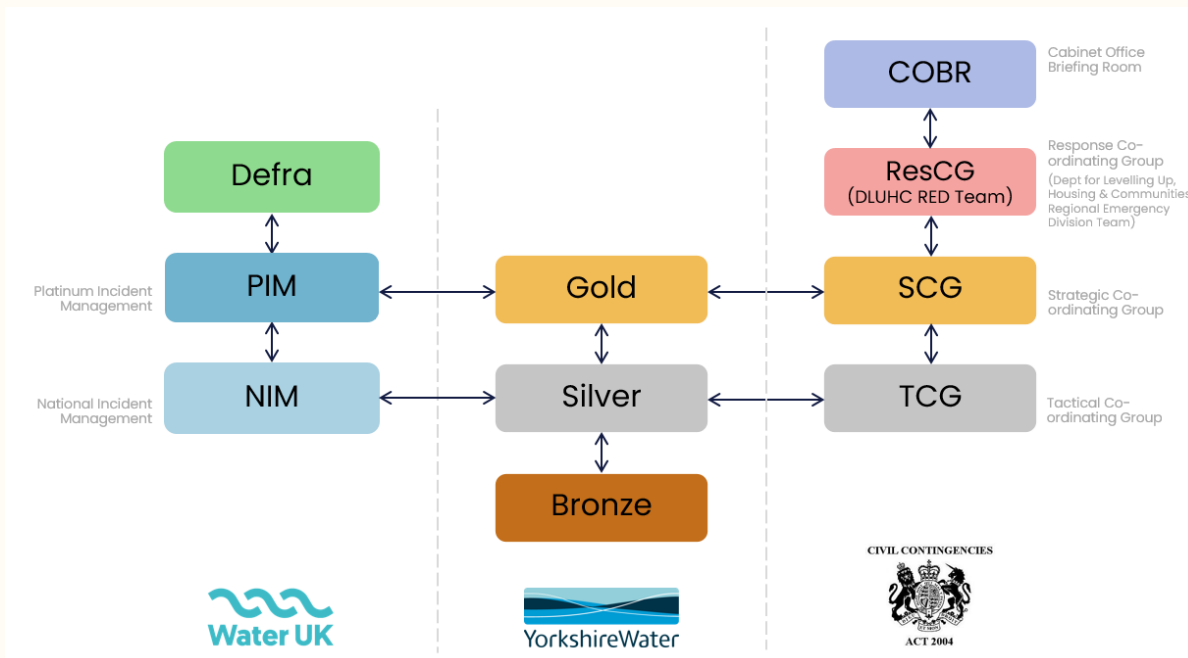


Figure 7 – CIMP framework

As a business we partner with four regional local resilience forums (LRFs) and play an active part in the capacity of our role as a Category 2 responder. We proactively build strong working relationships with all partners and work to build an integrated view of risk for the individual communities and regions that each LRF serves. We plan and prepare together, with multiagency

training and exercising schedules ensuring we are sharing knowledge, communication and resources whilst identifying key lessons learnt together. When operating reactively, our incident team will align to the Tactical Coordinating Group (TCG) and Strategic Coordinating Group (SCG) incident structures. And where activated, Recovery Coordinating Groups (RCG) as we move communities through incident recovery.

In addition to our multiagency exercises, we plan and maintain internal exercising across all levels of incident escalation to review and improve our preparedness. This allows us to test key threats, risks and business processes in a controlled way to identify key lessons learnt to action and build our overall resilience. It ensures our teams are putting their theoretical training into practice, building a team who are ready to respond confidently and capably in the event of incident escalation.

The overarching CIMP is further supplemented by individual response plans targeting key areas of business risk (ie Flood Plan, Weather Escalation Plan, Vulnerable Asset Plans, Power Resilience Plan). Site Specific Arrangements (SSAs) have also been developed with targeted customers and vulnerable establishments who have specific needs and a critical reliance on maintaining service in the event of any incidents or interruptions. An example of which is provided below, demonstrating the purpose of a plan developed in collaboration with a hospital within the region.

