

Asset Management Maturity Assessment Anglian Water 2024 update



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Executive summary

As a business, we rely on our assets to deliver water and water recycling services to the 7 million customers we serve across our region. Asset Management is fundamental to our success, and we are proud to have our performance recognised in Ofwat's sector wide Asset Management Maturity Assessment (AMMA) in 2021, including our certification record with Asset Management related standards.

In the lead up to AMP8 (2025-2030) there has been significant attention on asset health and operational resilience, which we have been proactively engaging with to co-create new approaches that define common measures across our sector and better quantify future asset health risk. This enables our sector and organisation to deal with the real shocks and stresses we have been experiencing, and will continue to experience in the future. We know that by more accurately measuring and forecasting health, we can make better informed decisions regarding investments against a wide range of value factors.

To support our Draft Determination Representations, we have taken the opportunity to revisit and update our AMMA. We have engaged across our organisation on the subject of asset management, to undertake a comprehensive review of our progress, and refine our improvement plans for the short, medium, and long term.

This document provides a view of our updated scores against each of the asset management subject areas, detailed insights into the relevant activities we have undertaken, and the plans we have for the future.

An important outcome from the 2021 AMMA activities was the release of two key documents from Ofwat, which provided recommendations to the industry¹ and specifically to each organisation who submitted a self-assessment². As a business, we have listened and implemented these recommendations during our delivery in AMP7 (2020-2025) and in planning for AMP8 and beyond.

A summary of our scores is provided in the Table 1, comparing our scores following Ofwat's 2021 moderation exercise, scores from our current 2024 assessment, and the associated change in maturity against each question. Figure 1 provides a view of our scores following Ofwat's 2021 moderation versus our scores from our current 2024 assessment. We are pleased with our progress in a number of areas, most notably, we have:

- Closely aligned our asset investment decision making processes with our Purpose by incorporating six capitals into our Value Framework, and through our work with PAS808 we have delivered step improvements including enhancements to our Risk, Opportunity & Value process.

- Incorporated 'Place-Based Thinking' with the aim of improving the outcomes for the environment and community at that location by delivering improved value and benefits.
- Developed a more strategic approach to asset data and information management.
- Championed the development of Asset Management Apprenticeship Standards, continued to take a leading position in external asset management communities, and made substantial investments in upskilling our current and future workforce.
- Improved our approaches to risk management and oversight to our Board, in addition to developing risk appetite statements agreed and reviewed by our Board, making sure that we systematically identify and consider uncertainty across all areas of asset management.
- Produced our Asset System Resilience Appraisal³ (ASRAP) which outlines our long term strategic plan for asset health related activity and sits alongside our other strategic planning frameworks.



¹ [Ofwat Asset Management Maturity Assessment – insights and recommendations \(September 2021\)](#) ² [Ofwat Asset Management Maturity Assessment – company by company summary annex \(December 2021\)](#) ³ [ANH38 Asset System Resilience Appraisal](#)



We are consolidating future planned activities against each of the subject areas and assigning owners to deliver them. These include:

- Further develop 'Place-Based Thinking' in AMP8 by extending the horizon at which it's applied and ultimately developing an approach including both water and water recycling catchment integration.
- Investigate more comprehensive scenario testing exercises and the potential to have a Long Term Delivery Strategy (LTDS) style adaptive plan that allows for investments to be considered holistically and align timescales across our strategic planning frameworks.

- Trial Artificial Intelligence (AI) capabilities within various tools to improve the speed and quality of data-led decision making across the life cycle of our assets.
- Fully align our business with ISO19650 and be the water leader for applying this standard to our Asset Data Lifecycle.
- Expand our Asset Monitoring Framework and Asset Data Strategy to support the scaling of our approaches to a wider range of critical asset groups, which forms a key pillar of our data driven operational strategy.
- Explore new frameworks with different risk functions, such as asset risk and

operational risk feeding into the enterprise asset management risk framework, as well as improving "risk oversight" across the business.

- Further develop climate modelling to include a wider range of asset types and improve our reporting capabilities through digital visualisation tools.
- Continue our initiatives and collaborative work with external organisations, such as with UK Water Industry Research (UKWIR) on the Asset Management Big Questions, to identify and improve our current and future asset management capability and competence.

Figure 1 – Our 2021 scores (Ofwat moderated) versus 2024 scores (self-assessed)

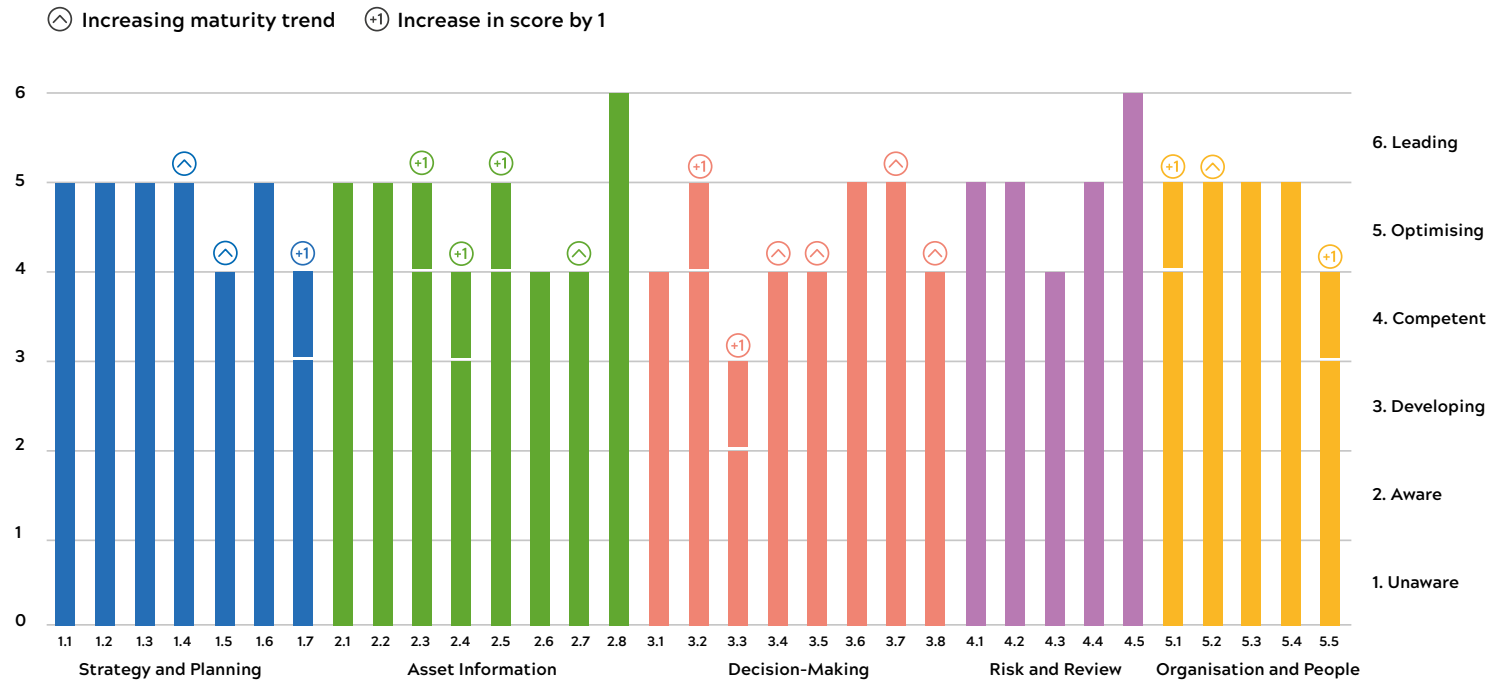


Table 1 – Summary of 2021 scores (Ofwat's moderated) and 2024 scores (self-assessed)

Subject area	Question No.	Questions (shortened indicators)	2021 Scores (Ofwat Moderated)	2024 Scores (Self-assessed)	Change in maturity from 2021 to 2024 ⁴
Strategy and Planning	1.1	Using AM Policy and Strategy to promote asset health and operational resilience	5	5	-
	1.2	Understanding and managing asset health and operational resilience	5	5	-
	1.3	Asset Management System implementation	5	5	-
	1.4	Balancing short and medium term needs and long term objectives in our AMPs	5	5	↑
	1.5	Tracking and reporting effectiveness of AMPs in delivering objectives	4	4	↑
	1.6	Processes to develop an implementable AMPs from AM Policy & Strategy	5	5	-
	1.7	Incorporating uncertainty into AM Strategy and plans	3	4	+1
Asset Information	2.1	Implementation of asset information strategy and standards	5	5	-
	2.2	Collecting and processing sufficient asset health data for different asset types	5	5	-
	2.3	Identifying and quantifying risk of failure of assets	4	5	+1
	2.4	Considering uncertainty in the understanding of the risk of failure of assets	3	4	+1
	2.5	Methodologies to assess and predict asset deterioration	4	5	+1
	2.6	Understanding the consequences of asset failure on service	4	4	-
	2.7	How asset standards support improvement of asset health and operational resilience	4	4	↑
	2.8	Planning for operational response and recovery to asset failures	6	6	-
Decision-Making	3.1	Asset health and operational resilience measures for decision making	4	4	-
	3.2	Asset health data, information, measures, and forecasts to inform decision making	4	5	+1
	3.3	Establishing risk tolerance levels for asset health and application in decision making	2	3	+1
	3.4	Optioneering to develop interventions addressing asset health and operational resilience	4	4	↑
	3.5	Balancing preventive and corrective actions for different asset types	4	4	↑
	3.6	Understanding the link and interdependencies between asset health and service	5	5	-
	3.7	Optimising risks, costs, and performance in decision making to prioritise investments	5	5	↑
	3.8	Valuing asset health and resilience in investment decision making	4	4	↑
Risk and Review	4.1	Asset risk management processes to identify, assess, track and manage asset risks	5	5	-
	4.2	Communicating outcomes from asset risk management processes	5	5	-
	4.3	Processes for approval, monitoring, and continuous improvement of the AMS	4	4	-
	4.4	Reviewing and continually improving asset health data	5	5	-
	4.5	Managing inputs from audits, independent assessments, and compliance with standards	6	6	-
Organisation and People	5.1	Managing asset health and operational resilience in the organisation structure	4	5	+1
	5.2	Identifying and addressing gaps in asset management capability and resource	5	5	↑
	5.3	Ensuring customer and stakeholder needs and expectations are understood	5	5	-
	5.4	Communicating and reporting the plan for asset health and operational resilience	5	5	-
	5.5	Involving customers and stakeholders in the co-creation of asset health solutions	3	4	+1

4 Change in maturity: - No change in score +1 Increase in score by 1 ↑ Increasing maturity trend but no change in score

Introduction

Our Purpose is to bring environmental and social prosperity to the region we serve through our commitment to Love Every Drop. The biggest long term challenges to delivering against our Purpose relates to climate change, population growth and environmental protection in the East of England. Maintaining resilient assets is vital in the promotion of the long term resilience of our region to the increased risk of drought, flood and pollution events that result from these challenges. Understanding and ensuring the health of our assets is fundamental to our success.

We were the first water company to obtain certification to the international standard for asset management (ISO55001), and the highest scoring water company in Ofwat's sector wide AMMA in 2021. While we are not required to provide an updated view of our maturity, we feel it is important to record the progress our teams have made since 2021, and to highlight our roadmap of further improvements anticipated in the coming years.

Asset health is a topic of growing interest across the sector. There are concerns that current approaches for managing asset health are unsustainable in the long term. Our work⁵ in collaboration with Ofwat, Defra, Water UK and three other water companies (Northumbrian Water, Wessex Water and Affinity Water), as well as with UKWIR, aims to positively contribute to this debate by co-creating new approaches that better quantify future asset health risk. Real world shocks and stresses, such as the record temperatures experienced in the summer 2022, and record winter storms in 2023/24 expose the lack of resilience of the sector, further underlining the importance of understanding this issue in detail.

We firmly believe it is only by more accurately measuring and forecasting asset health that we can make informed decisions about appropriate levels of maintenance that deliver inter-generational fairness and sustain performance over time. We also believe that high levels of asset management maturity are an essential component of improving the quality of debate, and levels of trust between regulators and companies which is vital to meet the growing challenges we face relating to growth, climate, improving performance and asset deterioration. Collectively, we must prioritise the long term, avoid inaction and deliver the transformational changes our customers and the environment deserve.

