Price Proposal 2025–30

Securing Sydney’s water future: Our customer-centred plan for reliable services and sustainable growth

Sydney WATER

sydneywater.com.au

A message from the Chair and the Managing Director

Sydney Water has been at the heart of a growing city, delivering essential water services to Sydney, the Illawarra and the Blue Mountains for 136 years. For generations, we have actively managed the available capacity of our existing systems, operating and maintaining the network efficiently, keeping bills as low as possible while delivering high-quality water services to millions.

But the landscape has changed. The last few years have tested our systems like never before. Climate change and extreme weather events such as record droughts, bushfires and floods have exposed the vulnerabilities of our infrastructure in a system configured for a different time. The urgent need to support a rapidly growing population – and meet housing needs – has pushed our existing capacity to its limits. Our assets require significant renewal to meet the demands of today and tomorrow.

Recognising the scale and complexity of this challenge, together with our customers, Government and key stakeholders, we have embarked on a journey to secure Sydney's water future. Aligned with the NSW Government's housing supply strategy and the Greater Sydney Water Strategy, our Long Term Capital and Operational Plan (LTCOP) provides a clear roadmap for Sydney Water. It guides our infrastructure and operational decisions for delivering sustainable and resilient water services through to 2050.

By decentralising our water and wastewater systems and disrupting the west-to-east flow, we aim to move away from a heavy reliance on a few key assets. This includes building new infrastructure and reusing water, an approach that helps avoid expensive upgrades but also strengthens our resilience, supports healthier waterways, and reduces the long-term costs.

Building this future is not without its costs. We propose $16.6 billion capital investment and $9.9 billion operating expenditure over the next five years to maintain our day-to-day operations and deliver sustainable, long-term servicing solutions. For the 10-year investment forecast, we have rigorously moderated our capital investments, reviewing a variety of scenarios ranging from a $27 billion investment, up to $53 billion, and finalising an approach at $32 billion, that minimises the burden on customers while ensuring Sydney Water remains resilient and adaptable in an increasingly complex environment.

Our relationship with customers and stakeholders is built on continuous engagement, and we've clearly heard their priorities through Our Water, Our Voice – Sydney Water's largest customer engagement strategy. Customers want safe, clean, reliable water, protection of our waterways, and a sustainable water supply. These priorities shape our strategy through three key outcomes: delivering a great customer experience, ensuring water quality and reliability, and protecting the environment for future generations.

We recognise the strain of rising living costs on our customers and aim to keep these costs to a minimum by delivering $593 million of operating cost savings and $1.5 billion of avoided capital costs over the next five years. For a water and wastewater customer consuming 200 kL per year, we are proposing an increase of 18 per cent in 2025–26, followed by smaller annual increases and will uplift our support services with the assistance of the NSW Government. In 2025–30, we forecast we will enable up to $1 billion through payment assistance programs to support those in need.

Sydney Water's journey is one of resilience, innovation and dedication to the communities we serve. While challenges like population growth and climate change are significant, these challenges also bring opportunities for innovation. By embracing change, we are meeting today's needs, providing essential services that reflect the evolving demands of our city, and create a better life with world-class water services now and for the future.

Roch Cheroux
Managing Director

Grant King
Chair

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Reader notes

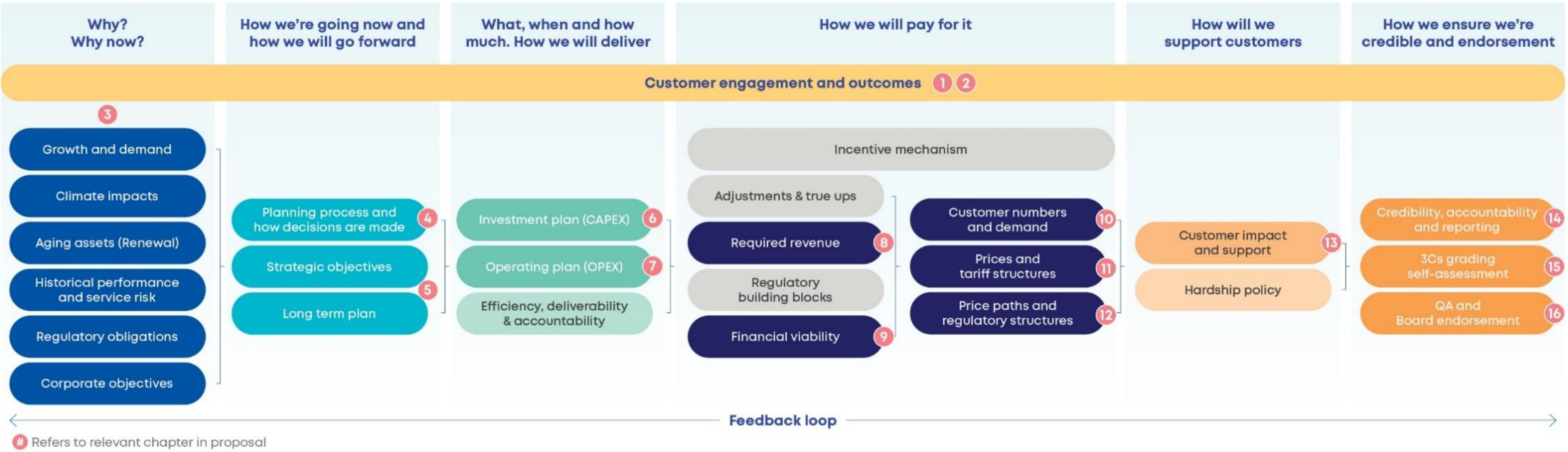
Sydney Water delivers a price proposal to the Independent Pricing and Regulatory Tribunal (IPART), this time for five years, to ensure it is a prudent, efficient plan that is in the best interests of our customers and stakeholders. IPART will review this plan then deliver a draft report on its findings before determining the maximum prices Sydney Water can charge for its services from 1 July 2025.