Purpose
<p>This Site Specific Arrangement (SSA) is an emergency plan which sets out how water supplies will be maintained to a major hospital (which has A&E and/or critical care services on site) in the event of an incident.</p> <p>Yorkshire Water will provide temporary alternative water supplies on a priority basis but it is important to note that the first delivery of any tanker, static tanks or bottled water can be several hours after the start of the incident.</p> <p>Hospitals that are sensitive to even very short disruptions to their water supply should consider having a comprehensive business continuity plan in place to mitigate the risk to their site operations. This includes having adequate on-site storage and making suitable connection points available onto which an overland pipe or tanker can connect.</p> <p>Consideration should also be given to the impact on fire-fighting/ suppression systems e.g. private fire hydrants; sprinkler systems; heating systems; provision of sanitation.</p> <p>In the event of an emergency Yorkshire Water will contact the customer directly and inform the retailer within 48 hours (Alternative Supplies Policy)</p> <p>YORKSHIRE WATER – EMERGENCY HELPLINE NUMBER: 0330 134 33 33</p>

Figure 8 - Example to demonstrate the purpose of a plan

Organisational resilience is targeted and managed through Business Impact Analyses (BIA) with individual Business Continuity Plans (BCP) for individual business areas and critical processes. These BCP's were put into practice across the business with the arrival of Covid 19 and did prove effective as we continued our core business uninterrupted. They are regularly utilised to build resilience and manage reduce the impacts of short duration events including interruptions due to weather, technology or access to systems and physical sites.

A core behaviour of our business is the fact 'we're always learning' and this transcends though our approach to resilience in action via our incident debriefing and review process. This is a collaborative process with the full incident team's engagement and involvement where lessons are identified and brought into our integrated action management approach. Where applicable, lessons are shared at an industry level through relevant forums such as the Security & Emergency Planning Network (SEPN) and Water Control Room Forum (WCRF). Our Emergency Planning team horizon scan for national level learning to bring into the business, and we seek external insights through regular benchmarking and cross sector visits.

As a business we value and have an active membership with Resilience in Design (RiD). This is a collaborative forum or 'think tank' that brings together practitioners from a wide range of industries with the aim of sharing and discussing current issues, challenges and practical approaches in relation to achieving a truly resilient organisation.

8. Our plans for building resilience through AMP 7 and beyond

During AMP7 we have been evolving and modernising our business. In 2021 we worked with colleagues and experts from across a range of industries to develop the Yorkshire Water Target Operating Model (TOM) to improve:

- Outcomes for customers
- Create financial efficiency
- Improve organisational health and resilience

The image below in Figure 9 shows the level 0 Yorkshire Water TOM, highlighting the three key building blocks and the core components within each of those.

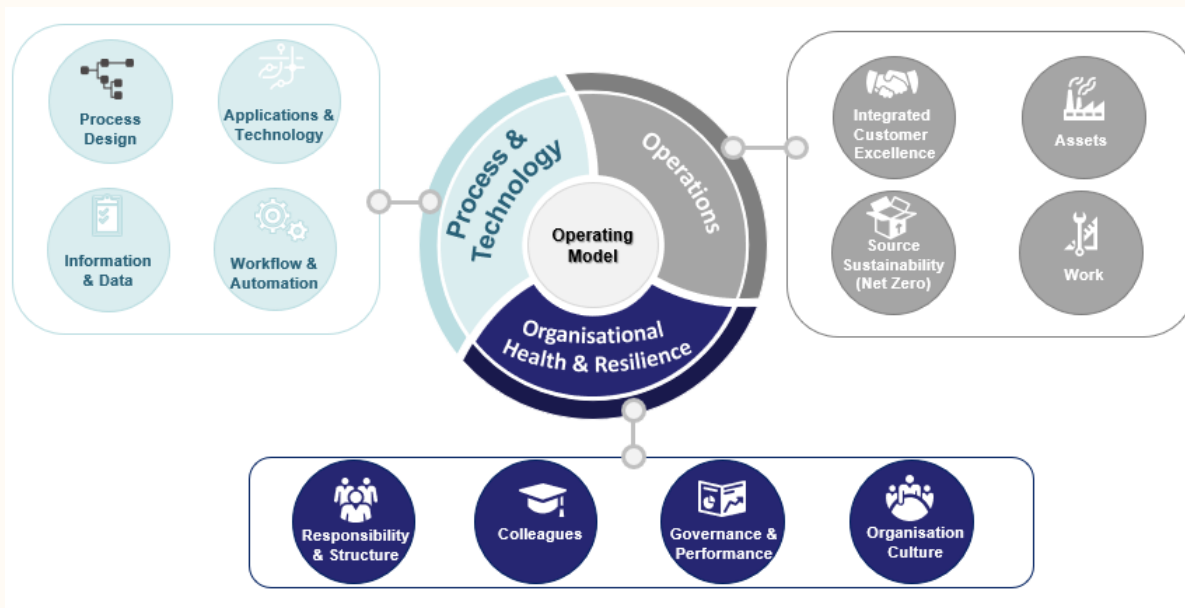


Figure 9 - Level 0 Yorkshire Water TOM

We have created a transition state plan to move from our origin state to our target state. This has been critical to our success to date as it enabled us to sequence the work needed in logical and deliverable steps to create and deploy the capabilities required for each of the above core components across our whole organisation design, whilst at the same time creating some new organisational elements and not adversely affecting customers or colleagues. Due to the scale of our transition the full plan spans AMP 7 and AMP 8.