Thank you for taking the time to review this document, and if you read anything that you would like to discuss further, we welcome the chance of open conversations about this critical issue.

Siân Thomas

**Director of Strategic Asset Management
Anglian Water**

Background

In 2021, Ofwat and water companies worked to develop an AMMA. Through a series of collaborative workshops, together we produced a version of the AMMA based on Asset Management Frameworks that are derived from International Standards and specifically the Institute of Asset Management (IAM). The AMMA provides an approach to measuring asset management capabilities in a water industry organisation, with the aim of identifying gaps in asset management maturity, from which improvement plans can be created. The AMMA broadly follows the IAM's asset management framework and has an outcome-focused approach, although excludes the topic of Life Cycle Delivery.

The AMMA includes 33 questions overall, split into five topics:

Strategy and Planning

Asset Information

Decision-Making

Risk and Review

Organisation and People

The questions are scored on a scale from 1 (unaware) to 6 (leading), where the scores represent the level of asset management maturity in that area. Guidance is provided along with criteria for each of the maturity levels; to reach a certain level of maturity, the criteria for that level must be met.

Anglian Water, along with many other water companies across the industry, submitted a self-assessment in 2021. Subsequently, Ofwat carried out a moderation exercise and released two key documents which respectively provided insights and recommendations across the industry⁶, and a report providing recommendations and feedback for each water company who submitted a self-assessment⁷.

2024 Update

This document outlines the approach we have taken to capturing progress in asset management maturity since 2021. It details our associated review findings and evidence, highlights changes to our 2021 scores, and captures our plans for the future which ultimately provide an updated view of our asset management maturity in 2024.

We have chosen to provide this update as we believe it is important to demonstrate to stakeholders the progress made since 2021, and to highlight our plans for further improvements in the coming years.



⁵ [Infrastructure health in the water sector | Water UK](#) ⁶ [Ofwat Asset Management Maturity Assessment – insights and recommendations \(September 2021\)](#) ⁷ [Ofwat Asset Management Maturity Assessment – company by company summary annex \(December 2021\)](#)

Ofwat AMMA insights and recommendations – Industry recommendations

Ofwat’s overarching recommendation was to reflect on the original 2021 AMMA findings, identify appropriate steps to improve capability, and to collaborate across the industry on the common areas for improvement outlined in Ofwat’s AMMA Insights and Recommendations report. We have annotated the recommendation tables below to highlight our actions related to each of Ofwat’s recommendations addressed to the industry, and specifically to Anglian Water. The information within this document details our continued collaborative efforts across our industry to improve asset management maturity and capability.

	Recommendation	Supporting evidence
1	Companies should improve their approaches to risk management by ensuring boards have clear oversight and understanding of current and future asset health risks and of the plans to mitigate these	Decision Making: Board risk tolerance and appetite statements and approach. Risk and Review: improved data collection and analytics, Pollution Incident Reduction Plan (PIRP), Totex Continuous Improvement Forum, and internal assurance activity scope and non-conformances.
2	Companies should improve their approaches to long term planning, ensuring alignment between short, medium and long term objectives in their strategies and plans.	Strategy and Planning: Long Term Delivery Strategy (LTDS) and our ASRAP.
3	Companies should systematically identify and consider uncertainty in all areas of asset management, from strategic asset planning to data quality management.	Strategy and Planning: LTDS and ASRAP. Asset Information: PR24 Climate Change modelling, Climate Vulnerable Mains, Water Resource Management Plan 24 (WRMP24), and our work on Safe Smart Systems.
4	Companies should develop a strategic approach to data and information management that takes into account the ability to share data.	Asset Information: Transition from BIM360 to ACC, updated minimum asset standards, collaboratively driven development of new functionality in software (e.g. 3D modelling), system of systems approach, and our Operational Resilience Working Group (ORWG) response to Ofwat’s recent data request.
5	Companies should make sure that employee competencies and skills are appropriately considered to plan and manage their assets efficiently now and in the future.	Organisation and People: New Director of Strategic Asset Management role, IAM Patron, Asset Management e-learning, Asset Management Apprenticeship Standards, Technician Asset Health training investment, Strategic Workforce Planning, Alliances, and our Communities of Excellence (CoEs).
6	Companies should systematically consider wider aspects of social and environmental value in decision-making and monitor whether delivered interventions provide the benefits expected in their planning.	Strategy and Planning: Enhancement of Value Framework and embedding six capitals. Decision Making: Risk, Opportunity, Value (ROV) process.

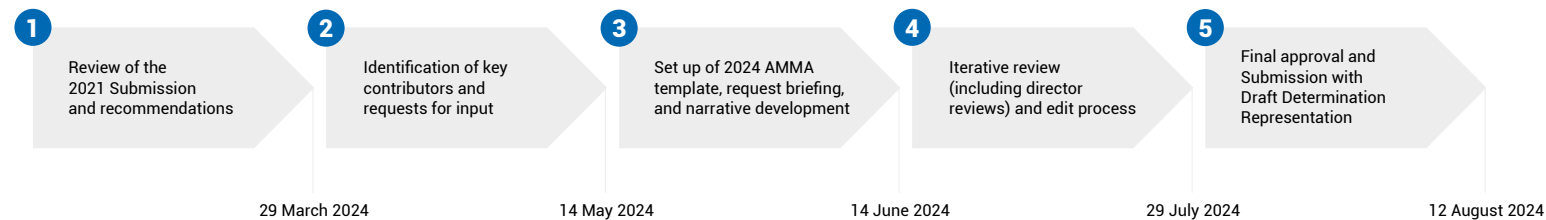
Ofwat AMMA company by company summary annex – Anglian Water recommendations

	Recommendation	Supporting evidence
Strategy and Planning	Consider how to further develop use of asset health trends and forward-looking measures to inform and refine asset management plans. Consider taking adaptive approach, so that the strategy is flexible enough to cope with uncertainties and changes in circumstances ensuring it is robust over time.	Strategy and Planning: LTDS, ASRAP, PR24 Climate Change modelling, and our WRMP24.
Asset Information	Better incorporate uncertainty into understanding of risk of asset failure and consider this for different timeframes to inform decision making and planning. Also consider the consequences of cascading failure in internal systems and stakeholders’ systems in the assessment of risk.	Asset Information: PR24 Climate Change modelling, Climate Vulnerable Mains, WRMP24, and our work on Safe Smart Systems. Decision Making: SAP S/4HANA, Risk assessment and tolerance, enhanced Root Cause Analysis capabilities, and CREDO. Risk and Review: Integrated Management System (IMS), and Totex Investment Continuous Improvement Forum.
Decision-Making	Develop a consistent and systematic approach to setting and applying risk tolerances to investment planning and decision-making processes. Also systematically consider multiple drivers (including external benefits for third parties) and the interactions between interventions across differing timeframes to feedback into its decision-making processes.	Strategy and Planning: Enhancement of Value Framework and embedding six capitals. Decision Making: ROV process and enhancement of optioneering process.
Risk and Review	Develop processes for monitoring progress against the asset management strategy and plan, in addition to monitoring compliance with the asset management policy.	Strategy and Planning: Purpose-driven organisation. Decision Making: Board risk tolerance and appetite statements and approach. Risk and Review: Improved data collection and analytics, this document (AMMA2024), and Internal assurance activity scope and non-conformances. Organisation and People: New Director of Strategic Asset Management Role.
Organisation and People	Develop more regular continuous improvement activities for organisation design and the assignment of roles and responsibilities for asset health and operational resilience. Further develop the breadth and depth of internal reporting and cascading of information relating to asset health and operational resilience to all staff.	Organisation and People: New Director of Strategic Asset Management role, IAM Patron, Asset Management e-learning, Asset Management Apprenticeship Standards, Technician Asset Health training investment, Strategic Workforce Planning, Alliances, and our Communities of Excellence (CoEs).

Review process

At the beginning of March 2024, we commenced gathering an updated view of our asset management maturity. This involved engaging a wide range of stakeholders to gather the relevant evidence, which is presented in this document. The image below details the process we followed to produce this document and the timeline we delivered against, starting with a review of our 2021 submission and the associated future plans.

Figure 2 – Our approach and timeframe for producing our 2024 AMMA update



Our stakeholder engagement and contributor reach spanned over 50 different internal stakeholders in our organisation, where we sought and collated information relevant to each of the subject areas, providing us with a view of the progress made since our AMMA. We utilised an iterative process to develop this document, engaging with stakeholders to gather information, carrying out follow ups and speaking to key contributors and carrying out reviews at various levels.

Our final draft of the document was scored internally using Ofwat's AMMA criteria and then reviewed by an independent team from AtkinsRéalis, who provided insights and feedback on our approach, areas they considered as improving, and suggested where we should provide more evidence to support our assessment. AtkinsRéalis stated that "we have satisfied ourselves, as far as reasonably possible, that the Anglian Water 2024 AMMA Update is a fair reflection of ongoing Asset Management Improvement Activity in Anglian Water".



The findings within this document have been developed, reviewed and agreed with our Management Board who are committed to improving our asset management maturity and capability.

Document Structure

In the following sections you will find detailed insights into the review findings and outputs against each of the asset management subject areas within the co-created Ofwat AMMA.

A descriptive summary is provided at the top of each subject area, including our scores for each relevant question. The tables at the top of each subject area section capture the final moderated score we received from Ofwat for our 2021 AMMA submission, our self-assessed and reviewed scores for 2024, and the change in maturity.

For each table capturing our scores, we have included a column (Change in Maturity). For certain areas we are seeing an increasing trend in our maturity but not at the point where we can increase the score, this is represented by an upwards-pointing arrow. Increases in scores are represented by the number of maturity levels they have increased by (e.g. +1). Where our scores have remained the same, these are indicated by a dash.

As part of each section, we reference our 2021 AMMA submission, provide detailed insights into the progress we have made since 2021, and describe our future plans and aspirations in relation to asset management.

Strategy and Planning

The relevant recommendations received from Ofwat (captured in the Introduction section) include recommendations 2, 3, and 6, which are respectively to improve approaches to long term planning, systematically identify and consider uncertainty in all areas of asset management, and to consider wider aspects of social and environmental value in decision-making. Specifically, to Anglian Water and relevant to this subject area, Ofwat recommended to further develop our use of asset health trends and forward-looking measures to inform and refine asset management plans, whilst taking an adaptive approach so that our strategy is flexible enough to cope with uncertainties and changes in circumstances ensuring its robustness.

Since 2021, we have made strong progress against all these recommendations, which is reflected in our detailed insights below. Most notably, our work with PAS808 has delivered step change improvements to our decision-making framework, which we consider takes us to a leading position with ensuring there is a golden thread and alignment from our organisational purpose, through to our Asset Management Policy, Strategy, and Plans, and to decisions and asset interventions through our Six Capitals Value Framework.

We have identified an increasing maturity trend for Question 1.4 and Question 1.5, as we enhanced our Value Framework and incorporated six capitals thinking, implemented our ROV (Risk, Opportunity, Value) process, developed future scenarios relating to asset health and operational resilience, and have considered the impacts of short term needs and long term objectives across a range of value factors. Details are captured in:

- Strategy and Planning section: 'Long Term Delivery Strategy and adaptive planning', and 'six capitals, Value Framework and benefits'
- Asset Information section: 'Considering uncertainty in the risk of failure of assets'
- Decision-Making section: 'Understanding interdependencies between asset health and service'

The development of our ASRAP and further development of our Long term Delivery Strategy (LTDS), including the evidence provided under the 'Asset Management Policy, Strategy, and Plans' section, contributes to the increase in score for Question 1.7.

Table 2 – Our asset management maturity scores for Strategy and Planning

AMMA Question No.	AMMA Question	Ofwat 2021 Maturity Score	Anglian Water 2024 Maturity Score	Change in Maturity
1.1	How do you use your asset management policy and strategy to promote asset health and long term operational resilience?	5	5	-
1.2	How do you understand and manage the interaction between asset health and long term resilience?	5	5	-
1.3	How does your asset management system enable you to maintain and improve asset health and operational resilience?	5	5	-
1.4	How does your organisation ensure its asset management plan achieves an appropriate balance between short and medium-term needs and long term objectives?	5	5	↑
1.5	How do you track and report on the effectiveness and success of the asset management plan in delivering your objectives?	4	4	↑
1.6	What processes do you have in place to develop an implementable asset management plan from your asset management policy and strategy?	5	5	-
1.7	How do you incorporate uncertainty in your asset strategies and plans?	3	4	+1

Purpose-driven organisation

In July 2019, with the approval of our Board and shareholders, we became the first major utility company to enshrine purpose into the way the business is run, by amending our Articles of Association. This amendment means we are accountable for delivering on our long-standing commitment to working in the public interest. Through this, we also amended our Director's Duties and committed to holding ourselves accountable to a set of Responsible Business Principles.