This is the first proposal prepared in accordance with IPART's new 3Cs framework, released in July 2023, focusing on customers, cost and credibility. The default length of a determination period is five years and this is referenced consistently throughout the proposal. However, the 3Cs framework also requires a 10-year outlook which is outlined in more detail in the chapters. In addition, we provide a long term view to 2050. Timeframes are clearly outlined throughout the proposal.

The new 3Cs framework outlines 12 guiding principles; six customer principles, four cost principles and two credibility principles. While this price proposal addresses all 12 principles in their entirety, three focus principles have been chosen, reflective of customer priorities, to help guide our price proposal: customer outcomes; balance risk and long-term performance; and equitable and efficient cost recovery. A summary of how these are addressed for each chapter is provided at the start of each chapter.

The price proposal should be read in conjunction with the appendices and attachments, which contain detailed information about aspects of our proposal. A list of reference materials is provided at the start of each chapter and are available in the reading room.

How the chapters help tell the Price Proposal story:



Additional reader notes

Years indicated refer to financial years:

- 2025–30 refers to the period between 1 July 2025 and 30 June 2030
- 2025–2035 refers to the period between 1 July 2025 and 30 June 2035.

The terms ‘2020 determination’ and ‘current determination’ are used to refer to IPART’s determination of prices for the period 1 July 2020 to 30 June 2024.

The term ‘2025 determination’ is used to refer to IPART’s upcoming determination of prices for the period 1 July 2025 to 30 June 2030.

Our price proposal presents dollar amounts in either ‘nominal’ (with inflation) or ‘real’ terms (without inflation), depending on the context. ‘Nominal dollars’ show the amount you would pay in the year the money is (or was) spent. ‘Real dollars’ are the result of a calculation that converts nominal amounts into dollars for a common year, using either past or future rates of inflation. Real dollars allow for a better comparison between amounts spent in different years because the effect of inflation has been removed.

In general, in our annual and special information reporting to IPART, we use nominal dollars for the annual time series for values in the current determination period (for example, operating cost and revenue). This is in line with IPART submission guidance.

In this proposal, IPART requires that we show all dollars as at 1 July 2024 (that is, 2024–25 financial year dollars, or real dollars). Future costs and prices are also shown as at 1 July 2024, excluding the impact of future price inflation. Bill impacts are shown as at 1 July 2025.

Supporting documentation for this proposal uses either nominal or real dollars, depending on the role the document played in our everyday operations.

To convert nominal dollars or real dollars presented in this document, we apply the values specified by IPART primarily based on the Australian Bureau of Statistics (ABS) All groups CPI Australia data:

To convert	Use	Using
$2019–20 into $2020–21	3.8%	(Jun qtr. 2020–Jun qtr. 2021, All groups CPI Australia)
$2020–21 into $2021–22	6.1%	(Jun qtr. 2021–Jun qtr. 2022, All groups CPI Australia)
$2021–22 into $2022–23	6.0%	(Jun qtr. 2022–Jun qtr. 2023, All groups CPI Australia)
$2022–23 into $2023–24	3.8%	(Jun qtr. 2023–Jun qtr. 2024, All groups CPI Australia)
$2023–24 into $2024–25	3.0%	(LSEG Data & Analytics Mean Consensus Inflation forecast as at 18/01/24)
$2024–25 into $2025–26	3.1%*	(LSEG Data & Analytics Mean Consensus Inflation forecast, as at 18 January 2024)

** For bills that are presented in $2025-26 only. To de-escalate nominal expenditure forecasts to $24–25, we have assumed 2.5 per cent inflation.*

To estimate nominal dollars in a future year (that is, any year after 2025–26), we have assumed an inflation rate of 2.5 per cent, which is the mid-point of the Reserve Bank of Australia’s (RBA’s) target band for general price inflation.

