Attachment 5

Asset management governance

30 June 2022

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5.1 Introduction

This attachment sets out the framework that Icon Water has adopted to enable reliable and cost effective delivery of its services. Management of our assets supports the achievement of business goals and creates value for community and shareholders by investing sustainably in our water and wastewater network.

In managing our assets we must consider current and future asset performance and risks, and implement cost effective programs that provide the appropriate balance between each of these criteria. Investment planning and delivery is reliant on achieving efficient, whole of asset life, cost solutions.

Box 5-1: Key messages

- Our Asset Management System (AMS) is aligned to ISO 55001.
- The AMS underpins our ability to provide affordable, resilient and reliable services to the community. A robust asset management framework supports prudent and efficient decision-making in the delivery of our products and services.
- We are committed to continually improving our AMS and asset management capability, with focused improvements in strategic planning, asset maintenance and knowledge, and information and data management.
- Investment programs are managed through portfolios and programs to achieve an appropriate balance between customer and regulatory expectations (performance), business and operational risk exposure (risk) and effective use of financial resources (cost).
- The 2023–28 investment program has been built using a combination of bottom up project estimates (all significant projects verified by a consultant or independent estimator) and top-down program specific allocations which, where applicable are based on established and benchmarked unit rates and forecast programs of work (eg. renewal programs, emergency, and minor capital works projects).
- Our commitment to continuous improvement of our AMS and improved alignment with our business planning process will streamline activities, continue capability development and support us to deliver on our eight price proposal outcomes for the 2023–28 regulatory period.

Table 5-1: Customer and community engagement feedback

What we heard	Our response
The community agrees with the need to plan for the future, this includes investing in water security and exploring alternative water sources	Our asset management vision is – *effective asset management to provide affordable, resilient and reliable services to the community*. We have recently refreshed our Strategic Asset Management Plan (SAMP) which defines the direction and long-term service outcomes to support this vision. In doing so, the SAMP outlines how we define and monitor asset management performance and provides Icon Water with the ability to monitor, measure and report on asset management objectives. It also provides clear courses of action for our asset management outcomes. In developing our 50-year water and wastewater system strategies, we have adopted an adaptive planning approach to ensure that we have all options available to us for as long as possible so that we can make optimal investment decisions at the right time. The triggers for many of these future decisions is related to population growth in the Australian Capital Territory (ACT) and surrounding region. Our governance framework outlines how we prioritise and deliver our investments. For the 2023–28 regulatory period we have used six criterion to prioritise our investments (see section 5.5.2) – five of these have a direct link to

What we heard	Our response
	the customer expectations (the sixth criteria is 'workplace'). The growth criteria considers the investments we need to make to service Canberra's growing population.
There is community support for achieving greater environmental sustainability and accelerating net zero while limiting impact on customer prices	Sustainability is another of the six criterion we use to prioritise our investments, to ensure that our investment portfolio includes projects that contribute to improved sustainability in the ACT and surrounding region. We also consider sustainability at an individual project level, through the sustainability scorecard – which provides a qualitative sustainability assessment – and is used in the options assessment to select the preferred option. This approach ensures the opportunities for improved environmental outcomes are considered in all our investment decisions.
The community is committed to Icon Water maintaining quality and reliable core services and is willing to pay something towards reducing interruptions or issues for those who experience them more than usual	Maintaining our level of service requires appropriate investment across the whole of asset lifecycle. To ensure this investment is occurring at the right time, our prioritisation criterion includes two criteria – renewal which considers replacement of existing assets and regulation which considers new investments required to meet regulatory obligations. Our asset planning ensures that we are able to provide quality and reliable services across 1-year, 5-year and 50-year planning horizons. Where available and feasible, customer preferences and impacts are included in option assessment and program design. For example, water mains renewal program which focusses on water mains with higher rates of interruption, or where a failure would have extended outage times.
Affordability should underpin any investment decision. If we need to invest to avoid causing issues in the future, we will consider support for vulnerable customers and other impacted customer segments	Our AMS outlines how we manage our assets to realise their full value over the whole life-cycle, thereby ensuring we are able to maintain affordable, resilient and reliable services. Our established finance and project governance mechanisms are in place to ensure we spend no more than is necessary – including budgeting, project controls, project prioritisation, procurement and investment planning governance processes. At a project level, financial comparison tools such as net present value (NPV) and equivalent annual cost (EAC) analysis forms part of our decision making process to ensure that we have considered whole-of-life asset cost. This includes using our asset data and information to inform how we make investment decisions including how we decide between short-term (operational) and long-term (capital) interventions, which impact customer bills differently.
The community considers Icon Water as an essential service provider. To be a valued partner in the community they want us to be more visible – this means being targeted in our partnering initiatives, education and supporting activities, and proactively talking about it with the community.	Our business vision is to be a *valued partner in our community* and we are continuously considering how we can best achieve this through our asset management practices. The final of the six criterion used to prioritise investments is enhanced customer value. This enables us to consider opportunities to provide the community with enhanced amenity, for example – artwork on water reservoirs.

Demonstrating that Icon Water has a robust asset management framework is also a requirement of the *Independent Competition and Regulatory Commission Act 1997* (ICRC Act) (see Box 5-2).

Box 5-2: Independent Competition and Regulatory Commission Act (1997) – Section 20[1]

Section 20 Directions about prices

(2) In making a decision under subsection (1), the commission must have regard to -

(b) standards of quality, reliability and safety of the regulated services; and

(e) the cost of providing the regulated services

[1] ACT Government, *Independent Competition and Regulatory Commission Act 1997* A1997-77. 1997.

As such Icon Water has committed to aligning our asset management framework to the International Organization for Standardization (ISO) 55000 series of international standards for the management of infrastructure assets (ISO 2014) and the Institute of Asset Management's (IAM) Asset Management Maturity Framework (2015) (see Box 5-3). Together these frameworks build on well-established asset management practices and incorporate the latest international contemporary thinking on best practice holistic asset management.

Box 5-3: ISO 55000 series of international standards

The ISO is a worldwide federation of national standards bodies. The ISO 55000 series of international standards represent common practices that can be applied in a management system for asset management, including:

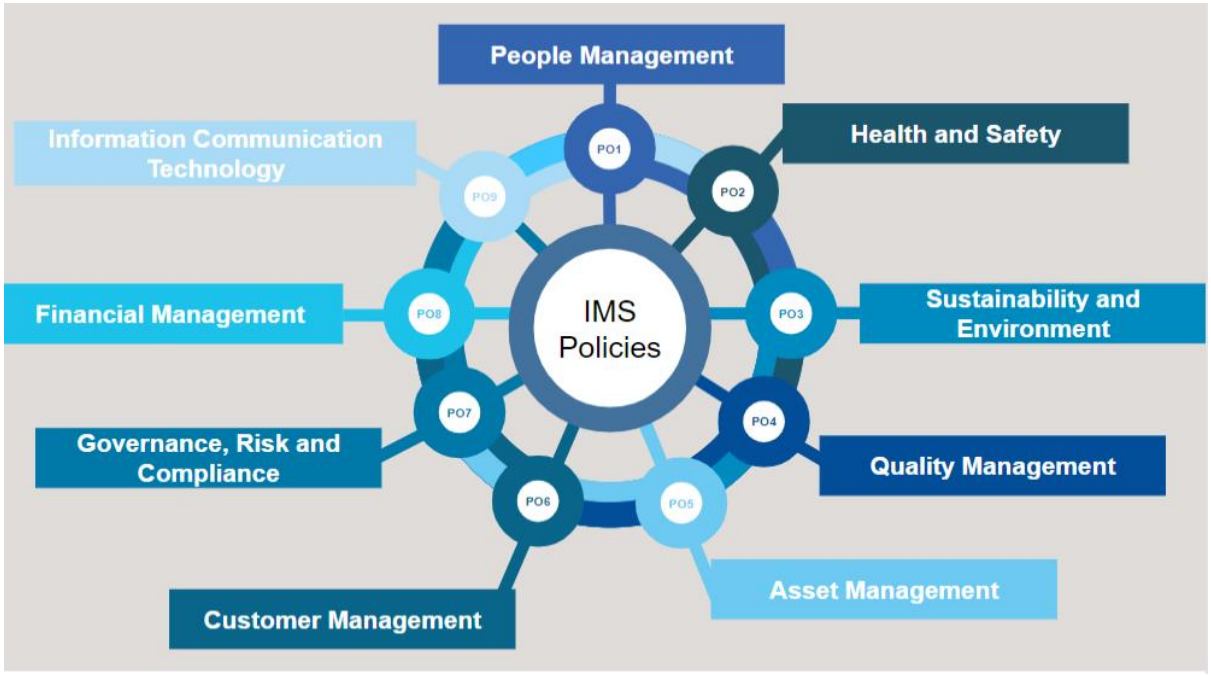
- ISO 55000 - Asset management - Overview, principles and terminology: provides an overview of the subject of asset management and standard terms and definitions.
- ISO 55001 - Asset management - Requirements: details requirements specification for an integrated, effective management system for asset management.
- ISO 55002 - Asset management - Guidelines on the application of ISO 55001: provides guidance for the implementation of such a management system.
- ISO55010 – Asset management - Guidance on the alignment of financial and non-financial functions in asset management

5.2 Asset management system

5.2.1 Asset management system

We are continuing to enhance our asset management capability. Our AMS forms part of our overall Integrated Management System (IMS), linking to all other corporate management systems within the business including risk, quality and financial management (see Figure 5-1).