In addition, we have led with the British Standards Institute, the development of PAS 808 a new standard for Purpose Driven Organisations; worldviews, principles and behaviours. We then worked with BSI to develop and pilot a methodology to assess the maturity of organisations against PAS808, becoming the first organisation in the UK to be independently assessed as embedding purpose in line with PAS808.

We are currently developing a Purpose Dashboard to share transparently with our stakeholders our progress on delivering our purpose.



Asset Management Policy, Strategy and Plans

In our 2021 AMMA submission, we described how our Asset Management Policy⁸ comprises our overall approach and guiding principles, describing how our organisational objectives and customer focused strategies are supported by asset management processes. As per our five year review cycle described in 2021, we are planning an update to our Asset Management Policy and Strategy. However, as part of the activities in preparing this document and as part of being a purpose-driven organisation, we have taken an opportunity to engage with our wider business and further develop our improvement plans for AMP8 and beyond.

We have a number of strategies⁹ that provide line of site from long term aspirations to asset related interventions including Strategic Direction Statement (SDS), PR19 Business Plan, AMP7 strategy on a page, and business specific plans. Our approach to overall asset health and overall resilience can be read on page 21-25 of our 2021 AMMA submission, where it describes how we use asset health and resilience measures, our collaborative approaches with other sectors, and how we use asset deterioration modelling to inform asset management decision making.

Similar plans are being developed for AMP8 through various organisational initiatives and programmes, such as our Fit for AMP8 programme, where we have used the lessons learnt from AMP7 and the implementation of our strategies and plans.

Long Term Delivery Strategy and adaptive planning

Since 2021 we have developed our capability to incorporate uncertainty into our asset strategies and plans. Our LTDS provides an indicative view of all enhancement requirements between 2025 and 2050. It is an adaptive plan that was developed by using scenario testing to identify low and higher regret investment. As part of this we worked with Ofwat to develop the Common Reference Scenarios (CRS). Following a thorough horizon scanning exercise, we identified two additional bespoke scenarios (landbank availability and water for energy) that we also used to develop our adaptive plan.

Six alternative pathways have been identified and developed to manage the major sources of uncertainty in the short and long term. The most material sources of uncertainty impacting our organisation are climate change, abstraction reform and the development of new technologies.

The CRS and our wider scenarios are designed to describe plausible extremes. The alternative pathways represent the top end of the range of potential investment required, rather than a separate investment programme.

We have established forward-looking models which have been progressively improved since PR19, and can now predict performance further into the future, helping inform projections of company performance in our new LTDS.

Tactical models have also been developed, such as Water Infrastructure Serviceability

Performance Assessment (WISPA), which use detailed analysis of real failure data to provide month by month predictions of burst rates by pipe, linked to soil condition and climatic changes, demonstrating a deep knowledge of the asset health of our water mains. During the design phase of our capital projects, we routinely assess the risk of climate change on assets so that future climate impacts can be incorporated.

We will investigate more comprehensive scenario testing exercise to understand how our existing assets may perform in different future scenarios, particularly climate change. Our future vision is to have an LTDS style adaptive plan that doesn't draw an arbitrary distinction between base and enhancement investment, but allows us to consider investment holistically. In addition we will seek to align timescales, decision making and scenario testing across the strategic planning frameworks: LTDS, WRMP24, Drainage and Wastewater Management Plan (DWMP), and Water Industry National Environment Plan (WINEP).

The focus of LTDS is on enhancement investment, which is more consistent with increasing demand, however LTDS and WRMP do not consider the deterioration of our existing asset base. The impacts of growth, climate change, and asset age on our existing assets are not assessed in LTDS. For this reason, we completed a parallel long term review of maintenance and asset health explained below (Asset System Resilience Appraisal).

8 Set out at Page 3 of ANH007 SAMP 9 Set out at Page 20-21 of ANH ANNEX 00 CONSOLIDATED QUESTIONNAIRE_FINAL

Asset System Resilience Appraisal

As part of our PR24 submission we produced a document called the Asset Systems Resilience Appraisal (ASRAP)¹⁰. This outlines the asset health related activity that we carry out and is intended to provide our board and stakeholders with insight into the health and vulnerability of our assets and long term sustainability of service performance. It is a forecast of asset health and uses the same time period as LTDS.

It is a central part of how we are and will continue to deliver against the four long term ambitions set out in our SDS. It sits alongside our other strategic planning frameworks such as the LTDS, WRMP, DWMP, and WINEP. The ASRAP is our way of comprehensively assessing the vulnerability of our assets to different failure modes, and we will use it in future to increase our Resistance, Reliability, Redundancy, and prepare for Response and Recovery.

The ASRAP and the outcomes from its implementation are described throughout this document, featuring in the Asset Information and Organisation and People sections. Further information regarding how we consider uncertainty in the risk of failure of assets can be found in the Asset Information section: 'Considering uncertainty in the risk of failure of assets'.

Asset health and resilience

As part of our strategic planning process, we take a systems approach to maintaining and developing resilience. We continually improve our resilience by enhancing the systems and capabilities that help us cope with the changing environment. We:

1. Take a risk-based approach to everything that we do,
2. Ensure we consider resilience 'in the round' to ensure we, as a business, are conscious of and resilient to the full spectrum of operational, financial and corporate impacts,
3. Consider asset health with asset management plans in place and provide monitoring at sites of greatest risk,
4. Ensure systems interdependencies are assessed and tracked using Business Impact Analysis (BIA) process to maintain effective business continuity plans,
5. Adopt the four Rs of resilience – Resistance (direct physical protection), Reliability (the capability of infrastructure to maintain operations under a range of conditions), Redundancy (the adaptability of an asset or network to substitute resources or change processes), and Response and Recovery (ability to respond to and recover from disruption).
6. Have an integrated management system in place to provide audit, assurance and oversight to hold us to account for the design of processes and whether they achieve their objectives.

Six capitals, Value Framework and benefits

Our value framework has been reviewed using six capitals (natural, social, manufactured, financial, people, intellectual) as a structure and has been updated and expanded to include additional measures. This allows us to holistically consider the benefits and disbenefits of our investments when undertaking prioritisation or pioneering activities and consider value in the broadest possible sense, aligning to our Purpose. Examples of new measures include wellbeing, process emissions and temporary disbenefits such as traffic disruption or access to amenities.

Figure 3 – Our updated Value Framework categories, organised by six capitals

Natural	Social	Manufactured
Pollution	Water supply	Water efficiency
Category 1-4	Supply deficit Interruptions to supply Low pressure	Potable water leakage Raw water leakage Consumption reduction
Permit failures and discharges	Water quality	First time connections
WRC quality compliance WRC volumetric compliance WTW discharge compliance	Notices Health and regulatory impact Aesthetic impact DWI prosecution	Developer request water Developer request water recycling Section 101a request
Water resources	Flooding	Business enablers
Over-abstraction Aquifer protection	Internal External Public Areas Dam failure	Information services
Environmental quality	Customer (BAS and construction)	Security
Bathing waters River water quality Biodiversity net gain Air quality	PR (only for one off cases) Visual Noise Odour	Operational Security Cyber Security
Carbon and emissions	Traffic disruption Amenity access Customer experience	Resilience to climate change
Capital carbon Operational carbon Process emissions		Resilience to climate change
Financial	People	Intellectual
Income	Health, safety and wellbeing	New/different ways of working
Income protection Renewable generation Bioresources Non-domestic income Domestic income	Physical safety (staff and public) Employee wellbeing	Employee productivity Intellectual property utilisation
Opex increase		
Additional activity indicators		

¹⁰ [ANH38 Asset System Resilience Appraisal](#)

Our asset investment planning system (Copperleaf) has been updated to include an assessment of the updated Value Framework for all investments. We have adopted an intuitive questionnaire type approach to benefits assessment through project initiation and delivery to improve consistency.

Benefits and disbenefits are quantified as part of our updated ROV (Risk, Opportunity and Value) process, using the new Value Framework and recorded for investments at key stages through our Totex Investment process. We have updated our investment delivery tracking system (Totex Delivery Workflow) to include a module that requires benefits to be captured pre and post investment delivery. We have rolled out Benefits Realisation Plans – that clearly quantify the measures and metrics required to determine whether benefits are realised – as a requirement of our investment process. A new post-project benefits review process has been developed to more accurately determine whether the benefits of an investment have been realised.

We have also developed a PowerBI dashboard that enables reporting and scrutiny on whether the investment programme is delivering its intended benefits, and if it is supporting the delivery of our purpose. We plan to utilise these dashboards and metrics in management review meetings and governance forums.

Place-based thinking

During the PR24 process we incorporated 'place-based thinking' with the aim of improving the outcomes for the environment and community at that location by delivering improved value and benefits. For example, provide better visibility to allow improved communication with stakeholders, to identifying opportunities to combine solutions so that one asset intervention can solve multiple needs.

A key enabler is visibility of upcoming work; dashboards with maps are available in PowerBI and the Copperleaf Dashboard.

We plan to further develop place-based thinking in AMP8 by taking an initial view of our top 15 'red' catchments to identify quick wins before moving towards a longer term (10 year) approach and ultimately a method that includes both water and water recycling catchment integration.

Dynamic risk assessments

We have utilised the KPMG Dynamic Risk Assessment tool to assure the deliverability of our plan, and have identified the following mitigation strategies;

1. Optimise programme plan
2. Strengthen relationship-based approach with Alliances
3. Enhance Delivery Governance and Management Structure
4. Increase supply chain resilience
5. Strengthen internal capabilities
6. Set up new agreements, partnerships and Alliances
7. Continuously review and manage risks

¹¹ [Infrastructure health in the water sector | Water UK](#)

Asset Health Industry Club Project

There are a variety of approaches taken across the industry to measuring and managing asset health, while maintenance budgets are determined by backwards-looking regulatory econometric models based around historic spending rather than assessments of current and future risk. Anglian Water and a group of three other water companies initiated a project to build a new shared understanding of how to measure asset health, and new ideas for how policy and regulation can better support asset resilience. This has been a collaborative process bringing together industry, government, regulators and stakeholders. The project commissioned new research¹¹ into asset health metrics and policy reforms and at a major event in May 2024 shared findings from the research, heard about approaches taken in other sectors, and gathered input and challenge to the emerging findings. WaterUK will take the process forward to further develop and refine these policy options into workable solutions that could be implemented in PR29.

Strategic Pipeline Alliance

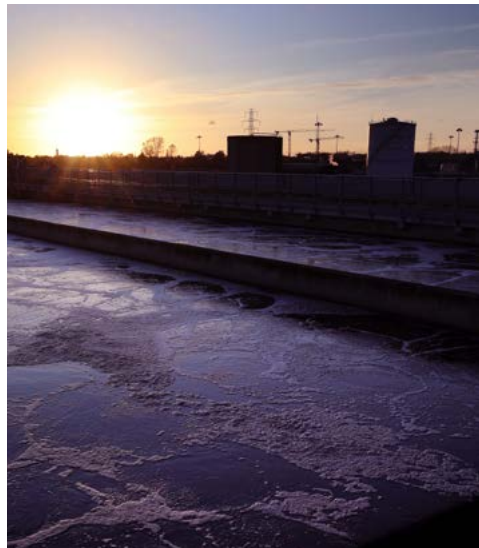
Through the Strategic Pipeline Alliance (SPA), we are currently delivering a set of interconnected pipelines to maximise the use of existing water resources and offset abstraction license caps by moving surplus water from Lincolnshire to the south east of our region. These efforts are aimed at mitigating local flooding and keep fresh, clean water flowing across the Anglian Water region.

We have adopted a Production Planning approach that enables the delivery of a safe and reliable water supply, whilst meeting all licensing and quality targets by developing short, medium and long term coordinated regional plans that respond to changing conditions. It also incorporates current and forecast demands, capacity planning and the required implementation activities to efficiently and effectively manage our water assets.