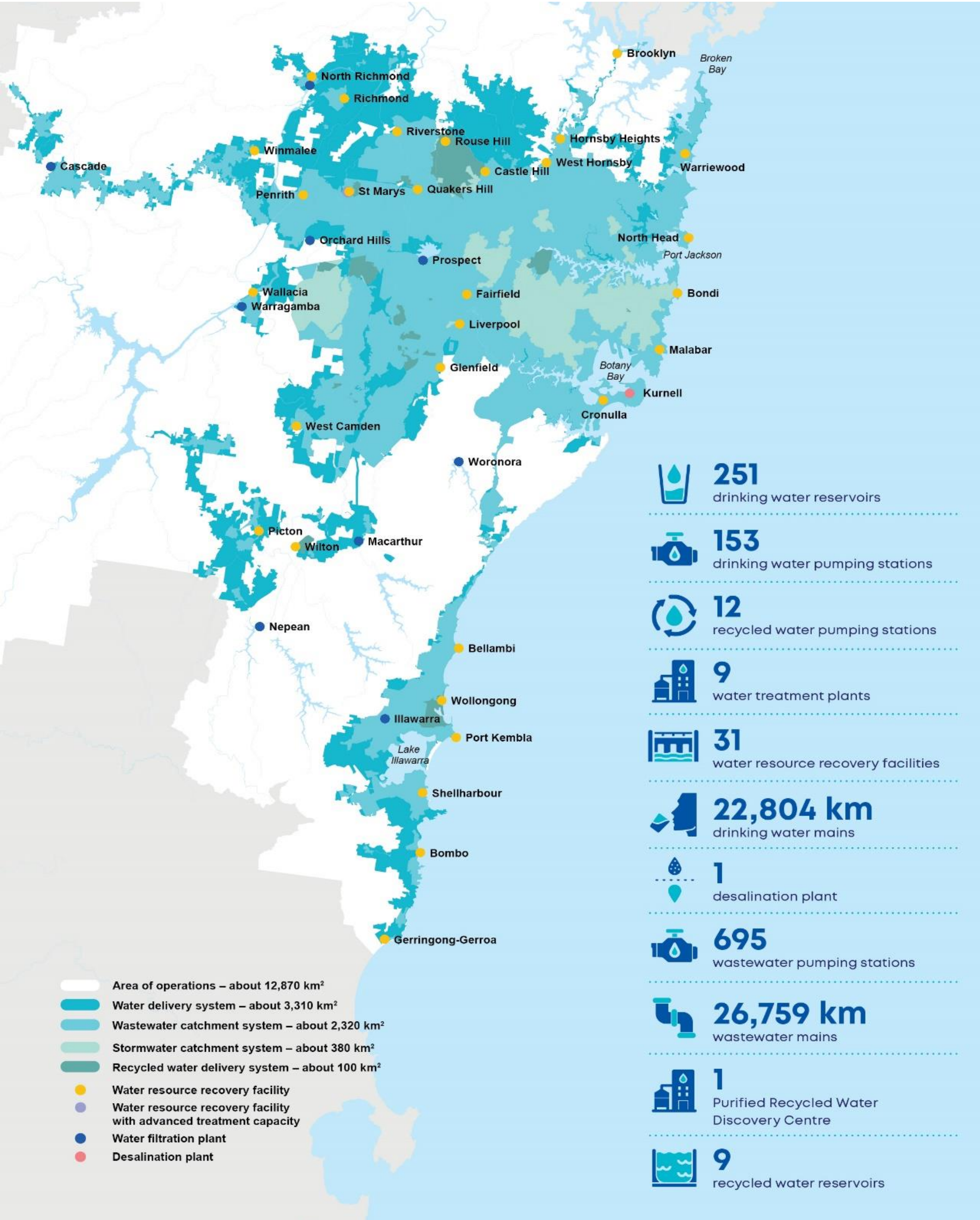
Executive summary

Sydney Water today

Sydney Water is Australia's largest water utility. We provide safe, high-quality drinking water to 5.4 million people and over 122,000 businesses every day across Greater Sydney, the Blue Mountains and the Illawarra. We are committed to maintaining healthy, world-class waterways that support thriving, liveable and sustainable cities.

We operate under the *Sydney Water Act 1994* (NSW) and our three main, equal, objectives are to:

- protect public health
- protect the environment
- be a successful business.



Our proposal is deeply connected to the priorities and expectations of our customers

Sydney Water has made a considerable effort over the last 10 years to focus on understanding and responding to customer needs, expectations and values and in July 2022, we launched Our Water, Our Voice, the largest customer engagement strategy in our history. Over 21 months and six iterative phases, we gathered insights from more than 13,000 customers, including business customers and developers, to understand their priorities and expectations. This is in addition to the many thousands of customers we speak with every day.

Our Water, Our Voice provided opportunities to explore customer preferences and trade-offs for service levels and investment options, using methods such as discrete choice experiments (DCEs), customer panels and feedback surveys. To ensure the reliability and credibility of these insights, we employed validation mechanisms including a Customer and Community Reference Group (CCRG), industry specialists and continuous research tools.

The central message from our research is clear: customers are **community oriented**, **cost conscious** and **future focused**. Our customers are satisfied with our service and expect us to continue delivering reliable water services now and for future generations. They want us to protect the environment and safeguard our waterways, and they demand efficient operations and innovative solutions to minimise leaks and enhance water recycling. And they want us to do this at an affordable price.

Sydney Water has actively engaged with customers to develop outcomes aligned with their preferences. Our three customer outcomes define **what** we aim to achieve for our customers.

Customer experience

Provide a great customer experience

Water quality and reliability

Deliver safe, clean, reliable drinking water every day

Environmental protection

Ensure we protect our waterways and environment now and for the future

Our plans are aligned to NSW Government, with a focus on housing and delivering the Greater Sydney Water Strategy

We work closely with the NSW Department of Planning, Housing and Infrastructure (DPHI) as well as local councils to ensure alignment with government policy, particularly the **NSW response to the National Housing Accord**. The accord emphasises sustainable housing, highlighting the importance of water efficiency measures such as using recycled water and integrating stormwater management to reduce environmental impact.

Water services are integral to its success, influencing everything from the feasibility and affordability of new developments to their sustainability and long-term resilience. Coordinated planning between all levels of government, developers and other stakeholders is essential to align housing growth with delivery of water infrastructure This ensures effective allocation of resources and integration with our existing network – where possible – or timely provision of new services in areas with no existing infrastructure.

As the **Greater Sydney Water Strategy** (GSWS) notes, our city's demand for water has approached the limit of its enduring supply. New sources of water are required. Given the historical impact of extreme events on water availability, and the likelihood that climate change will exacerbate the frequency of these events, we must secure rainfall-independent supply (RFIS) to ensure the services we provide to our existing system and new housing developments are resilient to extreme weather events.

Greater Sydney supports 25–30 per cent of Australia's GDP ($500–600 billion). Water services are a critical enabler of economic development, providing the essential infrastructure needed to support developments such as the Western Sydney Aerotropolis, attract investment, sustain daily operations, and meet the needs of businesses and residents.

> **‘Looking at the housing developments in Western and South Western Sydney … it’s vitally important that those areas have green landscapes and the ability to provide recycled water in those areas should be easy because they are new developments.’**
>
> *- Phase 4 service critical high business customer*

Our investments are also intended to minimise the economic impacts that very severe water restrictions would have on Sydney, NSW and the nation, and avoid the risk of water supply failure.

Our proposal also directly aligns with the NSW Government’s **Statement of Expectations** for Sydney Water and the GSWS.