Figure 5-1: Icon Water's Integrated Management System (IMS) governance framework



Source: Icon Water

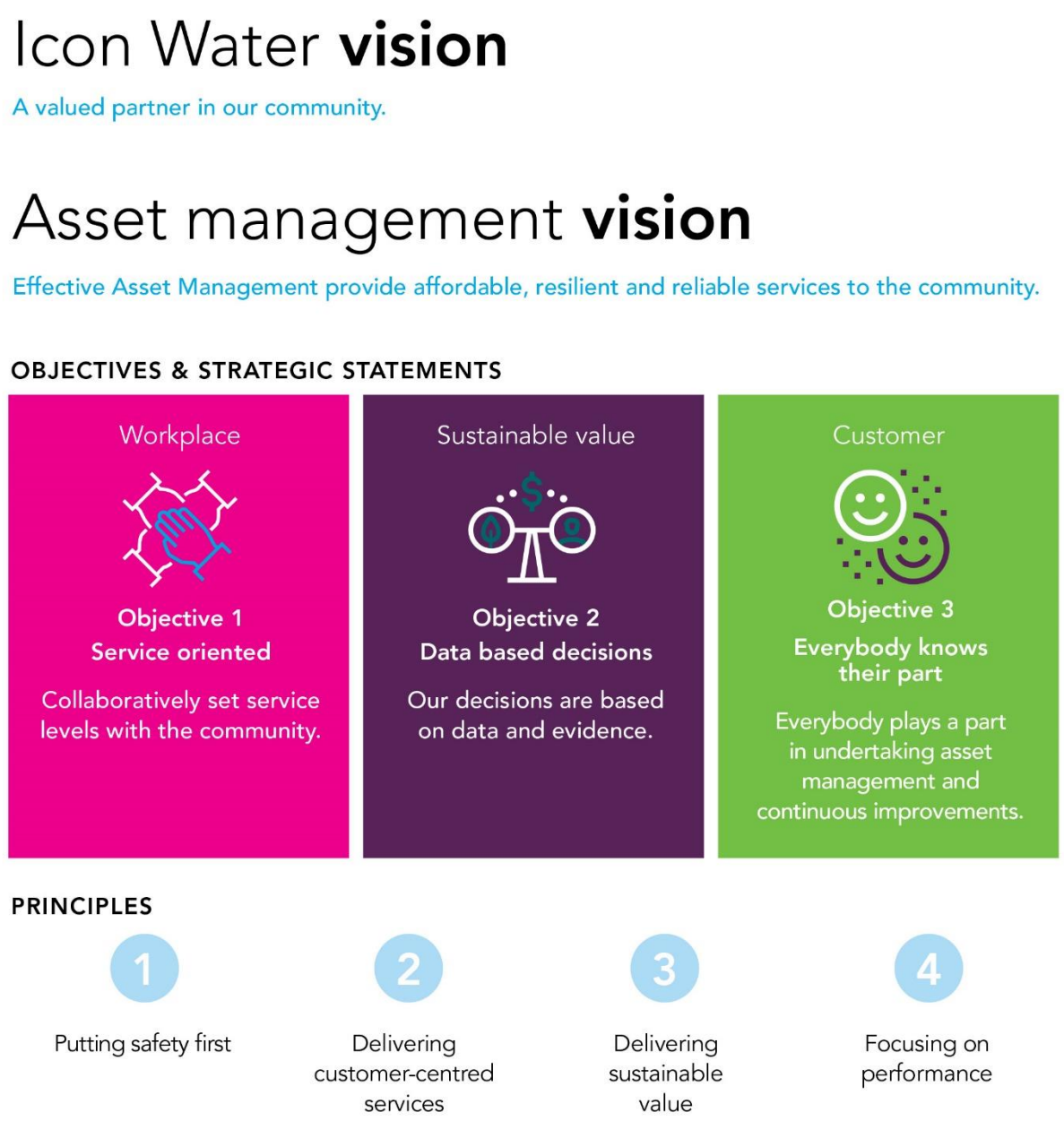
We have adapted the IAM model as our asset management framework (see Figure 5-2) to provide guidance in aligning our processes and practices to ISO 55001 and also to align with the majority of other major water utilities in Australia. Our AMS provides a structured approach to the interlinked processes and the series of artefacts that support and document asset management objectives and decision-making throughout the asset life cycle. The Strategic Asset Management Plan (SAMP) in **Appendix 5.1** provides detail of how the AMS directs, coordinates and controls asset management activities within Icon Water.

Figure 5-2: Icon Water's Asset Management System functions

Source: Icon Water, Strategic Asset Management Plan

The AMS gives assurance that our assets will realise their full value over the whole life cycle ensuring we meet our commitment to effectively manage our assets and provide affordable, resilient and reliable services to the community. As part of our AMS we have adopted a vision, objectives and guiding principles for asset management decision-making (Figure 5-3).

Figure 5-3: Icon Water's asset management vision and objectives



Source: Icon Water, Strategic Asset Management Plan

This framework is integral to ensuring that Icon Water achieves efficiency in the provision of regulated water and wastewater services and reduces costs to consumers. It assists Icon Water with making sustainable, long-term investment decisions for our major assets that allow for a smooth recovery of costs over time. This is also important for achieving intergenerational equity – many of Icon Water's assets are long-lived, and proactive investment can help meet community expectations for service quality, while promoting fair and affordable prices for both current and future customers.

We track our progress towards asset management maturity, as well as its achievement in optimising asset performance, risk and cost decision-making, through a 'strategy map' approach (Figure 5-4) which integrates process and capability drivers together with the delivered asset outcomes. The strategy map enables tracking of the maturity and effectiveness of the AMS, and aligns with the key performance

indicators (KPIs) and targets defined our Statement of Corporate Intent (SCI). KPIs are reported on at monthly and quarterly frequencies.

Figure 5-4: Icon Water's asset management strategy map

Source: Icon Water, Strategic Asset Management Plan

5.2.2 Scope of the asset management system

Icon Water recognises nine separate asset classes as assets within scope of our AMS. Six are related to water and wastewater assets, with a further three relating to 'common assets.' Our asset classes are:

1. water sources
2. water treatment
3. water network

4. sewer network
5. sewer treatment
6. non-potable water
7. land and buildings
8. mobile plants and vehicles
9. information and communication technology

5.3 Asset strategy and planning overview

5.3.1 Key elements of AMS

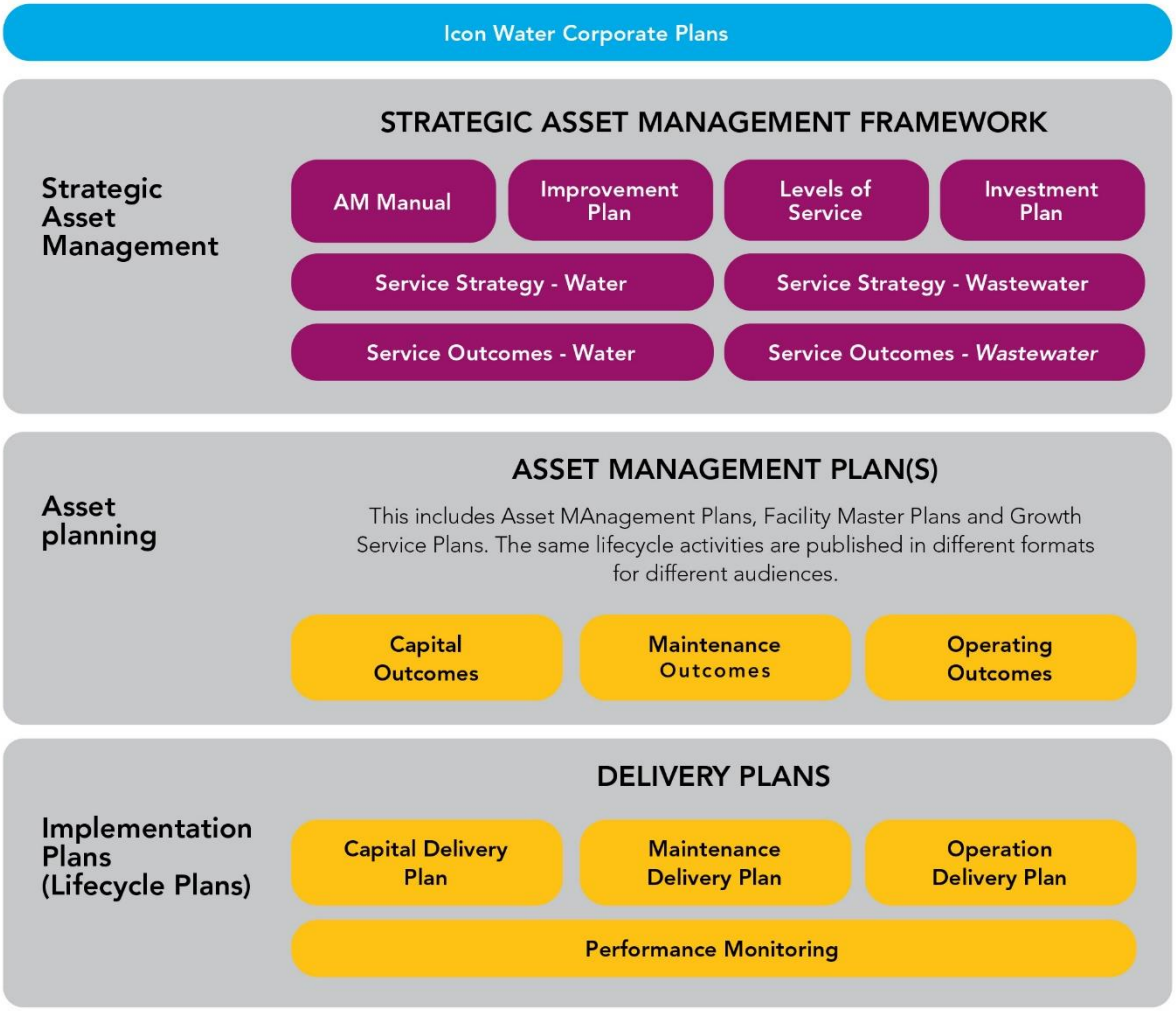
The foundation documents of our AMS are:

- the **Asset Management Policy**, which documents the purpose of asset management at Icon Water, our beliefs, commitments and expectations of the organisational approach to asset management, in alignment with ISO 55001.
- the **Strategic Asset Management Plan** (SAMP), which provides the overarching strategy for asset management including objectives and high level performance criteria for our asset base. The strategy seeks to achieve an appropriate balance between customer and regulatory expectations (performance), business and operational risk exposure (risk) and effective use of financial resources (cost). Our SAMP has recently been reviewed and recognises that given improvements with our asset management capability we will now move to a service delivery model of asset management. The SAMP also guides the development of asset and implementation planning documents to ensure consistency across our asset classes.
- our **Asset Management Plans** (AMPs), which relate to the delivery of a service at the asset class level (refer section 5.2.2). AMPs outline the 20-year investment, intervention and improvement plan for each asset class. We are exploring ways to make the information available in a format that is more useful for different stakeholders including through Facility Masterplans and Growth Service Plans. We are becoming more adaptive and flexible in our planning as we transition to a service delivery model with further improvements in the future for greater levels of integrated planning.

5.3.2 Asset planning

In addition to the key elements of the AMS, Icon Water develops and implements a series of interlinked processes which generate asset management artefacts to support and document asset management objectives and decision-making. How we plan for and manage our assets is shown in Figure 5-5.

Figure 5-5: Strategic asset planning context



Source: Icon Water, Strategic Asset Management Plan

Development of the future state AMS will involve enhancement and additions to these existing processes and artefacts, coupled with enhanced integration throughout the end-to-end asset management cycle.

5.4 Asset management improvement

5.4.1 Improvements since previous period

Icon Water has been progressively implementing a new operating model over the period 2013 to 2023 reflecting several significant business and structural reforms and improvements focussed on a shift to a customer/service-centric approach. These reforms are improving asset management capability and contributing to the continued alignment of Icon Water's asset management approach to both the ISO 55000 series of standards and the IAM Asset Management Maturity Framework.

Icon Water's Enterprise Asset Management Strategy 2016–17 to 2021–22 (EAMS) identified the general approach to improving asset management capability – through processes, people and technology. The EAMS set out a clear improvement strategy aligned with strategic planning horizons. The SAMP has since replaced the EAMS and enables us to clearly set out our strategic approach to customer-centric asset management.

We identified a number of targeted improvements in our 2018–23 price proposal and we report on activities that contribute to improvements to our AMS annually in the Annual Report. A summary of improvements achieved during the 2018–23 regulatory period are listed in Table 5-2

Table 5-2: Summary of asset management improvement initiatives from 2018–23

Improvement initiative	Progress
Leadership	
The Asset Owner (Icon Water Executive) will have improved data to enable more informed asset management decision.	During the 2018–23 regulatory period we developed and continuously improved our asset management dashboard for the system and each main service area. This has provided our business with a single source of truth. This allows asset management decision making to be driven from the same source of truth aggregated appropriately for the particular level of decision maker. This system is currently manual but ongoing improvements will see this become an automated process. Many of the supplementary improvements in people, process and technology have improved asset management leadership through improved access to data supporting the decisions. In 2019 critical assets were identified at Lower Molonglo Water Quality Control Centre (LMWQCC), Stromlo and Googong Dam. This has allowed us design and implement effective maintenance programs and also helped the Maintenance and Reliability Teams focus efforts where they are most needed. Our condition assessments are now stronger and more systematic, which has increased the availability of asset data for decision making. We continue to make improvements where the condition assessment information based on 'asset health' is embedded in the Works and Asset Management (WAM) System.

Improvement initiative	Progress
People	
Continue to invest in our people to refine our capabilities and provide a culture that supports our target state asset management maturity.	During the 2018–23 regulatory period our focus altered from assessing against the six asset management subjects to identifying competencies required to perform the role by Branch Managers and then providing the necessary training on an as-needs, individual basis. We participate in the 4-yearly Water Services Association of Australia (WSAA) asset management benchmarking activity which allows us to compare our asset management maturity against other utilities, providing us with an insight into the areas of the business which require further improvement. Our engagement with industry bodies such as WSAA and the Australian Water Association (AWA) ensure that we are aware of industry trends and changes to best practice. This also provides opportunities for networking and connection with peers enabling capability improvements for our people.
Processes	
Refine our processes and operating models to enable compliance with ISO 55001 and IAM asset management subject target maturity levels.	During the 2018–23 regulatory period good progress has been made in developing and implementing our business activity model. The business activity model has enabled us to understand the gaps and overlap between activities. Work instructions for most of the activities have been updated or developed. Further to this improvement, we have documented our business value chain which has given us a clear view of our business processes and where efficiencies may lie.
Continue to work with our customers to understand and adjust our services to respond to their stated preferences with prudent consideration of the balance between cost and sustainable levels of service.	In 2021 Icon Water launched our customer engagement program using the platform Let's Talk Water and Wastewater. The engagement program featured face-to-face and online community discussion as well as quantitative surveys, where people provide feedback on a range of Icon Water strategic decisions and investments. It was designed to guide Icon Water's strategic planning and to directly inform the 2018–23 price proposal. We have made significant improvements to our standards and rules to ensure they are documented in a clear, customer-friendly format manner.

Improvement initiative	Progress
Technology	
Refine and integrate our asset data and information systems, including through renewal of the asset and works management system.	In 2019, we completed a significant multi-year project to replace one of our core systems that has led to asset related information improvements and given us valuable insight into the performance of our works and asset management activities. Improvements include: • Improved maintenance regimes, scheduling and allocation of work orders • Optimisation of the use of maintenance crews and their ability to respond to both reactive maintenance issues and planned maintenance works • Better reporting functionality, replacing paper-based processes and work crews able to create follow-on work requests from the field • The ability to execute work directly from the map on a mobile device • An automated scheduling tool and cost centre algorithm. We will also undertake upgrades to the underlying software before the end of the 2018–23 regulatory period. We have also undertaken upgrades to our Operational Technology (OT) including: • Time Series Data with the new Data Historian Platform to capture real-time and historical data from smart devices and OT systems • Our Operational Technology networks including Supervisory Control and Data Acquisition (SCADA) and Telemetry.
Enhance our data analytics capability to provide deeper insights into our asset data to optimise our asset planning decisions.	During the 2018–23 regulatory period we have undertaken several projects to provide insights into our asset data. • Portal for geographical information system (GIS), ArcGIS, has been developed to publish web-based maps and enable the building of tailored solutions including identification of water meters, and valve status display. This industry-leading, intuitive interface integrates with other asset management systems, and is improving customer experience and productivity, and making life easier for our people. • Refresh of our water and wastewater modelling software systems including integrations to our GIS. This included reviewing the software architecture, and bringing some modelling capabilities previously outsourced within the organisation allowing for models to be rebuilt and recalibrated. • Development of a Data Management and Governance Strategy, including a Data Strategy (2021–24), with implementation underway. • Enhancement of our cyber security posture. We have introduced new security monitoring capability across our OT domain; we have improved the segregation between out IT and OT networks; and we have introduced improved cyber security management. Implementation of our Cyber Security Strategy and Cyber Security Roadmap is now underway.