Throughout AMP 7 we have reinvested base maintenance efficiencies to build these capabilities in areas that directly improve organisational and operational resilience, such as;

Asset Information – we have created an Asset Information Strategy, implemented a new asset hierarchy and are improving asset data collection processes using our new Above Ground Maintenance system (AGM is the name for a group of strategies, systems and ways of working that combine to allow us to improve Asset Health). We have deployed circa 135,000 asset health monitoring devices across our asset base (clean and wastewater infra and non infra), meaning we can remotely detect or predict relevant failure modes and maintain our assets more effectively, providing greater resilience. We have physically inspected assets and equipment to improve the quality of our asset inventory and understanding of asset health.

Processes and decision making – we have improved existing and introduced new processes that allow us to make faster and more outcome focussed operational decision making. Combined with our approach to condition-based monitoring and our revised approach to equipment and asset criticality, we are undertaking more sophisticated maintenance planning

(best whole life cost interventions) and timely asset planning interventions. An example of this is our Wastewater Treatment Works Compliance process, that intervenes early across any potential failing site to increase capacity and resilience.

Organisation and people – We have centralised our planning and scheduling capabilities to create one “Central Control” function, able to provide holistic risk and resource management. We are training front line colleagues with a greater range of skills, so that they can work more productively to maintain equipment in a healthy state, but also recover failed equipment quickly. With a focus on risk management and business continuity, we run train colleagues in our processes and how to respond in during incidents and we test the effectiveness of our organisation and training through regular exercises, some run internally, and some with the local resilience forums.

Risk management and review – as discussed above, we have a robust approach to risk management and review with strong governance and control in place. Strategy and Planning – We know that it is important to anticipate how changing risks affect the critical services we provide. We also know that through Partnership working, we can deliver a broader range of better outcomes for our customers (link to 8.15, Partnerships). In addition to our Living with Water partnership, we play a key role in a number of other strategic partnerships that helps us to manage flood risk (Connected by Water in South Yorkshire and Calderdale Flood Resilience in Calderdale).

8.1 Work force resilience and training

AMP 7 has been a challenging period for colleagues within the water industry, with a succession of sustained events affecting wellbeing and morale, both at home and in work. We have invested in our Occupational Health support, fatigue management, training and development and reward and recognition Through various mechanisms and working closely with our Trade Union representatives we have supported colleagues in many ways to ensure they have remained resilient and able to continue to deliver our services for our customers.

9. Where our customers would like us to be more resilient

In this section we will explain what our customers have told us they want to prioritise from a resilience perspective. For further information on our customer engagement please refer to [Chapter 6 in our main business plan](#).

Whilst customers struggle to understand the term ‘resilience’ and what that means to them, they very much support the activities which require resilience at the highest level. Across our extensive engagement we understand that one of our customers’ priority areas is a continuous supply of safe, clean drinking water, therefore the resilience activity that supports the delivery of this priority is of the utmost importance to customers. When looking at the specific engagement we ran, examining customers priorities for Water Resources via our engagement work on Water Resources North’s approach to water resources management, there was a clear order of priority where resilience was sat high on the list of priorities, including going over and above a least cost plan, to deliver a ‘best value plan’. The key themes priority areas (ranked from highest priority) which emerged from the best value plan include:

- Reducing leakage by improving the pipework
- Public Water Supply Drought Resilience – ensuring the public water supply
- Reducing PCC by customer behaviour through education, and metering
- Financial cost (keeping the bills affordable)
- The environment, protecting what is there, reducing abstractions, and Biodiversity Net Gain
- Education to raise consumer awareness.

Unsurprisingly, leakage was ranked first. This is because leakage is the single most obvious failure to customers, it is seen as wasteful and environmentally damaging. The second ranking metric which was Public Water Supply (PWS) Drought Resilience, this was seen to be

fundamental to a water company, with climate change at the back of their minds, this was deemed a key priority and therefore an important metric for managing water resources.

Financial Cost was also important, and even more so for Yorkshire customers and citizens who placed this toward the top of the list. But this did not mean that customers and citizens were not willing to pay more, it was that it should be a small increase over a long period of time. Per Capita Consumption was also important to customers and citizens and there was a desire for more information and help to reduce water consumption. It was generally felt that customers could all do more to save water and thus reduce the need for increased supply and extraction. The environment was ranked after this with Biodiversity Net Gain ranked 5th. Our approach to Water Resources engagement is outlined in [Chapter 6 of our main business plan](#).