The GSWS sets out priorities and actions for the delivery of water, wastewater, recycled water and stormwater services in a way that is integrated with land use planning. We work closely with the NSW Department of Climate Change, Energy, the Environment and Water, and WaterNSW to deliver our responsibilities under the GSWS’s five priorities:

- We understand how much water we need and when
- Our water systems are sustainable for the long-term and resilient to extreme events
- Our city is green and liveable
- Our waterways and landscapes are healthy
- Water management and services meet community needs.

And respond to current and future regulatory changes

Our proposal responds to current regulatory requirements and future regulatory changes that relate to the impact of our services on the environment and public health.

Current regulatory requirements that this plan responds to include Hawkesbury–Nepean Nutrient Management Framework (HNNMF) changes, new wet weather overflow Environment Protection Licence (EPL) requirements, and water filtration plant (WFP) enhancements to better meet the 2011 Australian Drinking Water Guidelines (ADWG) during periods of poor raw water quality.

We have made limited provisions in the next five years for the recent inclusion of a microbial health–based target in the ADWG and for future regulatory changes expected from the NSW Biosolids Regulatory Review, and excluded provisions for the expected new requirements from the independent review of the health-based guideline values for PFAS from the National Health and Medical Research Council. Full implementation of these changes and ensuing work required will be confirmed once there is more certainty around requirements, including implementation timeframes.

Our Operating Licence 2024-2028 also includes an approach to climate risk management to reach a state of advanced maturity under the NSW Climate Risk Ready Guide by the end of the licence period.

But achieving this comes at a challenging time …

We have carefully evaluated the challenges and opportunities that could impact – or enhance – our ability to meet our customers’ priorities. Our existing systems have served us well, but they are ageing and were built based on the technology and requirements available at the time.

The significant investments that took place in the middle of the last century have been crucial to our current service delivery. Customers in Sydney benefit from significant economies of scale, but this comes with over-reliance on Warragamba Dam and the Prospect Water Filtration Plant (which services 80 per cent of our customers) and three wastewater coastal systems at North Head, Malabar and Bondi (which service 60 per cent of our customers).

In the last few decades, we have connected systems with spare capacity to support growth and resilience. This has helped maintain downward pressure on bills, but much of this capacity has been exhausted. We are now at a critical point, with existing, new and emerging challenges creating an opportunity to rethink how we provide these essential services at the lowest long-term cost to our customers.

Continuing to transfer water from dams in Western Sydney to coastal wastewater outfalls will put more pressure on our systems. This arrangement will become less resilient to shocks and stresses over time, impacting our ability to support growth, housing supply and service standards.

For context, during the 2020–25 regulatory period, we experienced drought, intense heatwaves, bushfires, record annual rainfalls and floods – all within a few short years. These extreme events, which are likely to become more frequent due to a changing climate, have impacted our ability to meet some regulatory requirements.

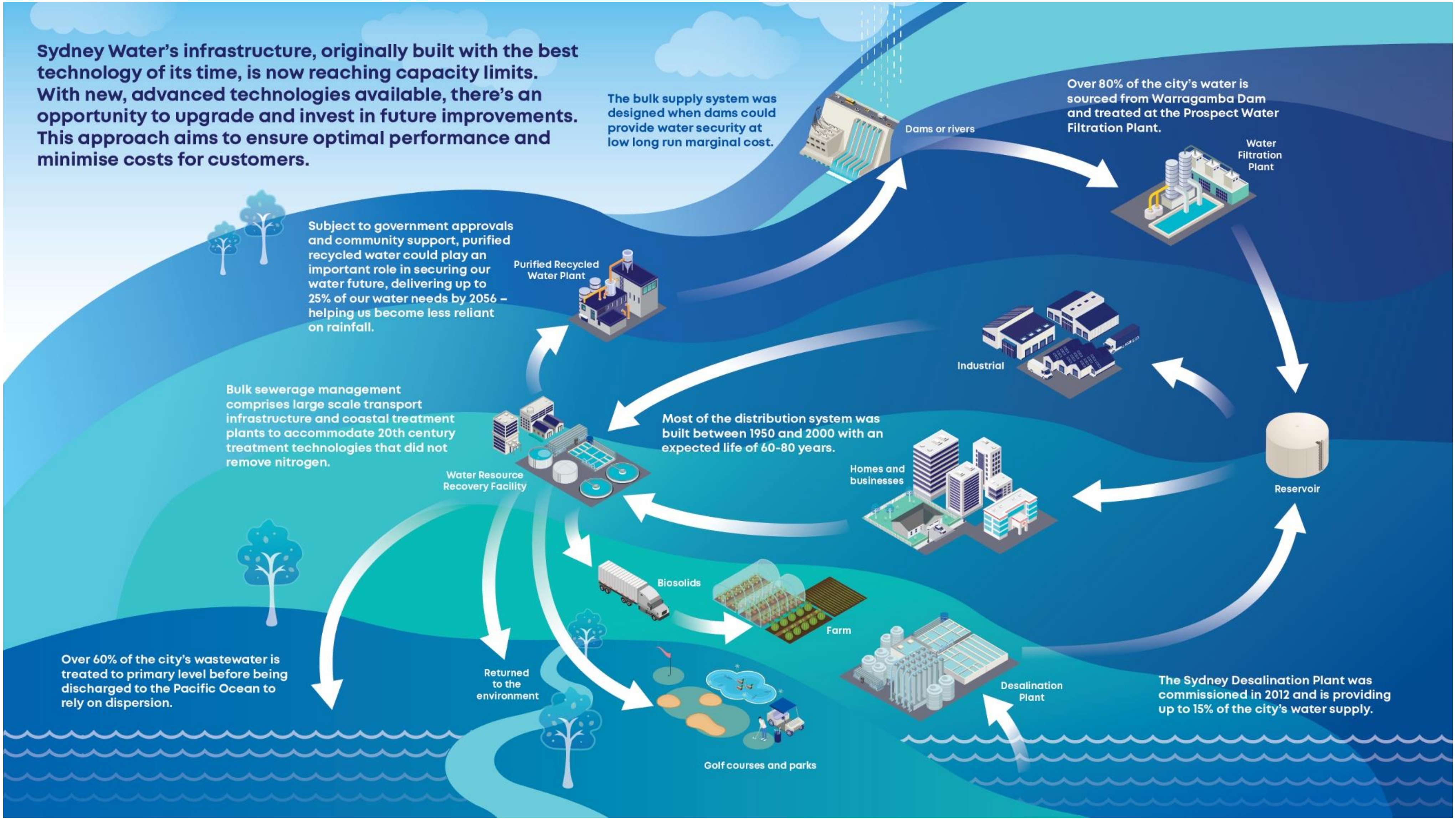
> **‘Water supply resilience needs to be improved to … better manage future droughts, as the impacts of drought are substantial.’**
>
> *- Phase 3 online survey respondent*