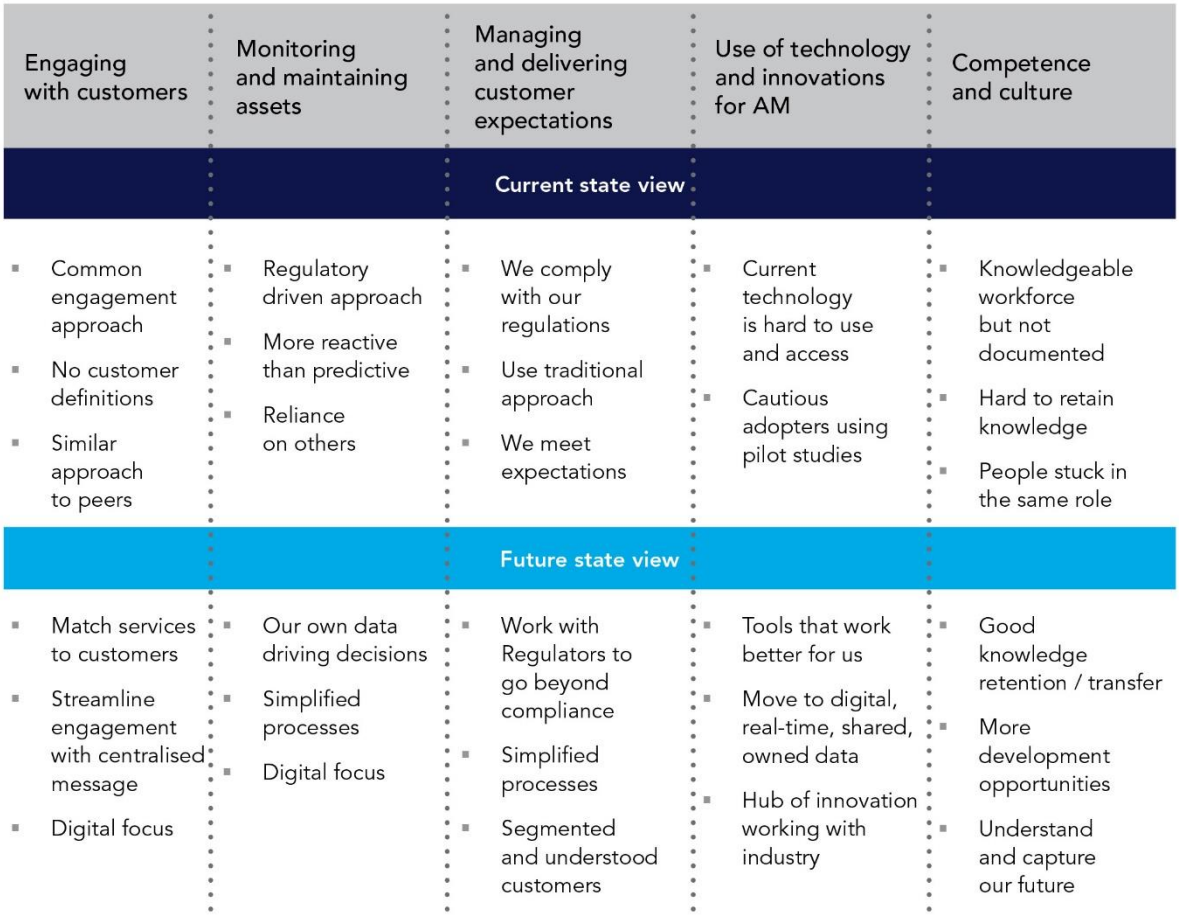
Improvement initiative	Progress
Develop systems to enhance our interaction and service with our customers.	During the 2018–23 regulatory period we have undertaken several projects to enhance our interaction and service with our customers. These include: • Real-time network outage management tools to identify critical customers who will be affected • Enhanced reporting to support proactive compliance with consumer protection code changes (July 2020), so we can proactively pay rebates where guaranteed service levels are not met • Continued upgrade of our Geographical Information Systems (GIS) into a privately managed Cloud environment. We have established the foundational platform to make maps of Icon Water assets available to developers and builders in the future, and further upgrades and enhancements are planned for the last year of the period.

5.4.2 Future improvement initiatives

Service model

We have identified the need to move to a service delivery model for our asset management approach and practices. As identified previously we have commenced this transition. After consultation with internal and external stakeholders the future state as outlined in Figure 5-6 was developed.

Figure 5-6: Current and future approaches to asset management



Source: Icon Water, Strategic Asset Management Plan

Performance monitoring

Icon Water generates and leverages performance information to inform business decisions. A wide variety of metrics are currently in place to enable measurement of the performance of Icon Water's assets. Many are based on regulatory requirements, and they are documented in reports to the Commission, Utilities Technical Regulator (UTR), the Department of Health, the Environment Protection Authority (EPA) and other regulators.

Performance reporting will support a variety of 'evidence based' decision-making through a process of 'double loop' learning:

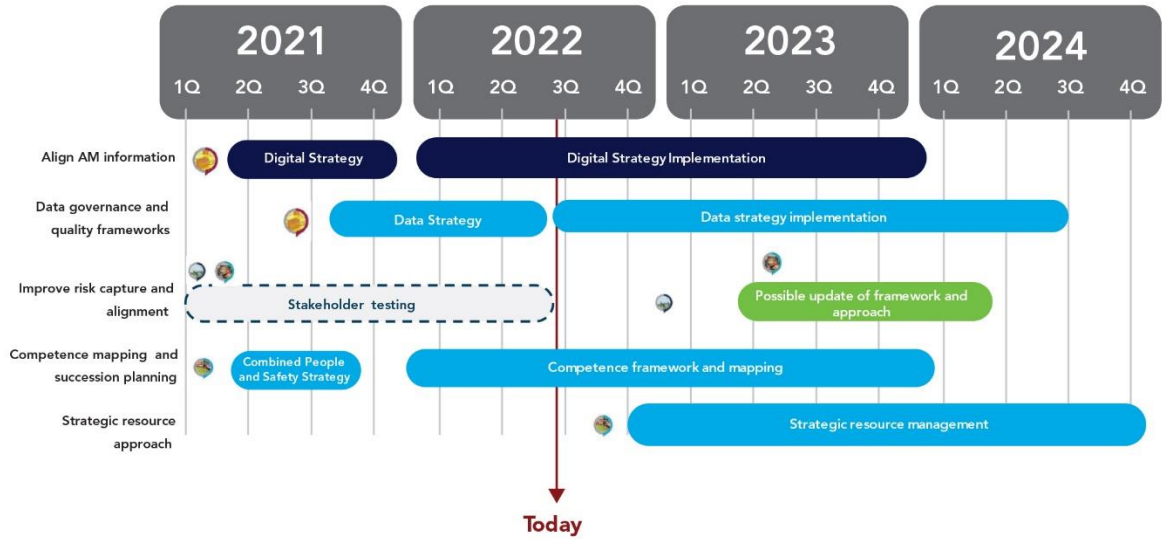
- learning loop 1 – short term amendments to process operating plans, maintenance plans and budgets, and process performance improvements
- learning loop 2 – medium to long term updates to AMPs, SAMP and wider asset management and business strategy planning.

Asset Management capability improvement areas

We seek to improve our underlying asset management capability through continuous improvement to our processes and systems. These improvements will be informed by assessing the applicability of external best practice developments, as well as through feedback on existing processes and systems enabled through performance monitoring.

Section 7 of our SAMP (appendix 5.1) describes the key improvement initiatives that we will be focusing on during the 2023–28 regulatory period. Major changes to the processes and systems will be documented in periodic updates of the SAMP. These initiatives have been mapped to the business strategy initiatives and included in the business strategy. A high level timeline is shown in Figure 5-7.

Figure 5-7: Roadmap for asset management improvement initiatives aligned with business strategy initiatives



Source: Icon Water, Strategic Asset Management Plan

Alignment of Business Planning and Price Review

Icon Water develops its price proposal (i.e. this document) every five years to align with our regulatory cycle. We develop and publish other corporate planning documents much more frequently, for example the SCI (also known as our Business Strategy) is published annually and has a four-year rolling horizon to set out our purpose, vision, core values, strategic objectives and financials. Our Annual Report provides an overview of Icon Water, performance in the past year and our financial reports. As outlined in Figure 5-3, our asset planning activities cascade from our corporate planning and reporting.

Outside of the five-year regulatory cycle, there is an opportunity for us to improve formal reporting against commitments made in the price proposal. We have an opportunity to better align our price proposal activities with our more frequent corporate planning – to use these activities to both inform the price proposal and enable us to report annually against commitments we make in the price proposal. Streamlining activities in this way will improve clarity in strategic direction and priorities, increase our transparency and support improved internal business planning activities. Importantly, this approach will help provide our staff and our customers with a single, cohesive view of Icon Water, our priorities and our performance.

Work to improve this alignment will commence in late 2022, so that the framework is in place for the first year of the 2023–28 regulatory cycle (i.e. the 2023–24 Annual Report and 2024–25 to 2027–28 SCI).

Procurement

How we engage with the market is a key element to ensure efficiency and value of our investment activities. Icon Water currently operates a decentralised procurement operating model, governed by a Procurement Framework. The Procurement Framework is underpinned by key principles of value for money, probity (fairness, transparency and accountability) and sustainability. Procurements across Icon Water vary based on complexity, risk and value.