Asset Information

In addition to Ofwat's industry recommendation 3, we also see recommendation 4 being relevant and has influenced our activities accordingly. Ofwat's specific recommendation to our organisation was to better incorporate uncertainty into our understanding of risk of asset failure, considering this for different timeframes to inform decision making and planning, as well as considering the consequences of cascading failures.



We have increased our maturity scores against question 2.3, 2.4, and 2.5, whilst seeing an increasing maturity trend for question 2.7. Our ASRAP details the four-stage process that we followed to examine asset health in the period 2025 to 2050, assessing the full suite of our operational asset base. In conducting this resilience assessment we have considered a range of shocks and stresses, assessed against several risks which are listed in our ASRAP (page 14).

The ASRAP also details how we consider uncertainty in the risk of asset failure over various horizons (Stage 1 – page 18-19), how we regularly refine the risk of asset failure across most asset types by taking into account changing contexts (page 16-17), how we understand the impact of future trends on asset deterioration (Stage 3 – page 21-22), and how we continuously review and improve our asset deterioration predictions based on changing contexts (Stage 4 – page 22-23).

Through the ORWG we responded to a recent data request from Ofwat. In our response we described our Event Management Platform, our approach to Root Cause Analysis, supply failure impacts, and climate vulnerability.

In the Strategy and Planning section, we describe the tactical models we have developed such as WISPA, and in this section we explain how we consider the risk of failure of assets in our WRMP. These activities have also contributed to improved maturity relating to question 2.3.

Table 3 – Our asset management maturity scores for Asset Information

AMMA Question No.	AMMA Question	Ofwat 2021 Maturity Score	Anglian Water 2024 Maturity Score	Change in Maturity
2.1	How are your asset information strategy and asset information standards implemented to ensure asset data and information is sufficiently robust for planning and decision-making?	5	5	-
2.2	How does the organisation collect and process sufficient asset health data for different asset types, to be able to make your decisions?	5	5	-
2.3	How do you identify and quantify the risk of failure of assets including critical assets?	4	5	+1
2.4	How do you consider uncertainty in your understanding of the risk of failure of assets in the short, medium, and long term?	3	4	+1
2.5	What methodologies do you use to assess and predict asset deterioration in the short, medium, and long term?	4	5	+1
2.6	How do you understand the consequences of asset failure on service for customers, society, and the environment?	4	4	-
2.7	How do your asset standards support you to maintain or improve asset health and operational resilience as well as prepare assets for the future?	4	4	↑
2.8	How does the organisation plan for operational response and recovery to asset failures?	6	6	-

Collecting and processing asset data

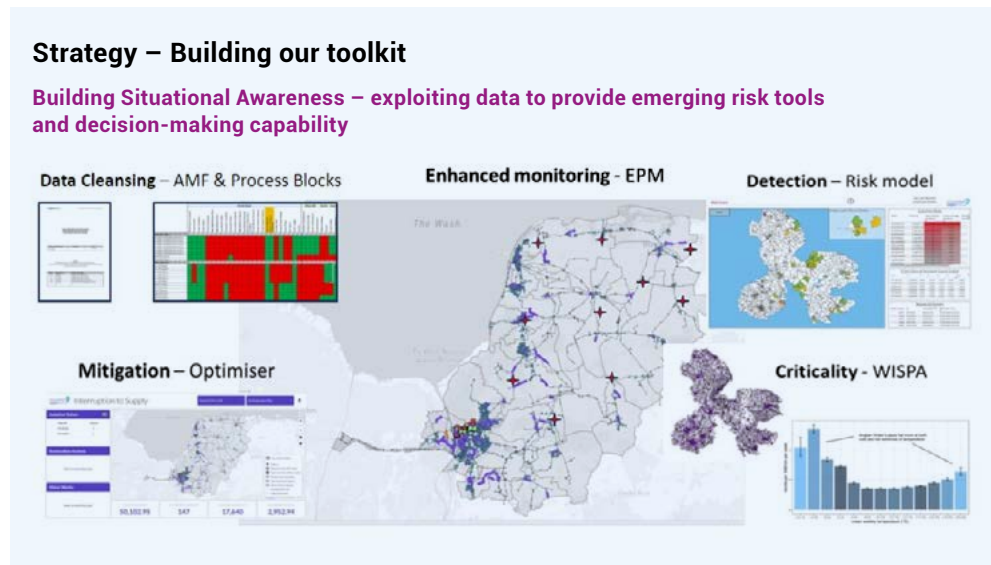
There have been updates to minimum asset standards based on field and asset data which has also led to updated versions of the Manual of Water Distribution guidance.

We have transitioned from BIM360 to Autodesk Construction Cloud (ACC) in preparation for AMP8, to enhance our digital delivery capability and benefit from additional enhancements and functionality the new platform offers, through all phases of the project, including information handovers.

We have also collaboratively driven development of new functionality in the software required to meet our needs, such as a 3D model mark-up tool to support our commitment to designing in 3D. In addition, the integrated modelling tool is now live with a second phase of work being carried out to further develop the technology.

A system of systems approach has been developed to improve our asset information collection processes; the evidence above is an example of the products delivered as a result of the collaborative, multi departmental approach. A summary of this approach, as it applies to Interruptions to Supply (I2S) and responding to the climate vulnerability of assets, is given in Figure 4 below.

Figure 4 – Our systems of systems approach for asset information collection processes



Through the Operational Resilience Working Group (ORWG), we have responded to Ofwat's data request in June 2024; our additional commentary supports our response to Ofwat's data request and details our progress within our Interruptions to Supply Programme. The additional commentary details the development of our Event Management Platform (EMP), our approach to Root Cause Analysis, supply failure impacts, and climate vulnerability.

One of our key enablers to improvement has been the development of our EMP, which was successfully deployed to our Tactical Operations team and integrated into their BAU processes in 2022. The platform centralises all information about interruptions, including valve operation and status, along with job information and history in an easily accessible format. This has helped by allowing quick access to information and timings of valve operations, helping with management and verification of events. Future enhancements will support better understating into root causes for failures and more accurate data capture.

While the Risk Model and Data Cleansing are advanced in their development, the Climate Vulnerable Mains investment optimisation and

decision-making tool is now completing its Proof of Concept (POC) stage in readiness for the first field pilot study.

We use an advanced AI-enabled insight engine search capability to work with Microsoft 365 to allow operational users to find critical operational and safety content while in the field. This is enabling the move to fully digitised master information relating to operational sites, removing reliance on hard copies maintained on site. Through generative AI, we aim to exploit further enhancements to search and discovery of operational content and data through speech capabilities, all to improve user experience and speed of decision making.

In 2021 we expressed a desire to bring Virtual Reality (VR) into mainstream use in the Alliances. We have invested significantly into this space, with over 150 headsets available to all our project teams to support design and collaboration in VR as an alternative to traditional design review meetings. A key project at Southend benefitted from use of VR as part of the design process, highlighting issues that would not have been picked up via traditional model viewing resulting in reductions in rework and design.





Robust asset data and information

We evolved our Enterprise Resource Planning (ERP) capabilities for finance, asset and operational management, supply chain and procurement. In April 2024, we deployed the first redesigns of technology enabled business processes and data capabilities. Further capabilities will be deployed across AMP8. We completed the property and infrastructure data address matching and tagging for Water in Q1 2024, and plan to complete Water Recycling by Q1 2025.

Our transformation programme to move our ERP system from SAP ECC 6.0 to SAP S/4HANA began during AMP7 and will continue into AMP8. Within AMP7, we have carried out significant exploratory work to inform our approach and early design for this next phase of the programme and have set a strong foundation for success, particularly centred around data quality and process improvement.

We have continued cleansing of non-infrastructure data sets in anticipation of SAP S/4 migration in AMP8. We have also strengthened linkages between infrastructure and non-infrastructure data sets through the Geographic Information System (GIS) upgrade, SAP S/4HANA preparation and SPA workstreams.

As part of our Information Management Programme, we have committed to a multi-year partnership with Capgemini Invent to develop Anglian Water's capability aligned to BS EN ISO 19650. The programme has engaged BIM4Water Leadership through our Information Management Forum and the BIM4Water Data workstream and Owner Operators Group.

Within three years we plan to be aligned with ISO19650 and will be the leader in the water sector for applying ISO19650 to our Asset Data Lifecycle. The first 12 months of this programme will focus on the delivery of four key workstreams: Information Requirements, Data Collection, Deliberately Delivering Differently, Information Models and Tools.

We will work across the Asset Data Lifecycle to drive value from Information Management through process optimisation, capability enhancement and ultimately by providing the business and our partners with trusted information, at the right time to enable us to meet our business outcomes.

We have developed an app called Update Mate to give people the ability to create, replace, update or decommission assets in SAP without the need for access to SAP. This has been rolled out to all maintenance teams and will soon be available in Oracle Mobile. The app is available for anyone to use with inputs validated by relevant teams. Full validation and scripts to import into the main asset register in SAP have been created and the process is working well, with strong adoption from field users following its roll out.

Closer links are being developed across the end to end process between data, analysis, insight and delivery to continue to move to increasingly data-led asset decision making. We are trialling AI capabilities within the various tools to improve the speed and quality across the life cycle of the assets. This will inform how these tools can be applied and utilised more effectively across the delivery phase of the processes taking learning from the work already carried out in the pre-delivery activities.

Identifying and quantifying the risk of failure of assets

In line with the 2021 UKWIR Report Understanding Asset Risk which sets out a design for an idealised risk framework, we consider the elements of asset risk and the systems the assets operate in. The ASRAP describes our bottom-up approach to modelling the deterioration and service impact of our assets and summarises the predicted asset performance over 5, 10 and 25-year time frames. It also details our top down hazard identification and the measures we take to avoid incidents from the likes of flooding, power outages and cyber-attacks. We plan to continuously update the ASRAP as our knowledge and tools develop in future, and as we collect more data with which to update the models we use to assess asset performance.

We are building a Risk Visualisation tool to improve our knowledge and awareness of Water Recycling and its risks. This tool will help us to see the same picture of flooding impact risk at different levels of detail: regional, catchment and

postcode. This advanced risk picture will make sure we use solid and reliable evidence to guide our actions and interventions to reduce flooding risk. We can use it to estimate the risk related to our network using weighted factors such as past flooding events, size and type of the network, demographic and population data.

Our asset telemetry system (IRIS – Integrated Remote Intelligence System) is used to indicate holistic system operation, and our alarm management system and framework are used to indicate deviations. We have proactive alerts on Water Recycling assets to indicate asset health and any deviations from normal patterns are assessed using our Dynamic Sewer Visualisation (DSV) tools, while also looking at pump run rates and wet well levels.

We are leading on a transformational innovation project known as Safe Smart Systems. As the largest project in the first the Ofwat innovation challenge, this project aims to demonstrate in the innovation shop window incubator area of Ely, how to create an autonomous water network, with artificial intelligence at its heart and the capabilities and culture to operate in

this future environment. The project has already demonstrated that machine learning (ML) and Large Language Models (LLM) can detect anomalies across the asset base in advance of when this can be identified by traditional techniques, by a significant margin.

ML has also been used to develop a library of mitigations which are proactively put in place before services can be impacted, allowing for a resolution of an anomaly to be automatically identified and ensuring the system is resilient. Combining the anomaly detection, resolution options and automation of key assets creates the first version of an autonomous system to be demonstrated. The intention is for the safe smart system to seamlessly transition between normal, maintenance and resilience states where required.

The system combines the live system performance data with asset attributes and data to determine a dynamic view of system risk allowing a user to have situational awareness across the systems they operate, as well as to prioritise activities should an issue occur.

The final element of the safe smart system is to utilise sub-sets of generative AI which can automatically provide key information on the area, the assets and any work or additional points of note the user may benefit from, at the point it is required. A simple, natural language interface provides the user with a summary of key information as well as the ability to easily query the knowledge base, still in natural language, to assess further.

As of June 2024, the first elements of the AI decision engine are being prepared for first user testing in a production environment, with enhanced site data communication devices (edge PC's) and remote actuation equipment being installed in the network. This will provide users with the key capabilities described and to operate in advisory mode. In time, the different facets of AI being employed within the safe smart system will learn about system performance and give deep insight into asset performance outputting a further informed level of risk and criticality.