The COVID-19 pandemic also had a significant impact on infrastructure investment and service delivery, bringing short-term disruptions (including project cancellations, financial constraints and shifts in priorities) and a profound – and lingering – effect on global supply chains (including labour shortages, logistical bottlenecks and unpredictable supply).

While some future changes are unknown, we do know we must address the consequences of extreme weather events while managing ageing infrastructure, supporting government policies, and serving a growing population with higher expectations for social and environmental responsibility.

Each of these factors is significant on its own, but their impacts are magnified when they occur together, and pose an increased risk to our ability to maintain the standards of service that our customers expect and value. Our approach is to implement strategic solutions that address multiple problems at a lower long-term cost to customers. Embracing a digital future will ensure planning, delivery and operational efficiency, while improving the customer experience.

Proactive investment in new or replacement infrastructure is crucial to meeting our Operating Licence 2024-2028 conditions and delivering reliable services. The scale of our resilience challenge means that continued delays will leave us without the time or capacity to respond effectively. By staying ahead of potential crises, we can ensure our systems are robust and safeguard Greater Sydney’s water future.


Sydney Water's infrastructure, originally built with the best technology of its time, is now reaching capacity limits. With new, advanced technologies available, there's an opportunity to upgrade and invest in future improvements. This approach aims to ensure optimal performance and minimise costs for customers.
The bulk supply system was designed when dams could provide water security at low long run marginal cost.
Dams or rivers
Over 80% of the city's water is sourced from Warragamba Dam and treated at the Prospect Water Filtration Plant.
Water Filtration Plant
Subject to government approvals and community support, purified recycled water could play an important role in securing our water future, delivering up to 25% of our water needs by 2056 – helping us become less reliant on rainfall.
Purified Recycled Water Plant
Industrial
Bulk sewerage management comprises large scale transport infrastructure and coastal treatment plants to accommodate 20th century treatment technologies that did not remove nitrogen.
Water Resource Recovery Facility
Most of the distribution system was built between 1950 and 2000 with an expected life of 60-80 years.
Homes and businesses
Reservoir
Biosolids
Farm
Over 60% of the city's wastewater is treated to primary level before being discharged to the Pacific Ocean to rely on dispersion.
Returned to the environment
Desalination Plant
The Sydney Desalination Plant was commissioned in 2012 and is providing up to 15% of the city's water supply.
Golf courses and parks

We have an optimised investment pathway that provides direction to 2050 …

Our long-term plan is guided by the GSWS and presents a comprehensive approach to enhancing water supply and management across Greater Sydney for the next 25 to 30 years. The Long Term Capital and Operational Plan (LTCOP) is flexible, adaptive and considers different triggers and consequences of investment decisions, refined through engagement with customers, stakeholders and regulators.

The LTCOP is based on a detailed analysis of scenarios and investment portfolios, considering factors such as housing supply strategy, population growth, customer and regulatory expectations, asset condition, extreme weather, water supply resilience, risk appetite and deliverability.

> **'Water is our most important asset; there should be no argument about investing in this.'**
> *- Phase 3 online survey respondent*

To ensure future generations can enjoy the lifestyle our customers value today, the LTCOP takes a new approach to infrastructure investment. In the context of current challenges and technological advancements, our long-term plan focuses on two strategic planning opportunities to improve system configuration and service reliability:

- reconfiguring the west-to-east flow by further decentralising our largest water and wastewater systems
- building new RFIS to secure water supply and increase resilience associated with extremities of rainfall and reuse our resources more effectively.

Central to this is an adaptive planning pathway to expand desalination plants and build advanced recycled water treatment facilities that meet our new environmental requirements to reduce nitrogen discharge, and that can be adapted to purified recycled water (PRW) systems in time. The long-term plan, subject to government approvals, also helps avoid costly wastewater upgrades, reduces dependence on single assets, and enables healthy river and water security outcomes. It provides the direction to:

- ensure we provide resilient and reliable services
- integrate infrastructure servicing to deliver long-term value for customers
- maximise community value by protecting the health of our waterways and parks
- embed circular economy principles across our planning, delivery and operations.

> **'[Sydney Water] could just do what they're doing now. But then in 10 years' time, the population has grown by 20%, climate change has ramped up and we don't have the water we need.'**
>
> *- Phase 5 residential participant*

The LTCOP has been developed using best practice planning methodologies and tools to identify the optimal investment pathway. It has undergone independent external assurance across the options and timing of options and reflects the least cost and/or no regrets pathway to provide the infrastructure and services required to ensure we are delivering in the long-term interests of our customers.

… while balancing risk, cost and performance

Sydney Water's Risk Management Framework includes risk appetite statements and risk tolerance metrics. These are set by the Board and provide guidance on the level of risk that can be accepted in delivering our essential services.

How risk is balanced with cost to service and impact on performance is a critical component of this proposal. At a time when the cost of living and doing business is high, we have aligned our immediate expenditure needs with our long-term plan to deliver on our outcomes in an efficient and timely manner – as our customers expect of us.