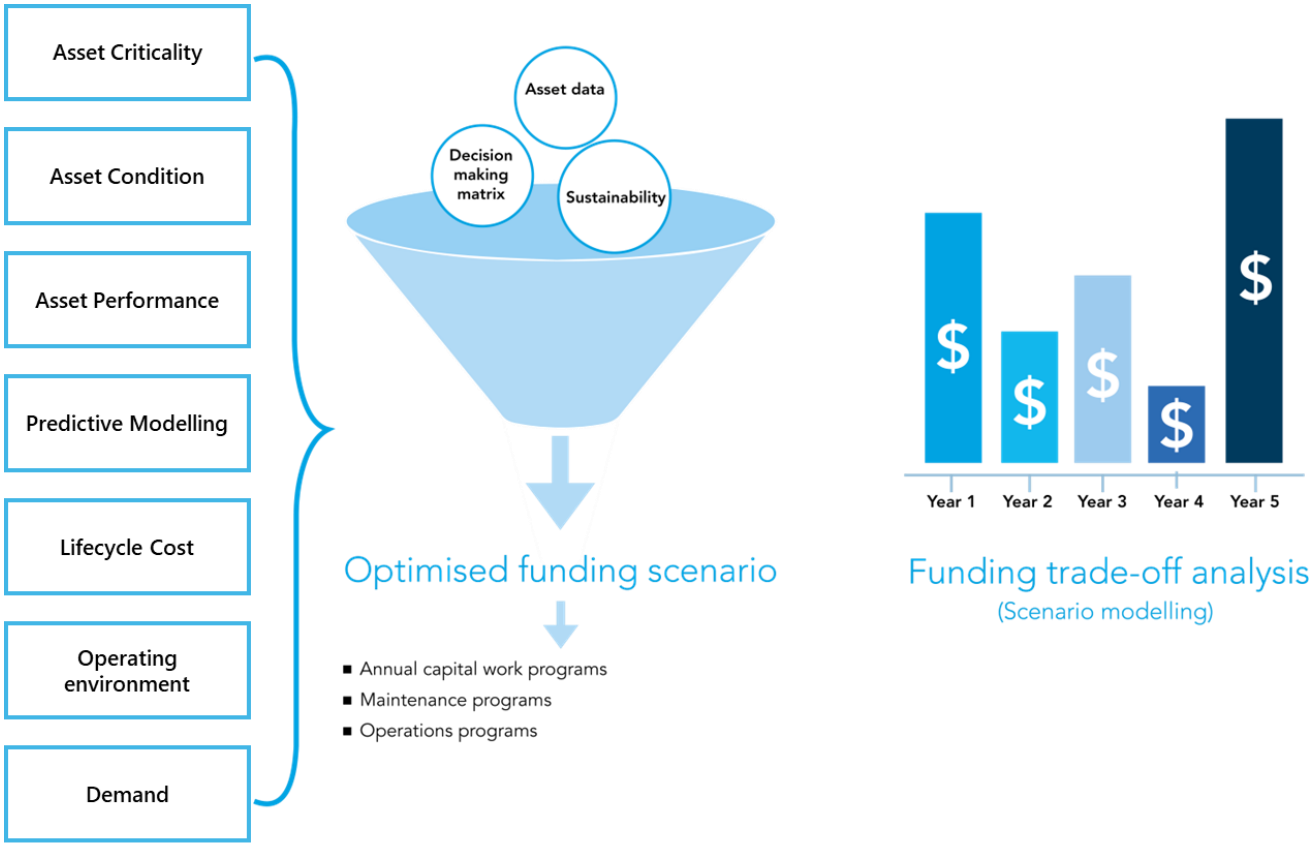
An analysis of Icon Water's Procurement Framework has identified improvements to mature its procurement function, enhance fit for purpose procurement processes and continue to drive value for money. The future procurement operating model will be tailored to align with different procurement categories, determined by risk and value (commercial and non-commercial). Improvements will be implemented over the next regulatory period, including planning for the security and resilience of Icon Water's supply chains (Security of Critical Infrastructure).

5.5 Investment planning and delivery

5.5.1 Introduction

Our asset management planning involves defining the optimal balance of cost, risk and performance to maximise customer value of our assets. Icon Water's asset management plans provide an overview of the lifecycle asset activities required to maintain customer service levels. Figure 5-8 shows the key factors that are considered in the determination of the optimal balance of investment across our asset portfolio.

Figure 5-8: Key factors in determining Icon Water's investment decisions



Source: Icon Water

Maintaining our level of service requires appropriate investment across the whole of the asset lifecycle. We recognise the importance of adopting this approach and our investments are planned and monitored from the initial planning through design, construction, operation, maintenance, renewal until final decommissioning and disposal.

Each investment decision is underpinned by an assessment of 'prudency' and 'efficiency'. As explained in Box 5-4, to ensure we achieve the best outcome for our customers we assess the criteria together so that we can deliver long-lived assets that are resilient to environmental conditions and continue to meet regulatory obligations and customer expectations over the long-term.

Box 5-4: Considering prudency and efficiency holistically

Holistic assessment of prudency and efficiency

For expenditure to be included in Icon Water's revenue allowance, the Commission must deem that it is both '**prudent'** and '**efficient'**.

Expenditure is considered **prudent** if the project, program, or activity would reasonably be expected of a utility operating in the circumstances.[2] Generally, this includes expenditure required because of legal obligations, new growth, renewal of existing infrastructure, or expenditure that achieves an increase in the reliability or quality of service that is endorsed or desired by customers. In other words, there must be a demonstrated need for the project, program or activity, and a substantiation of the benefits.

Expenditure is **efficient** if the project, program or activity is proposed to be delivered with the best value for money. Efficiency is typically assessed by reference to available alternative delivery options, assessment of lowest cost over the life cycle, and the 'deliverability' of the proposed project, program or activity.

While expenditure must satisfy both criteria, the concepts of prudency and efficiency are often related. For example, a utility procuring an insurance contract may need to evaluate the prudency of its chosen level of cover by reference to the costs (or 'efficiency') of the available policies. It also follows that a prudent level of cover may not necessarily be the lowest cost option available.

Similarly, prudency and efficiency may be in tension when considering long-term investments where the benefits may not immediately outweigh the costs. For example, prudent investments in climate change resilience and adaptability may not be the lowest cost option in the short-term.

Icon Water considers that the prudency and efficiency of expenditure should be considered together, rather than in isolation.

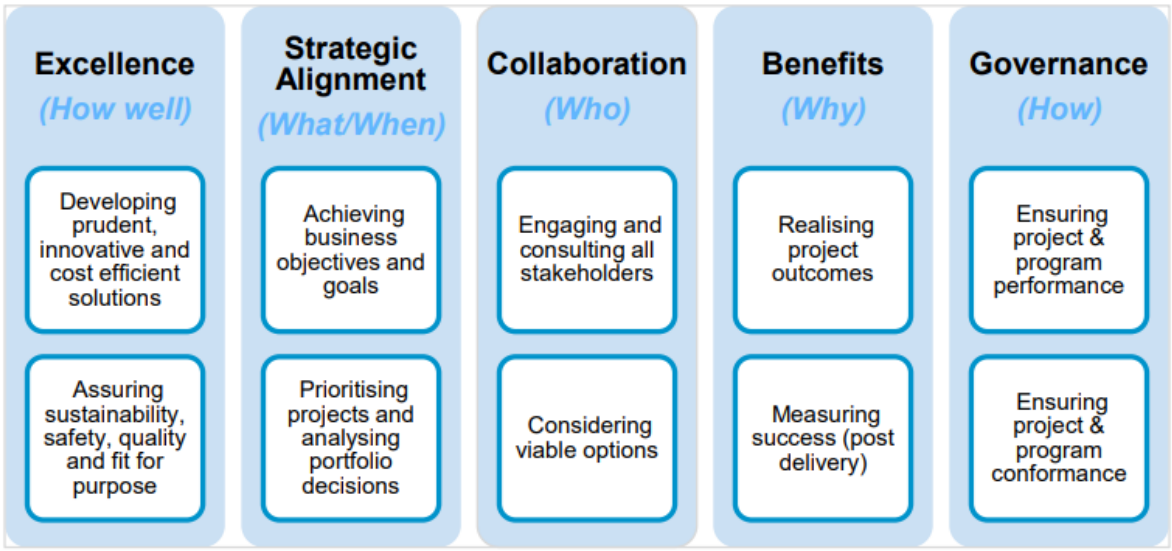
5.5.2 Governance

Icon Water's Investment Planning and Delivery (IPaD) Guide describes the processes for the initiation and approval of all significant investment projects. These governance processes ensure that only projects that are efficient, prudent, and benefit the community and stakeholders are approved. Our IPaD process was acknowledged by other water utilities during previous WSAA asset management benchmarking as an example of leading practice.

Five guiding principles are applied across the organisation for decision making and project planning. Figure 5-9 illustrates the guiding principles and focus areas for investment planning and delivery.

[2] Independent Competition and Regulatory Commission, *Final report: Regulated water and sewerage services prices 2018–23*, May 2018.