Considering uncertainty in the risk of failure of assets

In the Strategy and Planning section of this document, we describe both our LTDS and ASRAP. Our LTDS includes six alternative pathways to manage the major sources of uncertainty in the short and long term. Our ASRAP, detailed in the Strategy and Planning section of this document, explains our way of comprehensively assessing the vulnerability of our assets to different failure modes.

For PR24 the climate change model has been incorporated into Copperleaf system to assess the impact of future climate on watermain bursts, on top of the deterioration impact. In the WRMP we consider the risk of failure of assets within our outage allowance which feeds into our supply demand balance.

Outage describes an allowance of water which represents the risk of short term (less than six months) supply-side failure. We have built resilience into our system through our dual source of supply resilience programme. More local failures, typically associated with bursts in pipes, are not considered as part of outage, and are subject to separate investment drivers.

In WRMP24, our outage assessment is based on the principles set out in UKWIR's Outage Allowances guidance¹², whereby the distributions for each outage type and location are developed, describing duration and magnitude, and are then combined using 'Monte Carlo' simulation. This is consistent with the basic 'reference' method described in UKWIR's guidance¹³. Outage is evaluated in relation to asset failure rates and resource failures due to pollution.

We also now have an enhanced dataset of historical outage events in WRMP24, which has been developed to provide evidence for monitoring against Ofwat's unplanned outage Outcome Delivery Incentive (ODI). This dataset

improves on previously available data by including partial outage events, and events of less than 24 hours in duration. The dataset includes outages which were caused by water quality events (other than point-source). We have used the dataset to analyse and update the outage distributions which feed into our 'Monte Carlo' simulation.

As a result of our climate modelling study, we have been able to come up with a clear definition of our Climate Vulnerable Mains (CVMs):

- made of rigid materials i.e. AC, PVC, cast iron
- smaller diameters = <320mm
- laid in highly shrinkable soils i.e. classification types four to six.

We used multi parameter optimisations within our Copperleaf Predictive Analytics module to model the expected increase in bursts per year due to climate change in future decades. Through this analysis we tested several expenditure scenarios to see the reduction in burst rate from the upper bound to offset the climate impact. In selecting a preferred investment strategy for this issue, we also considered deliverability.

We selected an enhancement strategy to replace the majority (approximately 6,000km) of CVMs, between 2025 and 2060, so that most are no longer in service at the point of the worst impacts of climate change. This represents a four-fold increase in delivery rates in the next five years. The resilience enhancement case appended to our PR24 plan provides more detail.

We are developing a data model for the non-infrastructure at asset level, to give a baseline of asset criticality and to be used as a key building block of risk analysis in the future. During the next AMP, further investigation into the impact of climate change on Water Recycling infrastructure assets will be undertaken.

Assessing and predicting asset deterioration

Our deterioration models for private sewers were updated for both Water and Water Recycling infrastructure assets (watermains (burst), gravity sewers (collapse), rising mains (burst)) in December 2021. For gravity sewers and rising mains this included newly digitised transferred assets. This increased the number of assets modelled from approximately 900,000 to approximately c1,400,000. The modelling followed the same statistical regression modelling process carried out at PR14 but with current data taking account of asset failures over the previous six years for gravity sewers and 10 years for rising mains.

For Civil Assets, we have recently externally surveyed, and condition graded, all tanks at sludge treatment centres as part of the Industry Emissions Directive (IED), and we regularly inspect and grade our potable water tanks. We have analysed all assets in our GIS system, looking at historical failure rates and putting them into condition grades. During AMP8 we will review whether to survey all other tanks with a view to building a case for increased investment. The data and information gathered through these exercises will be explored to inform the prioritisation of our investments.

The 2017 UKWIR report on Basic Mechanisms of Bursts and Leakage concluded that chemical attack from the conveyance of soft water can greatly weaken AC mains. In order to investigate the impact of moving softer water from the north to other parts of the region, we have added water chemistry parameters to our deterioration models and added new functionality to Predictive Analytics that allows us to easily assess the effect of changing the water softness in the AC (asbestos cement) pipes. Water hardness in our region varies by source and supply zone but is typically significantly harder than other parts of the country. The deterioration models predicted there would not be a significant impact on deterioration, with bursts on AC mains remaining stable.

Water chemistry is something we will monitor in future, in particular as sample data becomes available for the new strategic reservoirs in Cambridgeshire and Lincolnshire and is something that could become more of a problem if in the longer term, we were to import water from other parts of the country where water is very soft.



¹² UKWIR, 1995, Outage allowances for water resource planning: Operating methodology ¹³ UKWIR, 2016, WRMP 2019 Methods - Risk Base Planning, Report Ref. No. 16/WR/02/11 Guidance

Using asset standards to maintain and improve assets

In our original 2021 submission (Asset Information section, pages 78–80), we described our extensive and complementary suite of asset standards and management systems that enhance asset health and resilience across the whole asset lifecycle.

In the Risk and Review section of this document, we have provided details around our Integrated Management System (IMS) and we are using it to maintain and improve our assets, whilst preparing them for the future.

We are developing an Asset Data Strategy which examines existing physical assets and monitoring, identifying compliance to business standards. This strategy allows our organisation to assess data needs to ensure asset lifecycle performance can be measured and managed, and maximum value can be achieved from capital investment in sensing equipment.

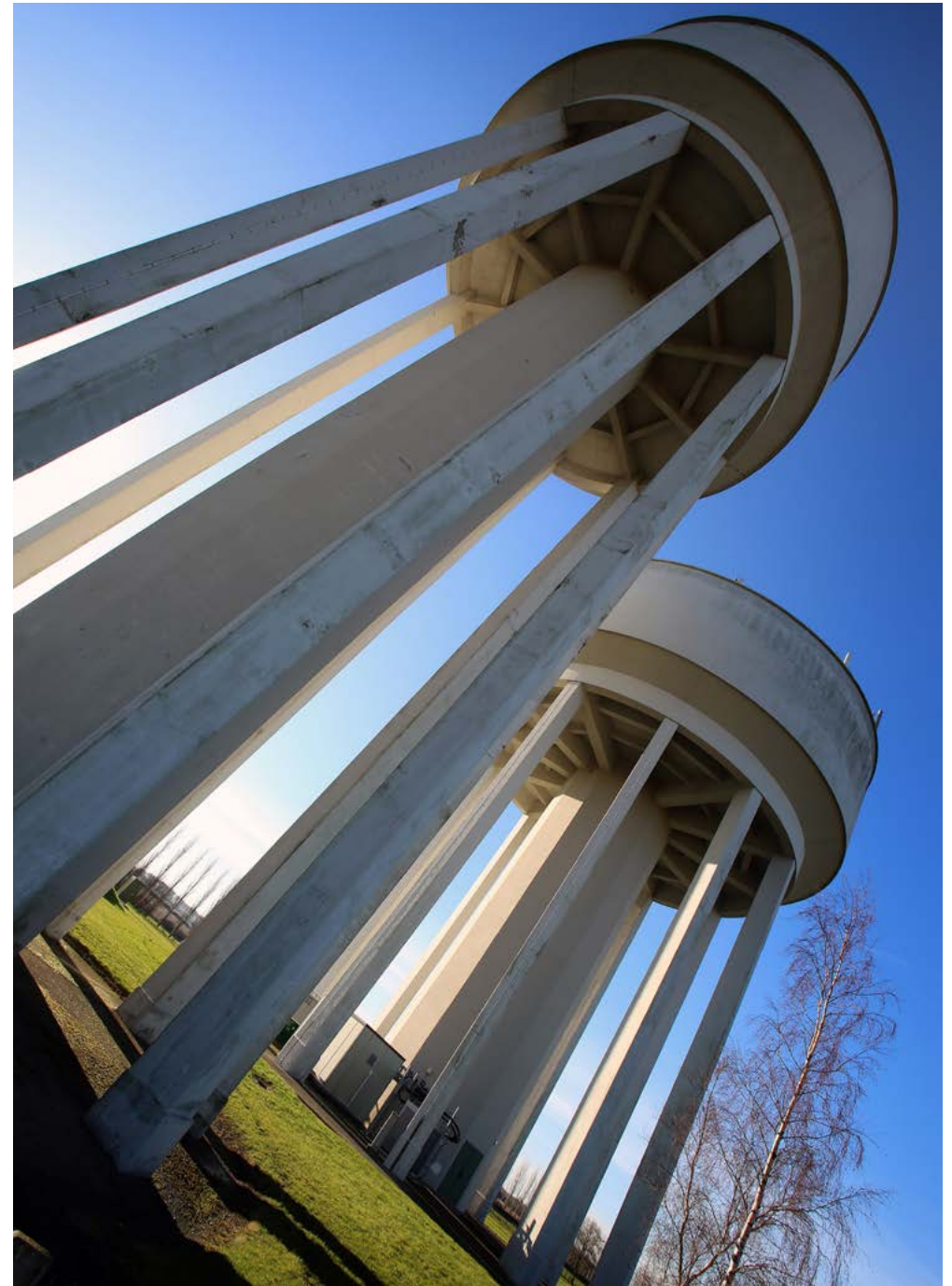
We introduced our remote Asset Monitoring Frameworks (AMFs) in our original 2021 submission in the Decision Making section (page 95) and have since reviewed our framework, allowing us to enhance our monitoring capabilities and ensure investments are targeted at our most impactful sites.

Planning for operational response and recovery

We continue to be a leading organisation in this area and the four critical success factors set out in our 2021 AMMA have been delivered. We achieved the target operating model's objective to improve how we respond to and better understand the impacts of disruptive events on our customers; speeding up Anglian Water's response and recovery in the event of a disruption moving into AMP8. The four critical success factors are:

- CSF 1: Faster declaration of an incident in the face of disruption.
- CSF 2: Improved understanding of the impact of disruptive events.
- CSF 3: Increased number of trained resources to draw upon as any disruption builds.
- CSF 4: Fast deployment of emergency equipment and supplies.

Please refer to the Asset Information section (pages 84–87) of our 2021 AMMA submissions for a detailed overview of our operational response and recovery approach.



Decision-Making

In our company specific feedback, it was explained that clearer evidence was required regarding the Board's role in the process of setting risk tolerance and risk appetite and advising us to systemically consider multiple drivers. In addition, as part of Ofwat's recommendations to the industry, we see the relevant recommendations as being recommendations 1 and 6, which are respectively related to risk management approaches and systematically considering wider aspects of value.

We have increased our maturity scores for question 3.2 and 3.3, whilst seeing an increasing maturity trend across several other subject areas. Our ASRAP provides a comprehensive description of how we use asset health data, information, measures, and forecasts (Stage 1 to 3 – pages 18-22) to identify the need for investment and inform decision-making (ASRAP Stage 4 – pages 22-24). We also detail the outputs of our ASRAP's four-stage process for each asset type we have categories (pages 24-57). This contributes to our increased maturity score for question 3.2, in addition to the system of systems approach we developed to improve our asset collection processes, described in the Asset Information section.

We have increased our maturity score for question 3.3, as we have established risk tolerance and appetite statements, supported by a structured approach to risk assessment and management including regular review and challenge from the Board.



Table 4 – Our asset management maturity scores for Decision Making

AMMA Question No.	AMMA Question	Ofwat 2021 Maturity Score	Anglian Water 2024 Maturity Score	Change in Maturity
3.1	What are the asset health and operational resilience measures that you use for decision-making?	4	4	-
3.2	How do you use asset health data, information, measures, and forecasts to identify the need for investment and inform decision-making?	4	5	+1
3.3	Does the organisation establish a risk tolerance level for asset health and apply this in decision-making? If so, how?	2	3	+1
3.4	How do you use optioneering to develop interventions to address asset health and resilience needs for each asset type?	4	4	↑
3.5	How does the organisation determine the balance between preventive and corrective action for different asset systems?	4	4	↑
3.6	How does the organisation understand the link and interdependencies between asset health and service over the short, medium, and long term?	5	5	-
3.7	How does the organisation optimise risks, costs, and performance in its decision-making to prioritise investment within the short, medium and the long term?	5	5	↑
3.8	How are asset health and resilience valued in investment decision making?	4	4	↑

Six Capitals Decision Making and Value Framework

We have augmented our decision-making processes to align to purpose with our updated Six Capitals Value Framework and insights – see the Strategy and Planning section.