We assessed the risks and benefits of adjusting our immediate investments and consulted with customers, stakeholders, regulators, and government to ensure our price proposal is fair and maintains existing service standards.

> **86% of participants supported building new water supplies for Greater Sydney to ensure water security, based on risk and cost.**
>
> *- Customer panel, Our Water, Our Voice*

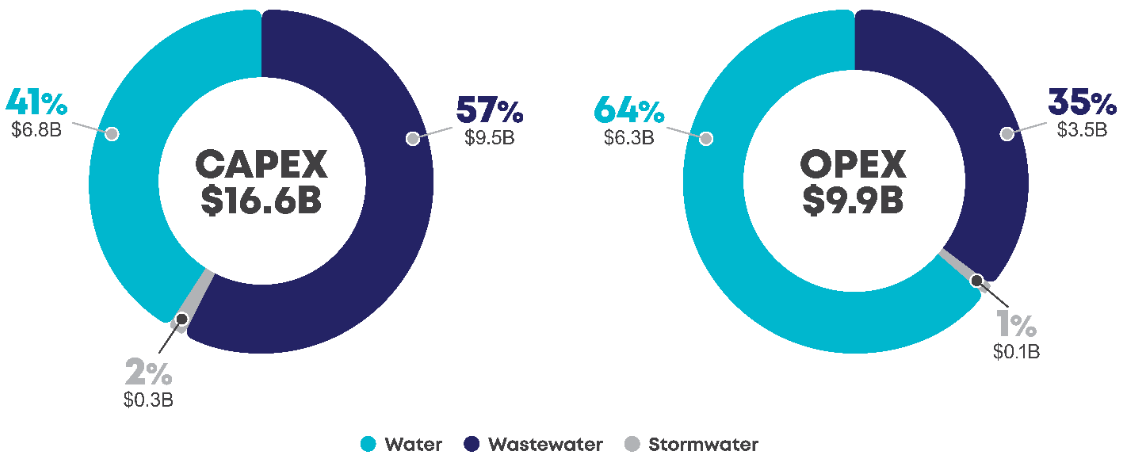
Our plan includes investment to ensure we maintain existing levels of service, delivering water services to support housing strategies, mitigating risks associated with single points of failure, and addressing climate change impacts through drought response and RFIS.

These investments enable us to take a proactive approach to providing our services and minimising costs to customers in the long term. Delaying investment will risk the security and reliability of our services.

> **80% of participants supported Sydney Water using a medium-cost, risk and performance profile when investing to prevent pollution.**
>
> *Customer panel, Our Water, Our Voice*

Our proposed expenditure of $26.4 billion over the next 5 years aligns with our customers' expressed cost, risk and performance preferences

Over the next five years, we propose to invest $16.6 billion in capital and $9.9 billion in operating expenditure across water, wastewater and stormwater services. This is the minimum level of expenditure we need to deliver safe and reliable services now and into the future. For the 10-year investment forecast, we have rigorously moderated our capital investments, reviewing a variety of scenarios ranging from a $27 billion investment, up to $53 billion, and finalising an approach at $32 billion, that minimises the burden on customers while ensuring Sydney Water remains resilient and adaptable in an increasingly complex environment.



Our process ensures robust internal and external review of proposed investments, scaling the level of assurance to the materiality of any expense we incur. This ensures that funding we receive from customers is spent prudently and efficiently, and that our forecasts are as accurate as possible.

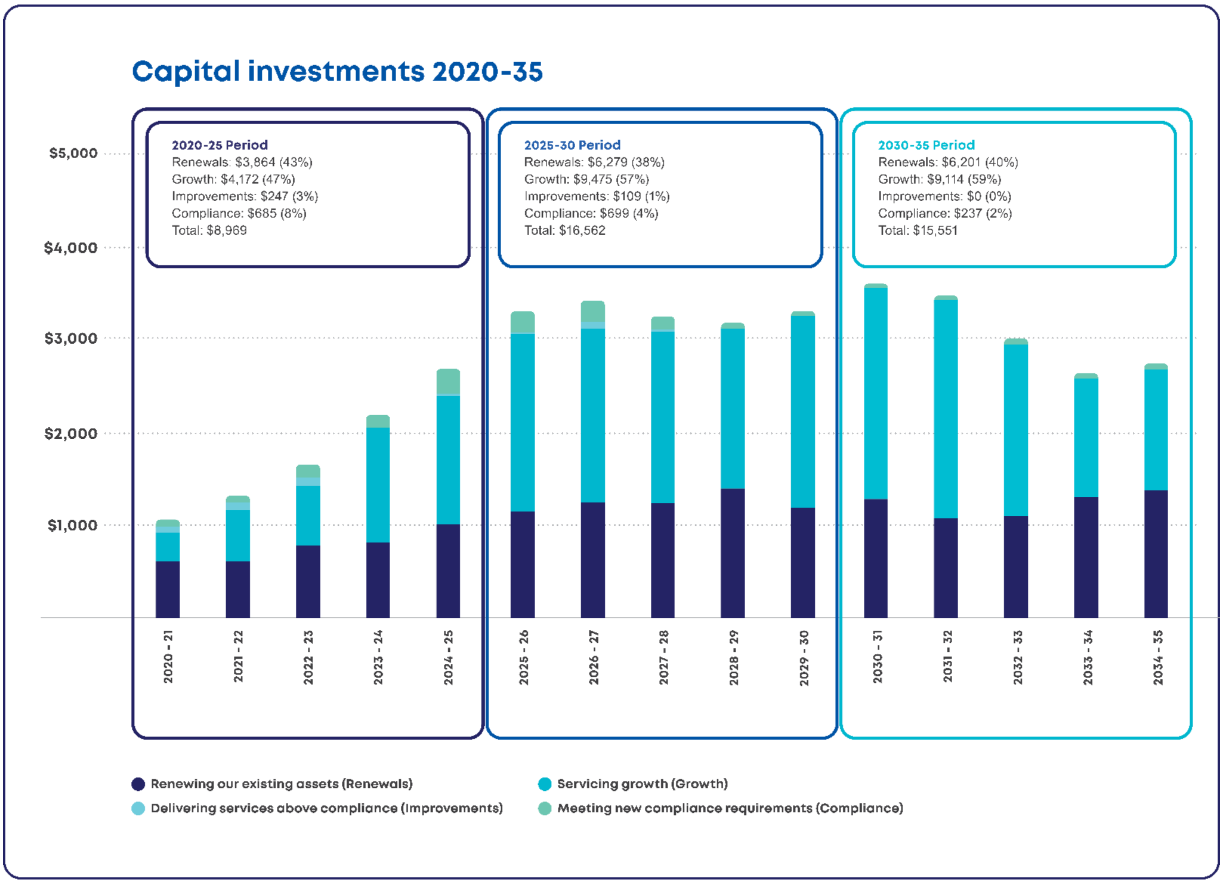
The main drivers of this increased expenditure are growth and asset renewals, which account for 57 per cent and 41 per cent of total capital expenditure, respectively. Most of this uplift in capital expenditure will enable growth in both new and existing regions, as Western Sydney continues to develop, and as population growth exhausts remaining excess capacity in water and wastewater systems or expands to areas where no infrastructure exists.