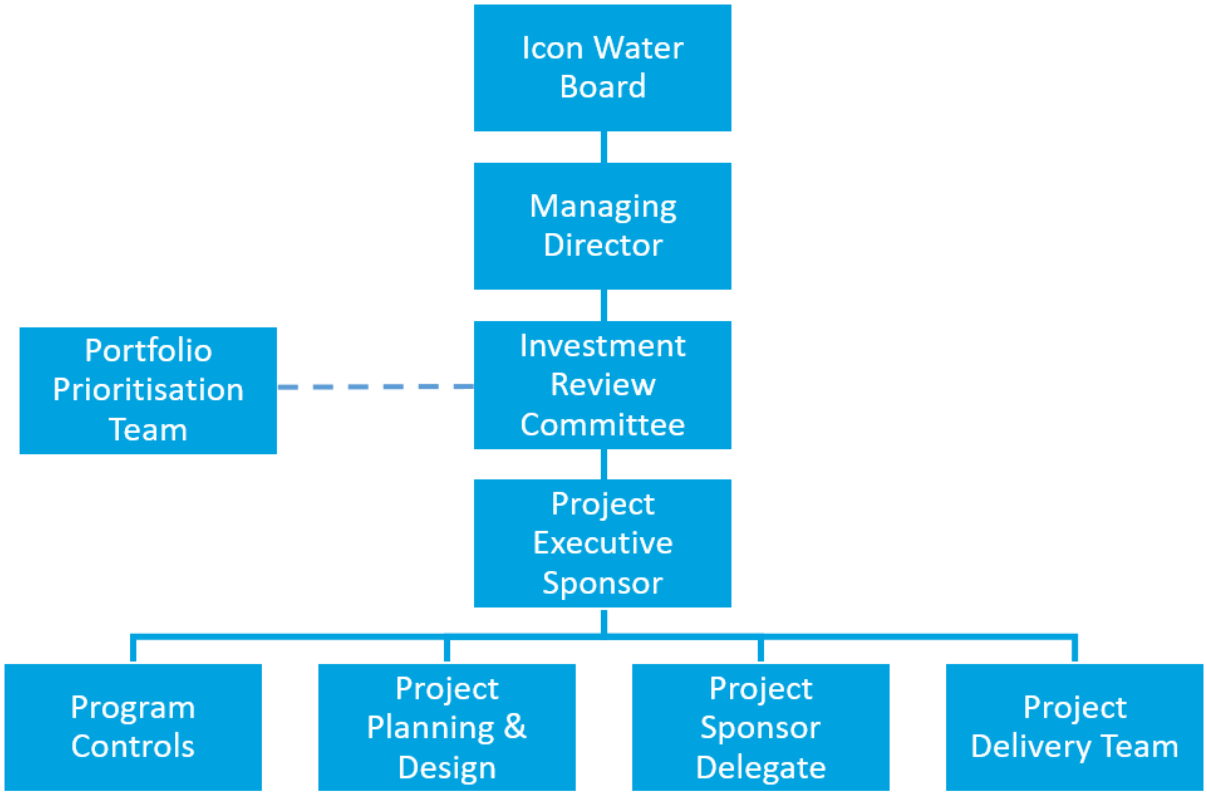
Figure 5-9: Icon Water's guiding principles for investment planning and delivery



Source: Icon Water

It is largely a governance framework and forms part of Icon Water's IMS. The IPaD interacts with multiple IMS policies and is aligned with our *Administrative and Financial Delegations Schedule (Delegations Schedule)*. The governance hierarchy is displayed in Figure 5-10 below.

Figure 5-10: Investment decision-making governance hierarchy



Source: Icon Water

Investment Planning and Delivery process

The end-to-end IPaD lifecycle consists of three main phases (initiate, implement and integrate) and eight stages (identify, envisage, evaluate, plan, develop, execute, accept and monitor) with progression along the process controlled by 'stage gates'. Each type of investment will flow through the lifecycle in a different gated process that is appropriate for the size, complexity and risk profile of the project as described in the IPaD Guide. The gating process is a system where each 'gate' requires authority for a project to proceed according to the investment planning and delivery lifecycle. Figure 5-10 illustrates how the gating process corresponds to the investment planning and delivery lifecycle.

Figure 5-11: The Investment Planning and Delivery lifecycle

Source: Icon Water

Portfolio Prioritisation Team

The purpose of the Portfolio Prioritisation Team (PPT) is to ensure that all projects are vetted prior to commencing the IPaD process by appropriately considering and managing them based on their feasibility, priority, complexity and strategic alignment.

The PPT is made up of representatives from across the business who meet on a regular basis to assign or review impact scoring (extreme, strong, moderate, low or none) at the identification of an initiative and at each stage gate of the IPaD process. The impact scores are assigned according to the framework for each assessment criteria (renewal, regulation, growth, sustainable value, customer and workplace – refer to Figure 5-12) within the Portfolio Analysis Tool (PAT).

The PAT was developed internally to align with both business-as-usual (renewal, regulation and growth) and strategic objectives (customer, sustainable value and workplace) and implemented in June 2019. The PAT was independently reviewed in 2020[3] to ensure that it provided a transparent, defendable and reliable method for comparing projects within the overall portfolio.

The impact scores against each of the six assessment criteria are combined with weightings to give a numerical Strategic Value score. The weightings of each driver are reviewed by the Executive Group on a regular basis using pairwise analysis where the importance of each driver is compared relative to another allowing weightings to be quantified.

[3] Cardno, *Icon Water Prioritisation Framework Review,* December 2020

Figure 5-12: Six assessment criteria used in the portfolio analysis tool

Renewal	Continues to meet existing minimum customer service levels
Regulation	Maintains compliance to legislative, contractual and regulatory obligations.
Growth	Ensures community growth is supported by fit-for-purpose assets and service levels
Customer Experience	Delivers additional value to the customer, over and above minimum service levels
Sustainable Value	Delivers additional financially sustainable value to the business
Workplace	Delivers improvements to workplace efficiency, safety (above level of regulatory compliance), culture, innovation, diversity and engagement (over a yearly timeframe considering frequency)

Source: Icon Water

Combining the Strategic Value score with cost information allows analysis of our investment program at a portfolio level to examine potential constraints and how these may impact which projects to progress through the IPaD process.

Investment Review Committee

In order for Icon Water to apply consistency of analysis across the entirety of its investment program, it is necessary for proposed projects to be considered by a central body. The Investment Review Committee (IRC) fulfils that function.

The IRC meets monthly (or as required) to review all stage gate submissions and change requests for tier 1 and 2 projects. The IRC will reject, approve or endorse a submission based on its ability to satisfy the guiding principles for investment planning and delivery.

Steering Committees

Temporary steering committees are formed as needed to provide additional governance to key strategic initiatives. Steering committees are currently in place to oversee the development and transitioning to the new corporate and customer services sourcing strategy, security, major end of life assets and digital technologies.

Corporate and Customer Services Sourcing Steering Committee

A steering committee was established to govern the review of our corporate and customer services delivery model and transition from the current arrangements in the Corporate Services Agreement (CSA) and Customer and Community Support Agreement (CSCSA). **Attachment 1: Our role, operations and business context** provides further detail of these activities. The role of the steering committee is to provide governance, to ensure delivery of the intended outcomes within the approved boundaries of scope, time and cost, while achieving the intended strategic and organisational benefits.

Major End of Life Assets Steering Committee

In 2021 we developed an updated 50 year wastewater strategy, which built on the previous iteration of the strategy completed in 2010. The 2021 strategy outlines options for the Canberra sewerage network including capacity required at LMWQCC and Fyshwick Sewage Treatment Plant (FSTP). The 2021 strategy considers revised scenarios and objectives as a result of changes to the ACT's population, regulation, technology and environmental factors since completion of the 2010 strategy

Additionally, FSTP and major components of LMWQCC are reaching end-of-life or capacity constraints within the next 10 – 20 years. Costs for renewal and potential expansion of these components will be significant. Works on these interacting upgrade / renewal projects will need to commence in parallel with ongoing strategy refinement to allow sufficient time for options selection, design development and construction to be undertaken as needed to meet infrastructure requirements.

Given the scale and complexity of the works, their interactions, and their strategic importance for Icon Water, a dedicated governance group was established to oversee the coordination between updating the Strategies and project development work. The Major End of Life Asset Steering Committee (MELA) is accountable to the Executive Committee.

The role of MELA is to provide oversight on specific technical matters to each of the identified initiatives which are beyond the scope of the IRC. Investment decisions related to the initiatives (including additions or deletions of scope) are still in accordance with the IRC Charter.

MELA provides a senior forum to which risks, priorities, resourcing issues, decisions, and other matters can be escalated for resolution. It provides the forum to discuss technical details of any dependencies which may lead to changes to each of the identified initiatives' approved scope of works, budget, or key milestones however it does not replace the role of project panels and project sponsorship.

Box 5-5: Example of temporary steering committee role to support key strategic initiatives

Case Study: Lower Molonglo Water Quality Control Centre (LMWQCC) major projects

The Major End of Life Assets Steering Committee provides technical oversight for the LMWQCC Biosolids Management Renewals and Secondary Treatment Upgrade projects due to the scale and complexity of the projects and their interdependency with the Wastewater System Strategy and LMWQCC Masterplan.

These two projects follow the traditional IPaD process, there have been additional layers of governance around the multi-criteria analysis (MCA) that has been applied in order to assess the technology options for each of the projects. The User Requirement Specifications (URS) outlines the performance and operational criteria for the system and informs the selection of suitable technology. Multiple levels of requirements are developed starting from the top-level needs statement, such as *"The system shall process waste solids in a compliant, efficient and effective way*" for the Biosolids Management Renewals Project.

The mandatory and non-mandatory MCA criteria are then developed from the URS. Mandatory criteria are based on a pass/fail assessment. For options that pass all mandatory criteria, the secondary set of scored criteria identify the relative benefits and constraints of the various options. These weighted scores will help to identify the preferred solution(s).