To provide holistic oversight and management of bottom-up risks, we are developing an improved emergent risk management process. This ensures visible whole life management and optimal prioritisation of emergent risks.

Using asset health, data, information, measures, and forecasts to inform investment decision making

The Asset Information section of this document details many aspects of how we use asset health, data, information, measures, and forecasts to inform investment decision making.

We are developing our own asset level data model for criticality and have that able to be held with SAP. The data model is currently being validated and will then be loaded into the main database and used as the first stage of visualising risk and prioritisation. Introducing the capture of asset level static criticality in SAP now (via ABC indicator field) is an example of where we can drive early benefit and behaviour change adoption ahead of the rollout of Asset Management in SAP S/4HANA, enabling improved asset criticality modelling within AMP7.

Underpinning all our asset management processes sits our asset hierarchy. As part of our rollout of SAP S/4HANA we have explored the opportunity to migrate to a new asset hierarchy structure; we have developed and tested our approach and will make this transition during AMP8. The new hierarchy will enable a more

process-based capture of our asset base, creating a critical foundation for future Digital Twin activity. This will be a significant shift for the organisation and is already being utilised by our SPA.

The introduction of Project and Portfolio Management (PPM) as part of our SAP S/4 HANA, alongside Project Systems and the integration of these systems with our governance system Totex Delivery Workflow (TDW), will improve our decision making and planning of capital investment during the acquisition phase of the asset lifecycle. These developments will drive data consistency across systems and improved visibility of plans, costs, and budgets across our capital programmes.

Risk assessment and tolerance

We have a structured approach to risk assessment and tolerance, with the Board reviewing and challenging management's assessment of risk and seeking assurance that appropriate mitigation measures are in place to manage principal risks. The Board's assessment of risk determines what level of risk it is willing to accept, which helps senior management to understand the mitigating activities are required to control risk likelihood and impact to acceptable levels.

In addition, we have 13 principal risk areas, shown in Figure 5. These include the criticality of our infrastructure, the importance of our customers and our people, climate change and the environment, health and safety in our service delivery, cyber security and our ability to finance our business appropriately. These are reported regularly to the Board. In addition to the principal risks, we also actively manage several tactical-level, business-stream risks, which feed into our principal risks captured to the right.

Figure 5 – Our Principal Risk Areas

Principal risk area	Risk description
People	The risk that we do not have enough skilled or capable people to run our business and deliver on our goals. The engagement, wellbeing and inclusivity of our colleagues are central to our culture.
Health and safety	The risk that we endanger the health, safety and physical wellbeing of our people, operating partners or members of the public.
Reputation	The potential for negative publicity, public and stakeholder perception, or events to have an adverse impact on our reputation, thereby affecting our licence to operate in the communities we serve.
Technology	The risk to our operations of technology failing to be available, secure, reliable and to perform as expected, or we fail to capitalise on new and emerging technologies.
Customer proposition	The risk that we are unable to improve and maintain the levels of customer service necessary to deliver what our customers tell us they want. Inability to support customers with vulnerability or affordability challenges, or to deliver on our social purpose.
Legal	The risk of financial or reputational loss resulting from a failure to comply with applicable legal obligations (including a lack of knowledge or misunderstanding of how the law applies to our business). Risk of failure to maintain a suitable and sufficient framework to manage data protection applicable legislative obligations.
Finance	The risk that we fail to appropriately finance our business in either the short or the long term or are non-compliant with accounting standards, financial covenants and tax legislation. Risk of Insufficient Debt and Equity Funding in adverse market conditions.
Asset Infrastructure	The risk of failing to plan, build, maintain and decommissioning of assets reliably and efficiently to meet the service expectations of our customers.
Water quality and supply	The risk that we are unable to provide a reliable source of continuous wholesome water to customers in line with quality standards.
Environmental	The probability and consequence of damaging the environment through business activities and/or incidents. This could be through deficiencies in waste management, waste transport, waste treatment and disposal, breaching abstraction licences and unintended pollutions or our construction activities or our overall failure to be net zero by 2030.
Strategic execution	Failure to adequately translate the strategy from high-level ambition to specific action, appropriately adapt the strategy when conditions change, deliver change to time, cost and quality and to realise the benefits on completion.
Commercial and third party	The risk of loss, failure or over dependency on one or more of our key suppliers (incl. Alliances) which may interrupt the services that they provide.
Business resilience	The risk of failing to embed capabilities, processes, behaviours, and systems which allow us to continue to carry out our purpose. A failure to prepare for operational risks and be resilient against them.

We consider risks in relation to our strategic priorities and align these to our Principal Risk Areas. One of the 13 principal risk areas is asset infrastructure, Figure 6 is the defined description and appetite statement.

Figure 6 – Our Asset Infrastructure Principal Risk

Asset Infrastructure;
The risk of failing to plan, build maintain and decommissioning of assets reliably and efficiently to meet the service expectations of our customers.

We have an open risk appetite for asset infrastructure risk with the exception of impacts to our critical assets, reservoirs or processes that carry a high risk which is cautious. We will seek to reduce both the likelihood and impact of asset failure through long-term planning, maintenance, management and protection.



Each Principal Risk Area has a risk appetite statement and threshold agreed and is reviewed regularly by the Board. These assist in providing a view on whether we are operating within our appetite, or whether additional risk mitigation may be required. Our risk appetite threshold definitions are shown below in Figure 7.

Figure 7 – Risk Appetite Threshold Definitions

Threshold	Definition
Averse	Avoidance of risk and uncertainty in achievement of key deliverables or initiatives is key objective. Activities undertaken will only be those considered to carry virtually no inherent risk.
Minimal	Preference for very safe business delivery options that have a low degree of inherent risk with the potential for benefit/return not a key driver. Activities will only be undertaken where they have a low degree of inherent risk.
Cautious	Preference for safe options that have low degree of inherent risk and only limited potential for benefit. Willing to tolerate a degree of risk in selecting which activities to undertake to achieve key deliverables or initiatives, where we have identified scope to achieve significant benefit and/or realise an opportunity. Activities undertaken may carry a high degree of inherent risk that is deemed controllable to a large extent.
Open	Willing to consider all options and choose one most likely to result in successful delivery while providing an acceptable level of benefit. Seek to achieve a balance between a high likelihood of successful delivery and a high degree of benefit and value for money. Activities themselves may potentially carry, or contribute to, a high degree of residual risk.
Eager	Eager to be innovative and to choose options based on maximising opportunities and potential higher benefit even if those activities carry a very high residual risk.

Asset Health data, information, measures, and forecasts

We are developing data models based on a set of external data principles closely aligned to the Smart Water Networks Forum (SWAN) layer model and actively collaborate with international partners to create the global principles for Smart Water Networks of the future. The approach outlines the layers and connections that are required to describe physical assets and systems, and the data and technology requirements to provide advanced real time assessment of operations and performance. This allows us to prepare for a data driven approach to operational and asset management in AMP8.

In AMP7, we worked to improve data collection and analytics to better understand performance and condition of critical asset groups in particular increasing understanding of high lift

and water booster pumps in water networks. Augmented with pump performance test data and condition assessments, this has been used to enhance proactive decision making around maintenance options and supported business cases for asset investment schemes. Future requirements for asset health and resilience are maintained from performance data, asset deterioration modelling, feedback from customer engagement on enhancements and requirements from quality regulators

Future developments in this area are:

- Development of the AMF and Asset Data Strategy to support the scaling of the approaches described to other critical asset groups; this forms a key pillar of the data driven operation strategy moving into AMP8.

- Extending the proactive maintenance and investment approaches on pumping assets into other critical asset groups to explore learning and maximise costs and continue developing the Asset Data Strategy with additional steps forward in advanced analytics and data science.
- Continue trials using ML and AI models aiming to prove that asset deterioration and ultimate failure can be predicted and managed, including a long term horizon scan for highly efficient investment planning.
- Invest in data driven operations and enhanced situational awareness tools to place high quality data and insights in the hands of operators and key decision makers.

Root Cause Analysis

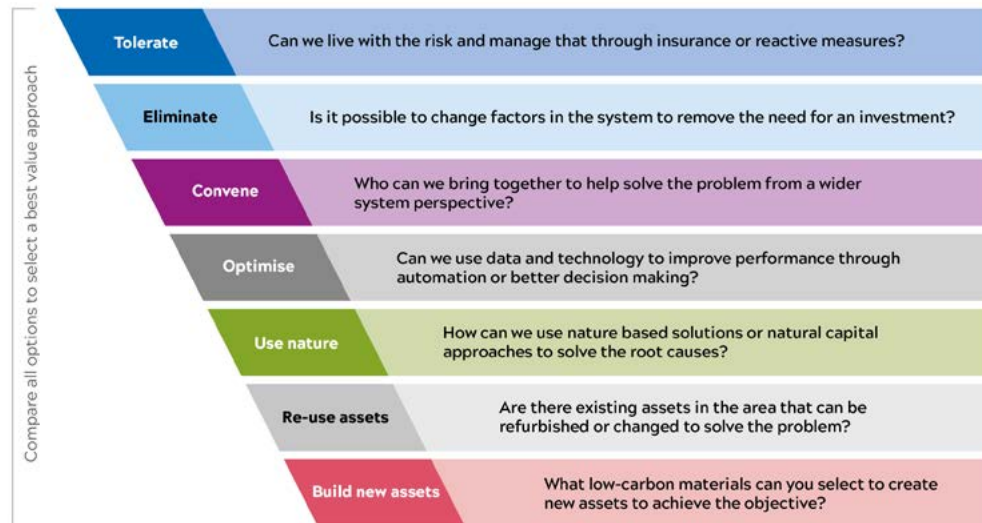
Recently, we have made improvements to enhancing our Root Cause Analysis (RCA) capabilities in Water Recycling, which drives incremental performance improvement so we can build our understanding of root causes and identify systemic issues, uncovering themes through consistency in our approach for all events, and delivering continuous improvement ensuring that any learning is embedded and sustained in the long term. We have refined this approach using AI capabilities and wide engagement, subsequently applying our management framework to derive our principles for embedding and sustaining this approach.

Optioneering and interventions

We described our ROV process in the Strategy and Planning section of our original 2021 submission (Page 102) and within the Strategy and Planning section of this document. Our optioneering process uses a series of creative tools to help teams identify and consider multiple options. Our options are presented in Figure 8 below.

Figure 8 – Our optioneering process and choices

Once you've really understood the problem, could you...



We have developed and rolled-out a Six Capitals ROV Challenge for projects entering the design stage, where the purpose of this challenge was to increase the cost to benefit ratio (i.e. value) the investment delivers by using the six capitals categories to find additional value. The principle is to increase benefits without increasing cost or decrease cost without compromising benefits.

Our future plans include an Information Management project to ensure ROV challenge sessions are furnished with the most accurate data possible, enabling quicker and better decisions.

Balancing preventative and corrective action

The balance between planned and reactive interventions at water treatment works and water recycling centres was documented in the response back to Ofwat in July 2022 for the Operational Resilience information request.

At water treatment works, the largest percentages of unplanned work are in the smaller size bands with largest size bands having the least amount of unplanned work. Only approximately 17% of work is unplanned across all size bands. At water recycling centres the proportion of unplanned maintenance has reduced across all size bands except above band five since 2020-21. We see the impact of the introduction of dedicated planned maintenance teams which ensure that planned maintenance is protected, with reactive maintenance work being carried out by a separate team.

A change to the maintenance strategy has been introduced based on asset history and performance. Planned maintenance is completed as per the maintenance management system schedule. This is underpinned by having standard maintenance work instructions and maintenance programmes, using a variety of in-house and third-party suppliers for all asset groups.

As part of the migration from SAP ERP to S/4HANA we are exploring opportunities to better integrate asset performance data to proactive investment planning, moving to a more predictive model to inform replace vs repair decisions.

Our future plans include exploring new frameworks with different risk functions such as asset risk and operational risk feeding into the enterprise risk management framework (four principal risk areas to feed into enterprise risk). We are also looking at improving "risk oversight" across the business, this includes improvements to reporting lines for escalation, challenge, and review.