When looking at wastewater measures, resilience in our Drainage Water Management Plan was just as important to customers. Once again, customers very much supported Yorkshire Water going beyond statutory deliverables, majority of customers supported a Best Value Plan above a Least Cost one. From a customer perspective, customers believed a Best Value Plan for Yorkshire Water should deliver the following:

- Reduced internal sewer flooding.
- Maintain and upgrade the current wastewater system infrastructure.
- Use SuDS where appropriate.
- Provide customer education and incentives.
- Work in partnership with key organisations such as the EA and developers.
- Reduce external sewer flooding and reducing environmental pollution by improving / reducing storm overflow use and wastewater flow and compliance.

Predictably, internal sewer flooding sits at the top of the list (as it does for any wastewater services engagement we've undertaken), this is seen as the most hideous of failures to experience and one which could have huge personal, emotional and financial repercussions. Upgrading infrastructure was the second priority, due to the fact that undertaking these activities will have a positive knock-on impact on many of the other wastewater measures, improving resilience and reducing failures overall.

Whilst many customers were unaware of SUDs, once explained, these were felt to add positive benefits across the board -supporting the management of rainwater as well as reducing carbon emissions, however it was understood that these needed to be balanced with traditional approaches to both address changing rainfall patterns due to climate change and limit failures across the wastewater system.

It is understood Yorkshire Water cannot do all of this on our own, and the best approach to water management in the long run is to work in partnership with the EA, councils, developers and of course our customers.

Finally, when it came to wastewater management customers were more than supportive of efforts to reduce external sewer flooding, reduce environmental pollution, use of storm overflows and improving compliance at our treatment works were all extremely important, however it was felt that addressing priority two - maintain and upgrade the current wastewater system infrastructure, would have the added benefit of reducing these issues overall.

Interestingly, our DWMP research was undertaken at a time when the costs of living crisis was deepening (March 2022), yet customers were still prepared pay a little more toward drainage water service improvements (1%-10% on average for household customers and 5%-10% on average for non-household customers). Our approach to Drainage Water Management Plan and engagement activity is outlined in [Chapter 6 of our main business plan](#).

In these challenging economic times, we know it is important to support our customers, which is why we have created a leading approach to providing financial support to customers in need. [Link to the details](#).

10. Our resilience enhancement cases

Whilst we continue to build our organisational resilience through continuously improving all aspects of our Target Operating Model, and the measured and controlled investment of our base allocation, there are two specific areas where a step change in infrastructure investment is needed to deliver the resilience our customers require. These are our water supply systems challenge and our Living with Water Blue Green plan for Hull.

10.1 Water supply systems challenge

Yorkshire Water have developed a new system-based approach to strategic planning for water, which brings together multiple needs, at a whole-system level and develops integrated long-term plans to ensure water supply services are sustainable and resilient. This approach aligns with WRMP, asset planning, investment prioritisation and delivery processes, operating policies as well as engaging with external stakeholders. This allows Yorkshire Water to fully understand the needs of the system before thinking about solutions, therefore enabling the potential opportunities for integrated solution development.

10.2 Living With Water

The Living with Water partnership is a collaboration between Yorkshire Water, Hull City Council, East Riding of Yorkshire Council and the Environment Agency to manage flood risk in the area. Hull University is the academic partner of Living with Water.

The network in Hull and the surrounding East Riding is very complex, with the combined sewer network managing 88% of all surface water within the catchment. Due to the geography and topography of the area, the catchment is entirely reliant upon pumping (using Yorkshire Water infrastructure).

Working collaboratively, we will continue to support the partnership to further improve flood resilience (focusing on a climate horizon of 2080) in Hull and the surrounding area through the installation of blue-green and grey infrastructure in AMP8. During this period the partnership will collaborate to install key enabling infrastructure for a new surface water network which will reduce reliance upon the combined network for city drainage, this will allow for further infrastructure to be installed in future AMPs significantly increasing the resilience of the catchment.

The partnership will also continue to carry out detailed customer engagement to increase understanding and support for nature-based solutions in a very urban environment and share this knowledge to inform our company and industry approaches. This work will be carried out alongside wider Living with Water programmes which focus on education, engagement and knowledge sharing.

11. Conclusion

Yorkshire Water is a resilient business, with a governance structure in place to ensure that we continuously improve our approach to resilience, to maintain our services to customers for generations to come.

Through the deployment of our modernisation programme, we plan to improve our organisation resilience in AMP8 in the key areas discussed above.

We have also created two specific enhancement cases that build further resilience, which are important to our customers and will safeguard these areas of service.