Whilst MCAs are a common tool in options selection at Icon Water, additional levels of criteria were included in the MCA for these projects. The MCA does not include Net Present Value or value for money analysis. The financial assessments are combined with MCA results once the MCA is complete. This is to ensure that technology options assessed are able to meet the user requirements. The business case for each of the projects will combine the assessments to identify the preferred solution based on both non-price and price assessment.

Security Committee

The purpose of the Security Committee is to provide oversight for security related initiatives and operations at Icon Water. The committee is responsible for: whole-of-business security governance; physical security; information security (including cyber-security); personnel security; personal security; setting security priorities using a risk-based approach and endorsement of security related artefacts.

The Security Committee also oversees our compliance with government critical infrastructure risk management and resilience obligations, including the Security of Critical Infrastructure (SOCI) Act 2018, which seeks to manage risks to national security relating by mitigating security hazards that could impact on the operation and supply of critical infrastructure including water supply and wastewater treatment services. Where the committee identifies gaps in our security this may lead to projects to ensure that we meet our obligations.

Digital Design Authority

The Digital Design Authority (DDA) is a governance body to manage and govern the implementation and use of digital technologies in Icon Water.

The DDA aims to improve and guide how digital technologies are optimally designed, developed, managed, deployed and maintained across Icon Water, in alignment with our business vision, strategies, goals, objectives, guidelines, principles, policies, procedures and instructions. Stakeholders include, but are not limited to, Digital Technology Group (DTG) Teams, DTG Project Delivery teams, Business Units and Teams and External Stakeholders.

DDA participates and provides advice, assessments and approvals in other governance bodies, including the Business Design Authority (BDA) which is responsible for business process changes, project governance through the PPT, investment approvals through the IRC and others, as required.

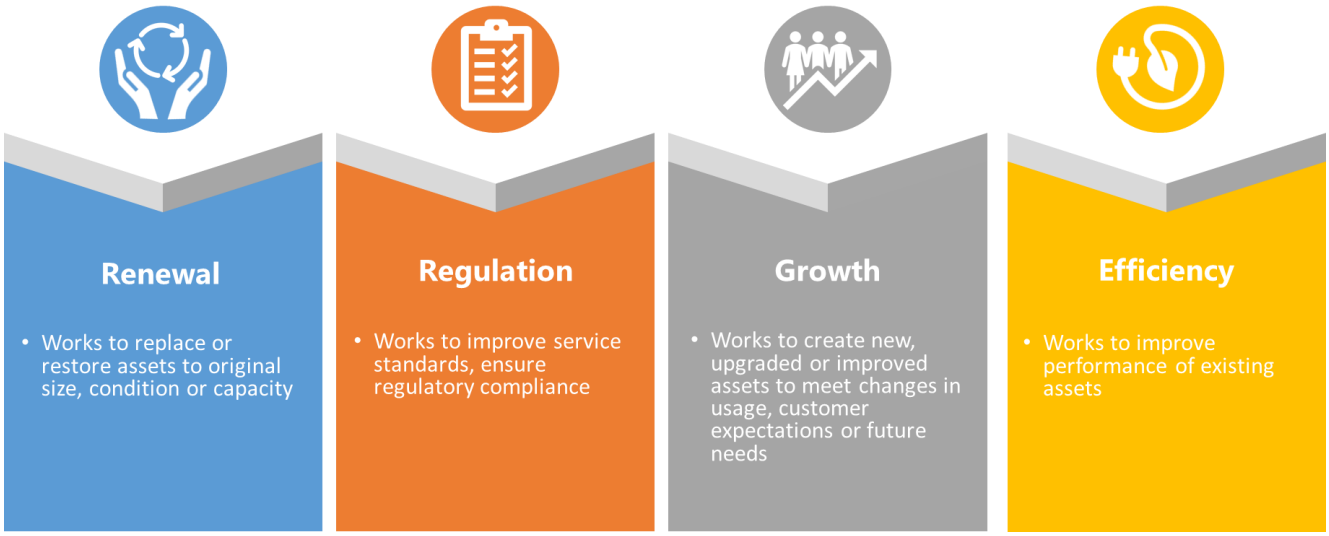
DDA endeavours to promote best practices in design, procure, build, test, deliver, operate and maintain of Digital Technologies, to ensure business users' needs are met, efficiently, effectively, sustainably and securely, in the short and long term.

5.5.3 Cost driver classification

Icon Water classifies capital works investment against four cost drivers: renewal, regulation, growth and efficiency (Figure 5-13). Whilst most projects will have multiple drivers, we seek to identify the primary driver to classify the works.

The renewal category captures investment in maintaining, upgrading, renewing and replacing water, wastewater and corporate assets. Regulation includes project costs aimed at ensuring Icon Water's ongoing compliance with existing or new regulatory obligations. Growth capital investment includes spend in new water, wastewater and corporate assets, and where this is triggered by land release, alternative funding arrangements (ie. Water and Sewerage Capital Contributions Code) may be utilised. Projects that are designed to deliver cost savings are included in the efficiency category.

Figure 5-13: Icon Water's cost drivers



Source: Icon Water

5.5.4 Data driven decision-making

Decisions about the degree of inspection, maintenance and replacement programs are informed by many different types of asset data.

Asset data includes condition assessment information from vibration analysis, equipment performance and energy use, maintenance history, photographs, CCTV and LIDAR (light detection and ranging). Asset data also includes performance information we collect, including laboratory samples of water, wastewater and air quality as well as online monitoring of flow and quality parameters. This is supplemented by models which allow for extrapolations and projection of demand and climate events. Collectively, the asset data informs the targeting of onsite inspections or placement of additional sensors. Refer to the Box 5-6 for further information on our draft framework for asset health management.

Box 5-6: How asset health informs our investment decisions

Case Study: Framework for Asset Health Management

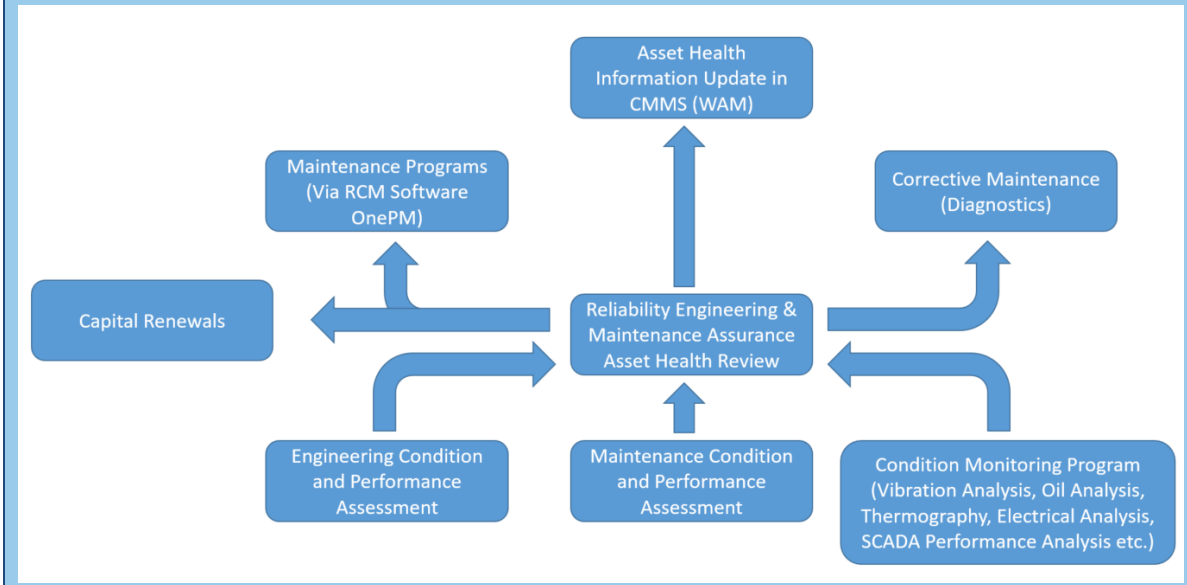
Icon Water is currently developing a Framework for Asset Health Management. The framework aims to maximise value from assets (ie. reliability) in alignment with our asset management objectives outlined in the Strategic Asset Management Plan and the various asset management plans.

Condition assessment (asset health assessment) is an important part of Icon Water's asset management and enables the condition of assets to be determined in a systematic way. Condition assessment also enables asset condition reporting and identification of the requirements for repairs or renewal that feed into our long term capital plan.

Asset health management consists of two key components: asset condition and asset performance. While individually condition and performance monitoring are not new at Icon Water, we are maturing in our approach to overall asset health management and how we use this data to inform our investment decisions.

Our approach

The diagram below provides an overview of Icon Water's asset health management process. The diagram shows the various ways that the data is gathered and then how it is stored in our systems and used to inform our various programs.



The condition and performance of assets are monitored and assessed with the frequency of condition inspections varying with the type of assets involved, their criticality, accessibility and the inspection methodology required. The level of asset information is typically reflective of assigned asset criticality. While we have this is in place for a number of our assets the need to extend the information available to aid in decision making is a continual focus area.

Our information is recorded in a number of systems including the works and asset management system, modelling software, SCADA, Laboratory Information Management System (LIMS). There is a focus on ongoing improvement to increase the connectivity and visibility of the information to allow for consolidated and integrated reporting, and access to information beyond the direct users of the systems.