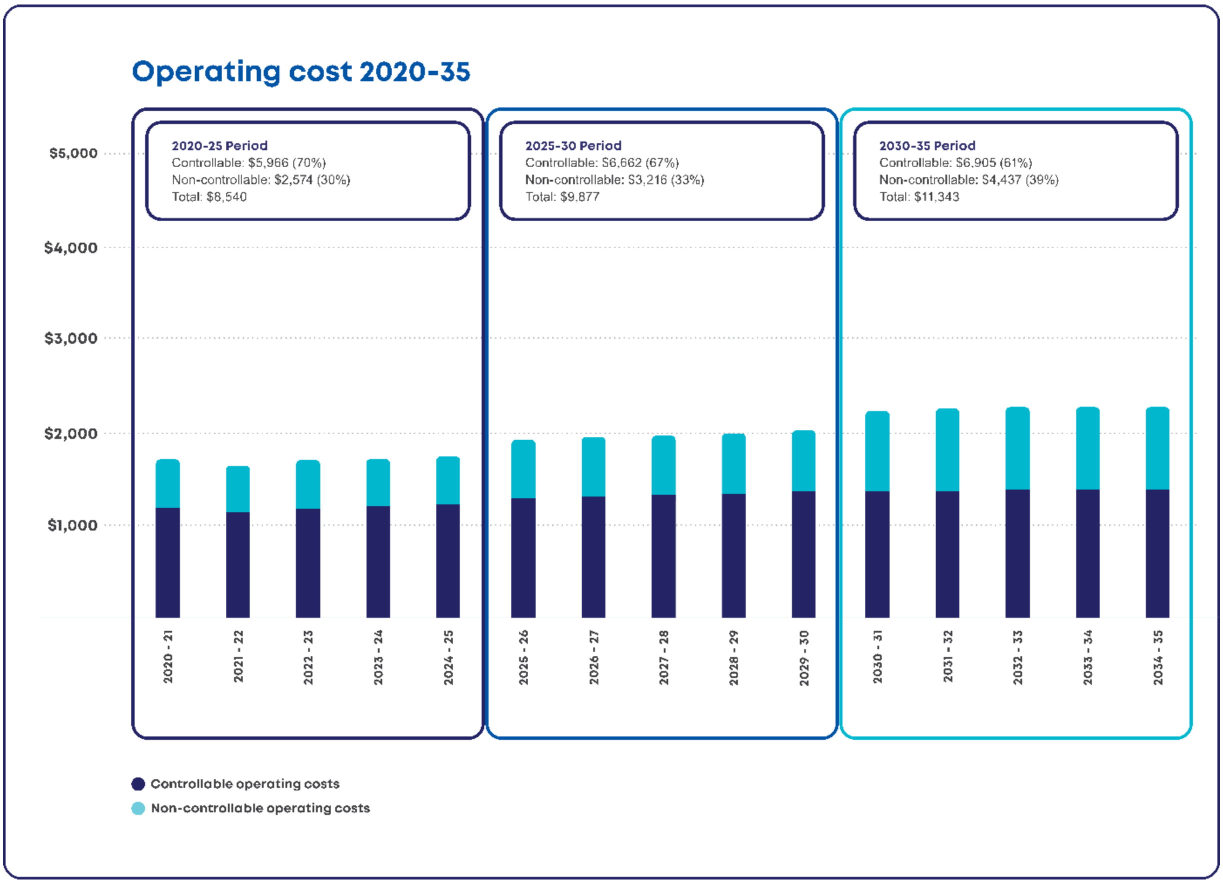
The uplift in operating expenditure will support rising bulk water costs, growth and improved asset and service performance through increased investment in maintenance. It will ensure a safe and secure water supply while balancing increased costs through digital enablement in a cloud-based market.

Sydney Water is undertaking the largest expansion of any water utility in Australia. Over the next 10 years, anticipated growth investment in existing (brownfield) and new (greenfield) areas – equivalent in geographical size to Canberra – will support 510,000 jobs and 670,000 dwellings. Key programs and projects include:

- new and upgraded water and wastewater infrastructure to service new growth areas in Western Sydney (which accounts for three-quarters of the 57 percentage points of capital expenditure attributable to growth), and growth across Greater Sydney
- expansion of the Sydney Desalination Plant (SDP) and PRW plants to provide a resilient and reliable water supply
- integrated stormwater management in the Mamre Road and Aerotropolis precincts
- increased maintenance to sustain current asset performance and manage future risks
- procurement of renewable energy to support net zero carbon emissions by 2030
- digital programs to enhance customer experience and operational efficiency.