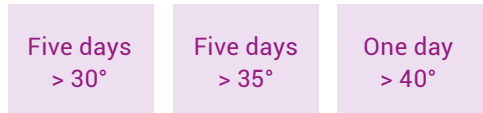
Understanding interdependencies between asset health and service

As described in our 2021 submission, we produce a monthly PowerBI Dashboard where we track the core asset health, service, and resilience ODI performance measures. This is reported to the Business Unit Performance meeting and Management Performance Board. We have data on some of these measures back to 1990, which allows us to produce long term trends and identify the impacts of investment.

Our service impact models allow us to predict the effect of an asset failure on customers. For example, in the models, every water main has been failed to understand the downstream impact of the interruption to service, turbidity and flooding impacts. On a quarterly basis the Strategic Management Board reviews overall business performance and adjustments are made to investment portfolios should there be a change in strategy.

We described in the Asset Information section of this document our progress with Risk Modelling and Data Cleansing with regards to CVMs. We have updated our existing strategy to build in further parameters around these potential pipe bursts due to extreme heat and consequently, in our PR24 business plan we have proposed to invest several millions of pounds for the replacement of climate vulnerable mains.

We are currently undertaking an Ofwat funded project investigating the effects of extreme heat on asset failure. This project seeks to understand how assets, or part of assets (for example inverters) fail in extreme temperatures. The project will result in an app available to all water companies where users can input asset data which will be assessed using a number of extreme heat scenarios, e.g.



The outputs will feed into future investment decisions and design and therefore maintain asset health over the medium and long term.

This work also interfaces with the existing Climate Resilience Demonstrator (CReDo)¹⁴ data architecture. This affords water companies the opportunity to contribute data to CReDo to understand the interdependencies with other infrastructure providers, such as electricity network providers, and therefore better understand how asset failure can cascade through an inter-connected infrastructure network. This information can be used to maintain asset health and service over the long term.

Optimising risks, costs, and performance

We have several tools and systems that are used to model asset deterioration and the consequence of asset failure, including 'Asset+ Risk Modelling' and non-infrastructure (pipes) deterioration and consequence models. These are brought together in a new module of Copperleaf – Predictive Analytics (PA).

Together these tools allow the application of a risk-based forward-looking planning approach. They enable the risk carried by individual assets to be understood and allow decisions to be made on the optimum interventions to manage asset performance and service to customers. We can evaluate the impact of different investment strategies and therefore consider trade-offs of value to customers against cost over time.

The predictive analytics module uses our value framework to understand the risk of each asset based on its likelihood and consequence of failure. The module then uses an optimisation engine to select the optimal mix of assets for renewal based on the value framework, intervention costs, and optimisation constraints. The constraints can be financial, or performance based, and the optimisation objectives can vary depending on the value measures and trade-offs that we want to consider.

Since PR19 we have, through the use of PA, increased the number of infrastructure assets modelled across water and wastewater. Previously, we could only optimise a fraction of our asset base due to computational limitations. We have now optimised around 400,000 water mains, increased from 18,000, and over one million sewers, increased from 25,000. This gives us a more comprehensive and accurate picture of the future asset replacements and interventions needed to maintain or improve our service standards. We have also used PA to model non-infrastructure assets. As there are fewer non-infrastructure assets, we were previously able to optimise all of them, but PA has enabled us to model over a longer 25-year timeframe.

The predictive analytics module also helps us to align our short, medium, and long term investment plans with our strategic goals and stakeholder expectations. We can visualise the outcomes and trade-offs of different scenarios over a 50-year horizon and communicate them effectively to our stakeholders.

We have incorporated the impact of climate change on water mains into PA, in addition to asset deterioration. The impact of climate change is dependant primarily on asset material, diameter, and soil shrink swell class. We used multi parameter optimisations within PA to model the expected increase in bursts per year due to climate change in future decades. Through this analysis we tested several expenditure scenarios and also considered deliverability.

Use of this module has allowed us to select best value solutions across all six capitals value measures. For example, for water mains, the module has shown we can achieve a greater reduction in interruptions to supply by targeting the pipes that have the highest impact on customer service, rather than the pipes which have the highest burst rate. The module has also shown we need to increase our expenditure significantly after AMP8 to maintain the current level of performance, and that climate change

will have a significant effect on the deterioration of water mains. Using the predictive analytics module, we created and compared several scenarios for water main replacement and optimisation, and selected the one that best met our target and budget constraints.

In the future we intend to further develop climate modelling to include Sewers and Rising Mains. We will also improve our reporting capabilities, by developing more interactive and customisable dashboards and visualisations that can present the results of our predictive analytics in a clear and engaging way, demonstrating the value and benefits of our investment decisions.

As described in the Asset Information section, we are looking to explore the potential of AI to augment our predictive analytics, by using machine learning and natural language

processing techniques to extract insights from our data and text sources, such as work orders, customer feedback, and incident reports. We want to leverage the power of AI to enrich our understanding of our assets and their performance, whilst identifying new opportunities for improvement and innovation.

Our plans involve extending the proactive maintenance and investment approach on pumping assets into other critical asset groups to exploit the learning and maximise cost benefits. Throughout AMP8 we will also be investing in data driven operations and enhanced situational awareness tools, to put high quality data at the forefront of operators and key decision makers, this will create improved decision-making capabilities and optimise people performance across the organisation.



14 [Climate Resilience Demonstrator - Digital Twin Hub](#)

Risk and Review

We see Ofwat's recommendation 1 to the industry as relevant to this subject area, whereby organisations were advised to improve risk management approaches by ensuring Boards have clear oversight and understanding of current and future asset health risks and mitigation plans. Our company-specific recommendation from Ofwat was to develop our processes for monitoring progress against our Asset Management Strategy and Plans, and our compliance with our Asset Management Policy.

We believe we have maintained our scores from 2021 and continue to lead in some respects. We continued integrating risk management processes and management system activities, we created a new head of integrated assurance, and we have been embedding risk tolerance boundaries across our organisation.

Table 5 – Our asset management maturity scores for Risk and Review

AMMA Question No.	AMMA Question	Ofwat 2021 Maturity Score	Anglian Water 2024 Maturity Score	Change in Maturity
3.1	What are the asset health and operational resilience measures that you use for decision-making?	4	4	-
3.2	How do you use asset health data, information, measures, and forecasts to identify the need for investment and inform decision-making?	4	5	+1
3.3	Does the organisation establish a risk tolerance level for asset health and apply this in decision-making? If so, how?	2	3	+1
3.4	How do you use optioneering to develop interventions to address asset health and resilience needs for each asset type?	4	4	↑
3.5	How does the organisation determine the balance between preventive and corrective action for different asset systems?	4	4	↑

Managing and communicating asset risk

Our governance structure and how we communicate risks at various levels is detailed in the Decision-Making section of this document. As part of our organisation's Risk Management Framework, the business has a defined risk management process, which includes identification, evaluation, mitigation and monitoring of risks.

During AMP7 we have experienced a period of unprecedented risks materialising such as the Covid pandemic, Brexit, international conflict and energy price shocks, in addition to extreme weather both record heat and unprecended rainfall. Risk management has been proved to be essential in this period, and despite all these extraordinary shocks and stresses we have maintained our resilience and continued to provide essential services.

We have worked to improve data collection and analytics including augmenting this with pump performance test data and condition assessments, which has been used to enhance proactive decision making around maintenance options and supported business cases for asset investment schemes.

We have produced a recovery plan to show how we will improve against measures where we have not achieved our Performance Commitment Levels. Two of these measures are total pollution incidents and treatment works compliance, which are also part of the Environment Agency's Environmental Performance Assessment (EPA) score.

We have set out 35 separate actions, which detail how we will improve performance. We report quarterly to Ofwat on our progress. Our PIRP represents a significant effort of our internal teams to get on top of this complex issue and the additional £100m of investment from our shareholders to fund actions outlined in the PIRP means that we hope to improve our performance over time.

Totex Investment Continuous Improvement

We have established a Totex Investment Continuous Improvement Forum, with membership from departments around the business, that meets monthly to consider improvements to our investment process while ensuring business requirements are met.

A programme of review and accelerated continuous improvement is currently underway to ensure that process are fit for AMP8, this includes governance, investment pathways, reviewers/approvers, deliverables and process elements.

All actions and decisions are captured in a Risks, Actions, Issues and Decisions log (RAID) which is reviewed and updated at every meeting, papers are submitted and discussed. The Terms of Reference have been reviewed and a quorate identified to allow decisions to be taken. As a result of the continuous improvement forum deliverables have been refined, created and removed with full agreement.

As described in the Strategy and Planning section of this document, a new post-project benefits review process has been developed to more accurately determine whether the benefits of an investment have been realised.

Integrated management systems and external certification

Anglian Water runs an (IMS), which is centrally controlled to co-ordinate audits, independent assessments and compliance with all our certifiable standards, such as ISO55001, ISO9001 and PAS808. The IMS has enabled stronger links to other quality-focused activity with links drawn to the maintenance of the business' management system standards. We publish our framework¹⁵ on our website and below is a list of the standards that we hold in our IMS:

- PAS808 – Purpose Driven organisations.
- ISO 9001 Quality Management
- ISO 14001 Environmental Management
- ISO 17024 Conformity Assessment
- ISO 22301 Business Resilience (Continuity)
- ISO 22458 Inclusive Service and Customer Vulnerability (Kitemark)
- ISO 45001 Health and Safety
- ISO 45003 Psychosocial Health (Wellbeing)
- ISO 55001 Asset Management
- PAS 2080 Carbon Management
- CMS (Competence Management Systems)
- MCERTS Environment Agency Monitoring Scheme

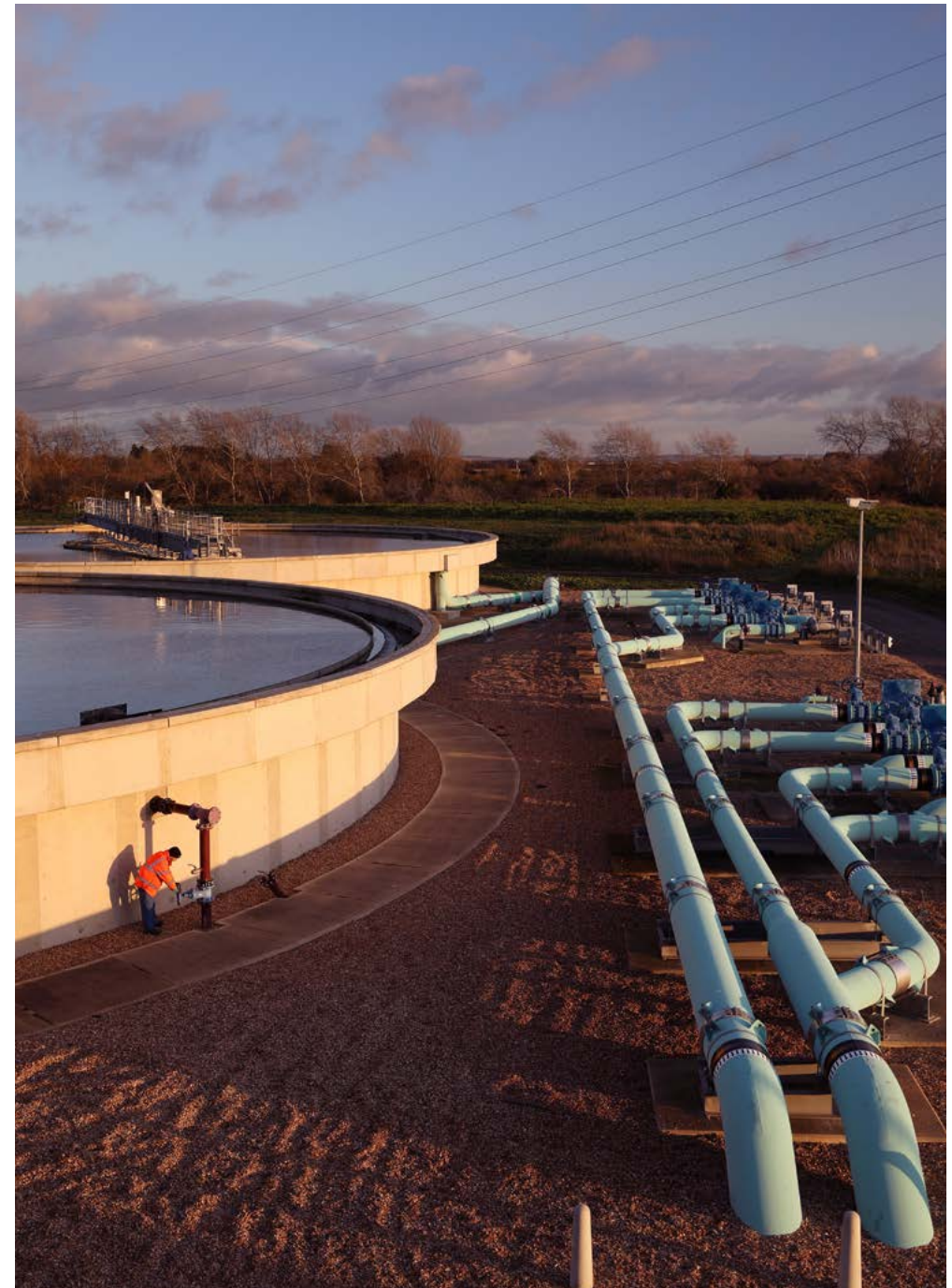
The IMS has also been embedded further through the development of an Environmental Performance Reporting internal assurance programme (EPR) for both water supply and recycling services, support in development of new business-wide document control processes and operational document digitisation, and review of our key operational and asset policies and standards for Water Recycling (POSWASTE).