Information is considered at both an equipment level as well as across a portfolio of common equipment to allow for development of a common equipment strategy. For example, most pumps will use the same approach to maintenance and renewal, with some modifications depending on the operating context or

criticality of the equipment. Information may also be assessed at a "system" type level – where a broader suite of performance criteria will be considered to identify system reconfiguration, renewal or upgrade.

5.5.5 Trade off: capex versus opex

Many investment activities undertaken by Icon Water involve a decision on how to balance capital (capex) and operating (opex) expenditure. These decisions have a direct impact on the bills paid by customers to cover Icon Water's costs – specifically how much customers pay and the timing of cost recovery. The differing bill impacts arise partly because capital and operating expenditure are treated differently under the regulatory framework:

- **Capital expenditure** is reflected in customer bills through two building blocks: *return on capital* (ie. financing costs) and *return of capital* (ie. depreciation). Typically, water and wastewater capital investment involves long-lived assets that are depreciated over many years. This means the costs of the asset are recovered from customers over the life of an asset, helping to keep prices stable. However, one consequence of long depreciation periods is that customer bills will also increase to cover the financing costs (*return on capital*) of the asset which is calculated at the prevailing Weighted Average Cost of Capital (WACC). As a capital-intensive business, Icon Water's return on capital makes up approximately 20 per cent of its regulated revenues. The return on capital can change over time with the WACC which reflects current market conditions.
- **Operating expenditure** is included as a single building block in Icon Water's revenues. Under the regulatory framework, Icon Water's operating expenditure is calculated using *the base-step-trend* method (see **Attachment 6: Operating Expenditure**). This approach means Icon Water's approved opex is recovered within the five year regulatory period. As such, dollar-for-dollar, opex tends to result in higher bills during the regulatory period compared to capital expenditure.

External drivers such as changes to accounting standards or third-party service offerings can also influence this split. The shift in the technology landscape to Software-as-a-Service (SaaS) outlined in Box 5-7 is an example where a capability that was often historically capital in nature now needs to be expensed, although there are circumstances when certain SaaS costs may be capitalised under AASB 16 Leases and AASB 138 Intangible asset. Where a shift from opex to capex occurs for technology related expenditure, due to the shorter depreciation life (5-10 years) the short-term impact on customer prices may be less than longer-lived engineering assets.

Box 5-7: Moving our Information and Communications Technology (ICT) services to the cloud

Case Study: Software-as-a-Service

As the external technology landscape continues to change, the shift towards cloud-based SaaS offerings – a model in which software is provided on a subscription basis and is located on external servers rather than in-house – means that more traditional ICT installations are no longer offered by service providers.

We are already seeing vendors introduce new technology to replace legacy applications, requiring their customers, including Icon Water, to update systems and move to cloud/SaaS offering. This in turn has created a shift from traditional capital focussed investments to a more operating expenditure dominant model. This model is providing business improved opportunities arising from the convergence of ICT, OT and Internet of Things (IoT), and in particular the ability to leverage process automation and the potential for employee and customer self-service facilities.

During the 2023–28 regulatory period we anticipate there may be a shift towards the consumption of cloud-based services for hardware and software. We are currently undertaking analysis to understand the trade-off of substituting from capex to opex for planned digital investments, to ensure we are providing services at an efficient cost and complying with accounting standards. As this shift is occurring at the same time as our new sourcing strategy, this creates a once-in-a-generation opportunity for Icon Water to shift its ICT operating model and keep pace to reduce risk and cost to the digital portfolio.

In addition to different regulatory treatments, the balance of capital and operating expenditure must also consider long-term planning requirements for the water and wastewater networks. A classical trade-off faced by many utilities is whether to invest in maintaining ageing assets (operating expenditure), or whether to invest in asset renewals (capital expenditure). As assets age, maintenance costs typically increase and service quality may decline. There is also an increased risk of asset failure which may require a more urgent and elevated capital expenditure response.

By making early and targeted investments in asset renewal it is possible to reduce both capital and operating expenditure over the long-term. This can help mitigate the risk of sudden and unforeseen increases in costs when major assets reach end-of-life or fail. However, it is also important to achieve the right balance of expenditure to ensure that it does not sacrifice affordability in the short-term while targeting savings which may be in the far future or uncertain. See Box 5-8 for a case study of this trade-off.

Icon Water's approach to asset management, and our proposed capital expenditure program, provides proactive and measured investment to promote affordability over the long-term while maintaining the high-quality water and wastewater services our customers expect. Icon Water also recognises that investment decisions should not just be driven by economic considerations, but also reflect customers' service priorities and willingness-to-pay for activities that may extend beyond Icon Water's core mandate to provide water and wastewater services. Therefore, Icon Water's operating and capital expenditure proposals have been heavily guided by the outcomes of our engagement program.

Box 5-8: Balancing cost, risk and performance in how we manage our sewers

Case Study: Sewer interventions

Icon Water aims to optimise the balance between cost, risk and performance. Our sewer main infrastructure is ageing, so our mains maintenance, renewal and replacement programs are essential. This not only reduces unplanned outages, but also avoids catastrophic failures and costly repairs in the long term. We undertake these interventions to balance the long-term impact of unplanned outages from pipe failures, with the price customers pay for wastewater services. This is part of ensuring we can maintain our overall service levels over the long-term.

Our current interventions and performance

Our intervention program for sewer mains considers a combination of short-term (operational expenditure) and longer term (capital expenditure) responses. We also have interventions that target the sources of the problem. This includes our management of liquid trade waste customers, asset clearance zones and our 'Free the Poo' education campaign.

In 2018–23, our target level of service was 40-66 breaks or chokes per 100km on average. We met this target in the wet years, but not in extended dry periods (ie. the first two years of the regulatory period). Our breakage rates are comparable to utilities that have similar geographies as ours, such as Queanbeyan-Palerang Regional Council and Wagga Wagga.

Achieving industry average

Using industry leading electronic design automation software, we have looked to optimise the current program, and assess the feasibility and benefit of significant increases in the overall program.

Assuming average climate conditions, to achieve industry average blockage rates (30 breaks and chokes/100km of mains), Icon Water could increase the intervention program. For a lower total cost solution, a larger cleaning program could be performed, however this will cause issues in the longer term. For a more permanent solution, the renewal/replacement program could be expanded upon, but this would be cost prohibitive. A balanced solution would take approximately 20years, and a significant increase in annual expenditure from around $12m/year to close to $42m/year in 2037. This would require a 10% increase in customer prices on the typical annual water and wastewater residential bill.

2023–28 program approach

Given overall customer satisfaction and performance levels, for 2023–28 we are targeting a similar customer service level to what we have currently. We will use our Enterprise Data Analytics (EDA) model to project failure rates and identify priority mains for intervention based on risk.

We have adjusted our measures around reliable wastewater services, responsiveness and customer service to better align with customer values and expectations. Previously, our measures focused on the average duration of an interruption. We have kept these measures and based on customer feedback have also introduced two new measures around crew response time.

We have also introduced a new measure of customers experiencing repeat interruptions, to provide greater transparency around network performance equity. Refer to **Attachment 3: Service standards** for more information on targets.

While aiming to minimise the total cost of the program, we will balance reducing network performance deterioration, supporting target service levels for each customer, and minimising risk to Icon Water, the community and the environment.

We will continue to explore ways of improving this program over the next regulatory period through: reviewing our model, increasing our levels of CCTV, investigating opportunities to deploy smart sensing in our network, continuing education programs with our customers and investigating the ability to deliver a more dynamic renewals program based on climate conditions.

Appendices: Supporting documents

Reference number	Appendix title	Author
5.1	Strategic Asset Management Plan	Icon Water

Abbreviations and acronyms

ACT	Australian Capital Territory
AMPs	Asset Management Plans
AMS	Asset Management System
AWA	Australian Water Association
BDA	Business Design Authority
CSA	Corporate Services Agreement
CSCSA	Customer and Community Support Agreement
DDA	Digital Design Authority
DTG	Digital Technology Group
EAMS	Enterprise Asset Management Strategy
EAC	Equivalent annual cost
EDA	Enterprise Data Analytics
EPA	Environment Protection Authority
FSTP	Fyshwick Sewage Treatment Plant
GIS	Geographical Information Systems
IAM	Institute of Asset Management
ICRC Act	*Independent Competition and Regulatory Commission Act 1997*
IMS	Integrated Management System
IoT	Internet of Things
IPaD	Investment Planning and Delivery
IRC	Investment Review Committee
ISO	International Organization for Standardization
LIMS	Laboratory Information Management System
LMWQCC	Lower Molonglo Water Quality Control Centre
MCA	Multi-criteria analysis
MELA	Major End of Life Asset Steering Committee
NPV	Net present value
OT	Operational Technology

PAT	Portfolio Analysis Tool
PPT	Portfolio Prioritisation Team
SAMP	Strategic Asset Management Plan
SaaS	Software-as-a-Service
SCADA	Supervisory Control and Data Acquisition
SCI	Statement of Corporate Intent
SOCI	Security of Critical Infrastructure
URS	User Requirement Specifications
UTR	Utilities Technical Regulator
WACC	Weighted Average Cost of Capital
WAM	Works and Asset Management
WSAA	Water Services Association of Australia