¹⁵ [Integrated Management System Framework Policy](#)

We use agreed procedures and checklists for IMS team members to provide consistent assurance to the wider business, which are built on a model provided by our independent assessment body, the British Standards Institution (BSI). This includes a competent auditor signoff checklist, internal assurance completion checklist, and external assessment planning procedure.

Internal assurance activity scope is agreed with relevant business unit sponsors and auditees. Where Non-Conformances (NCs) or opportunities for improvement are found, we raise them in a consistent manner in our corporate Action Tracking System (ATS). Actions are assigned with agreement from relevant business owners, and oversight falls as standard to the action owner's line manager. Externally generated NCs have mandatory root-cause analysis as part of the agreed Compliance Action Plan (CAP), and action closure evidence is checked internally before shared with the external assurance partner for CAP closure.

We will continue to develop the capability of our IMS, in particular to support the business in the delivery of its largest ever capital programme and prioritise our activities to address highest risk areas.



Organisation and People

Ofwat's recommendation to the industry (recommendation 5), relating to making sure employee competencies and skills are appropriately considered, is seen as the most relevant for this subject area. In addition, Ofwat's specific recommendations to our organisation revolves around developing more continuous improvement activities, the assignment of roles and responsibilities for asset health and operational resilience, and to further develop the breadth and depth of our internal reporting and cascading of information relating to asset health and operational resilience.

We have established a new role, Director of Strategic Asset Management, which brings a greater focus to asset management and contributes to improving how asset health and operational resilience are managed within our organisational structure. We have also developed a long term plan with relevant action plans for improving our asset management capability, which contributes to our increased maturity score for question 5.1.

We have also increased our score for question 5.5, as we continue to carry out a wide range of customer and stakeholder engagements through various approaches and forums, from bespoke engagement (e.g. Thriving East) to wide-reaching engagement (e.g. Water Resources East, The Knowledge Hub, and through Future Fens: Integrated Adaption). Our engagements are used to inform the development of intervention on asset health and resilience, and we continue

to work with external stakeholders on aspects such as planning for operational resilience. Our continued efforts to identify and address gaps in asset management capability and resources is seeing an increasing maturity trend for question 5.2. We continue to work with the IAM, chairing their Patrons group and developing training materials (e.g. our Asset Management Development Programme). Over the next two years we expect to recruit a number of asset management graduates and have invested in specialist training for our Water Recycling Technicians.



Table 6 – Our asset management maturity scores for Organisation and People

AMMA Question No.	AMMA Question	Ofwat 2021 Maturity Score	Anglian Water 2024 Maturity Score	Change in Maturity
5.1	How is asset health and operational resilience managed within your organisational structure?	4	5	+1
5.2	How does the organisation identify and address any gaps in asset management capability and resources for its employees?	5	5	↑
5.3	How do you ensure that you understand the needs and expectations of customers and stakeholders in relation to asset health and resilience and incorporate them into the decision-making process?	5	5	-
5.4	How does the organisation communicate the plan for asset health and operational resilience and report progress to internal and external stakeholders?	5	5	-
5.5	Do you involve customers and stakeholders in the co-creation of solutions around asset health and resilience? If so, how?	3	4	+1

Organisation structure and leadership

In 2023 we created a new position of Director of Strategic Asset Management who sits on our Management Board and whose accountabilities include the long term planning and strategy for assets, continuously improving asset management, and building the organisation's capabilities and resources.

The vision for Strategic Asset Management is to be progressive, trusted and valued stewards of infrastructure that delivers our Purpose, now and into the future. A long term plan has been produced by compiling inputs from maturity assessments, existing business strategies and stakeholder feedback with relevant action plans having been created.

This provides a focal point for asset management maturity and improvement across the organisation.

Managing and communicating asset health and operational resilience

In our original 2021 submission (Organisation and People section, page 142-143) we described how our organisation builds resilience of key customer services and provides confidence to stakeholders that risks are well managed. We continue to assess our outcomes and feed the lessons learned back into our strategies and plans.

To continue our improvement in this area, we have created a new Operational Risk Management role to centrally collate and manage cross-business operational risk, from the bottom up, to improve our horizon scanning capability and ensure we remain resilient to emerging risks. This will complement our established enterprise risk management processes and improve visibility of emerging risk to the Resilience Steering Group (RSG).

Our ASRAP details the organisational approaches we are taking to long term asset health and operational resilience, and how we communicate this to our Board and stakeholders. The ASRAP continues to improve and refine our own frameworks and responds to Ofwat's recommendation stating that we "could consider how to further develop its use of asset health trends and forward-looking measures to inform and refine its asset management plans".

Identifying and addressing gaps in AM capability and resources

There are 54 critical roles across our organisation and our non-regulated business, that have been identified as critical to our organisation. These roles are prioritized, with successors identified, with robust plans in place to support successors in these roles.

We work closely with the IAM and hold the Chair of their Patrons group of organisations, who meet quarterly to discuss topics affecting the wider discipline of asset management and input into the production of knowledge. We also work with the IAM to develop training materials tailored to our sector.

Directly related to asset management, we have our Asset Management Development Programme, which is a mix between online and in person training for both our early careers and those who are in asset management related roles. We have two full time graduates currently on the programme, with four more due to join the organisation in 2024, and a further five in September 2025. We also have several professionals (including those in our supply chain) who have completed our asset management training in workday which is equivalent to the IAM Foundation Certificate. It was initially rolled out to 250 employees via e-learning; subsequent cohort with 114 completions and further 32 in progress; online training programme available globally through AMCL.

Recently, we implemented a planned investment for just over £25k for all our Water Recycling Treatment technicians (approximately 300), who will be trained on Asset Health and Prolonging Asset Life with a specialist company, MLS.

In terms of alliancing, we have signed the AMP8 @one Alliance contract a year early, which has allowed us to get on the 'front foot' with both the programme and resources needed to deliver it. Binnies has been onboarded to provide expertise and experience in wetlands development and sustainable solutions. The Pan Alliance Partners have committed to a £2 million spend on a Green Skills Hub at the College of West Anglia, Wisbech. We are working closely with the college to identify what courses this will deliver for us to ensure we have relevant skills being trained within the locality of the work. This offering will be available to upskill our current workforce and to develop new resource. Further to this, we are looking to expand the Collaborative Skills Programme to Norwich and Colchester ensuring we are training people where the work is in AMP7.

Through our Strategic Workforce Planning, we have not only been looking at new skills, but also the numbers of people we will need. We have run four Training Schools, which is a new approach to developing and bringing talent into our organisation. The recruitment for these roles is based on behaviours, rather than skills and experience. The candidates are placed in a paid 9 to 12 week programme, enabling them to start on their chosen career with us.

In our 2021 AMMA submission we detailed our intent to further develop our communities of practice in our organisation. Our CoEs are groups of people that share best practices, research, support, and training for a focus area. An example is our Sustainability CoE, a consultative and collaborative forum for those leading on sustainability and purpose throughout the organisation to maximise impact and increase

transparency. The associated Sustainability Community is open to all Anglian Water and Alliance employees and is a space to engage on key topics.

We continue to support our people working together in communities, which we see as a key enabler in achieving our strategic goals for AMP7 and beyond. The approach has matured with a wide range of groups meeting regularly to share best practice, co-ordinate activity, collaborate, undertake research, and share knowledge and information. We view these communities as an important way to develop organisational capability and deliver our values.





Customer and stakeholder needs, expectations, and involvement

We continue to engage with our customers and stakeholders through one-to-one meetings, attendance at local community groups, workshops, and webinars, which have all built on our understanding of stakeholder expectations for asset health and resilience. Through these methods of engagement, stakeholders have prioritised the areas they felt should be focused on, such as resilience to flooding and drought; these expectations have been used as part of the decision-making process for WRMP and DWMP. Our formal consultation processes have then been used to ensure we have captured our stakeholders' needs and expectations correctly.

We have initiated Thriving East, bespoke engagement with regional stakeholders aimed at understanding the specific challenges faced by the counties in our region. This has driven a business plan informed by stakeholder knowledge and underpinned by current and potential collaborative working relationships. Examples of these relationships include Water Resources East, a multi-sector regional water resource group initiated by Anglian Water, and the Norfolk Strategic Food Alliance which was formed in 2021. This Alliance has a multi-agency catchment-based approach to protect Norfolk communities and infrastructure against risks of inland and coastal flooding, and drought.

Building on our customer engagement online community platform we developed The Knowledge Hub. This targeted research engagement solution aimed to inform and

engage with an 'expert' group of consumers on a regular basis during July 2022 - July 2023, enabling us to track, evaluate and evidence the informing process and to monitor its impact on customer understanding and opinion. We were able to share specific business plans, strategies and challenges to capture feedback from customers and use the insight from the expert customer panel to inform business decision making and optimise materials that will be shared with other customer engagement channels (such as with the core Anglian Water Love Every Drop Community group).

Through Future Fens: Integrated Adaptation (FF:IA) we continue to act as a convening space for around 150 stakeholders by engaging with a 'place-based' approach, promoting landscape-scale integrated water management and resilience planning. The Fens is a unique landscape that was drained centuries ago, making its flat, low-lying area susceptible to the impacts of climate change. Working with partners including the Environment Agency (EA), Water Resources East (WRE), local authorities and our strategic resource options, we are taking a multi-sector systematic approach to ensuring that assets, land and communities in the Fens remain resilient to drought and flood.

Building on our collaborative working practices, we aim to undertake new ways of working that will achieve greater outcomes. An example of this is through our Advanced WINEP (A-WINEP), where we will demonstrate that place-based, collaborative working with environmental organisations, communities and citizen scientists can deliver greater benefits for the environment and society than we could deliver alone.

To achieve these broader environmental outcomes, we propose aligning our own investment with other funding such as agricultural grants, environmental markets, and wider corporate and philanthropic finance. An example of this is our work with Norfolk County Council, the Nature Conservancy and WRE, to establish Norfolk as a global reference point for nature-based solutions to water security challenges. We have developed governance models allowing the blending of different funding sources to achieve landscape-scale benefits in line with the objectives of all the partners. We believe we can achieve more from such approaches in the future.

To optimise our customer engagement and listening we are developing a centralised approach to customer insight that will further embed the voice of the customer in our decision-making processes. This will enhance our ability to understand the needs and expectations of customers, by giving greater visibility across all customer research and provide extra clarity on analysis of insight. It will continue to highlight the evolving opinions of customers through further incorporation of our everyday insight, allowing our decision making to adapt alongside customer expectations.

Closing remarks

The period since 2021 has been challenging for asset managers across the sector as we experienced a series of shocks and stresses. Whilst this has affected our operational performance, it also presents opportunities for us to learn. We are pleased with the progress we have made in a number of areas following the initial assessment, seeing increases in our scores for eight questions, and showing an increasing trend in maturity for eight other questions. As we expressed in 2021, we found the AMMA to be a helpful framework to reflect on our current and future asset management capabilities and associated requirements, as well as to provide a roadmap toward future improvements.

We have listened carefully to Ofwat's company specific and sector wide feedback following the 2021 exercise, developing improvement plans and activity around both Ofwat's recommendations to the industry and specifically to our organisation. We recognise that there is more work to do and are committed with the continued focus required to drive improvements.





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