Capital investment and operating expenditure 2020 – 2035, outlining the 2025 – 2030 price proposal period





We know that affordability is top of mind for everyone …

To deliver this plan, we have calculated our revenue requirement using IPART's building block methodology, resulting in a proposed revenue requirement of $20 billion for 2025–30, with an expected increase to $25.9 billion in 2030–35.

We have used multiple levers to limit the impact of proposed expenditure and investment, including:

- other than infrastructure contributions which are locational, we propose to apply postage stamp pricing to our services - customers pay the same for a service regardless of where they are located
- asking existing customers to pay a fair share of existing maintenance and renewals
- only proposing to invest in what needs to be done now - deferring investment where efficient to do so to reduce pressure on bills
- requiring developers help pay for growth under IPART's infrastructure contributions framework
- helping affordability through our payment assistance program and rebates.

The NSW Government's 2022 decision to reverse the existing policy position that set developer charges to zero means that developers now contribute towards the cost of new infrastructure needed to serve their developments, reducing the share of the costs that needs to be recovered through regulated prices.

Under IPART's contributions framework, our investment in new capacity is recovered over time as developers connect new lots to our network. This creates a timing gap between our up-front investment and subsequent payments from developers. Infrastructure contributions will provide a total of $3.9 billion over the next five years, with more to follow in future price periods as development occurs.

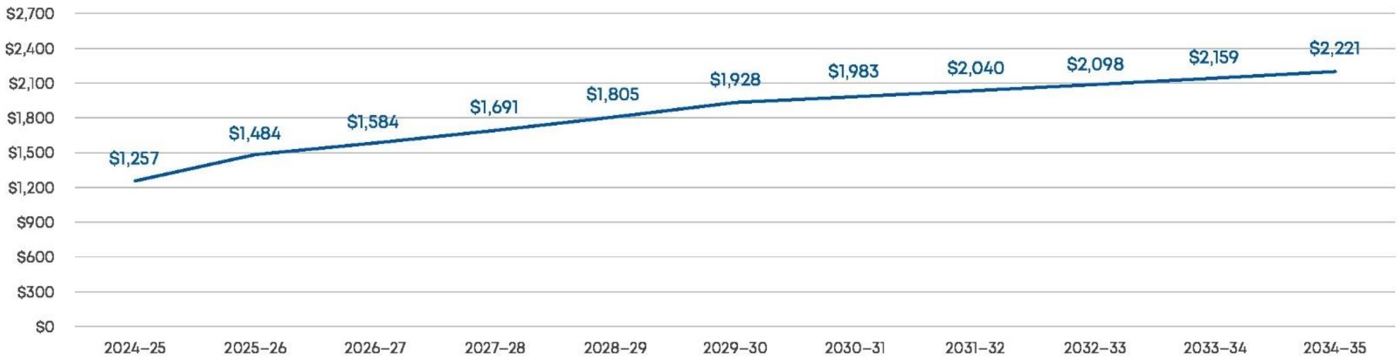
Long-term pricing and intergenerational equity measures are critical to managing affordability issues. The principles of intergenerational fairness – which are widely supported by utilities and regulators alike – require that each generation pay its own way by prices across price periods as much as possible to recover costs for long-term investment.

Our customers have indicated that they understand the challenges we face, and they support us to act now to ensure our city's water future. They have said they don't want a decline in services now or in the future and could accept an (affordable) bill increase over the next regulatory period to safeguard current levels of service into the future.

We have used all these levers to keep bills as low as possible by enhancing efficiency, leveraging pricing strategies, and reintroducing infrastructure contributions. Consequently, the bill impact for a water and wastewater customer consuming 200kL per year is an increase of 18 per cent in 2025–26 followed by 6.8 per cent every year for the remainder of the determination period. This is an average bill increase of approximately $226 in the first year, and $111 every year until 2029–30.

Our proposed price increase will enable us to finance our services sustainably, ensuring the lowest long-term cost to customers.

Residential water and wastewater bills (200kL/Year)
($2025–26 real, not including inflation)



… and bill increases will impact our customers in different ways

Residential customers	Annual bill 2024–25	2025–26	2026–27	2027–28	2028–29	2029–30
Rose and her partner are pensioners living in a townhouse in Ryde. They have a small garden and are very low water users. 137 litres per person per day 100 kL per year Receives a pensioner rebate	$365	$435	$465	$498	$543	$584
Tim and Wendy are a couple living in a small house in Dapto, and they are very mindful of water use. 137 litres per person per day 100 kL per year	$982	$1,162	$1,262	$1,369	$1,484	$1,606
Tiffany and Ed a young family living in a standard house with a backyard in Marrickville. They have a young child, so affordability is their number one priority. 182 litres per person per day 200 kL per year	$1,257	$1,484	$1,584	$1,691	$1,805	$1,928
The Baileys are a multigenerational family living in Fairfield. They have 6 people under one roof, making them high water users. 183 litres per person per day 400 kL per year	$1,533	$1,805	$1,905	$2,012	$2,127	$2,249

Non-residential customers	Annual bill 2024–25	2025–26	2026–27	2027–28	2028–29	2029–30
Mark is a mechanic in Doonside. He uses water to clean his workspace and run the kitchenette in his office space. His shop uses 100 kL per year (277 litres per day). He has a trade waste agreement with Sydney Water.	$1,000	$1,175	$1,276	$1,383	$1,498	$1,621
The Trinh's run a fast-food restaurant in Albion Park. They require a large volume of water to clean dishes. They use 1,480 kL per year (4 kL per day). The restaurant has trade waste and Wastesafe agreements with Sydney Water.	$8,908	$10,724	$10,918	$11,176	$11,472	$11,720

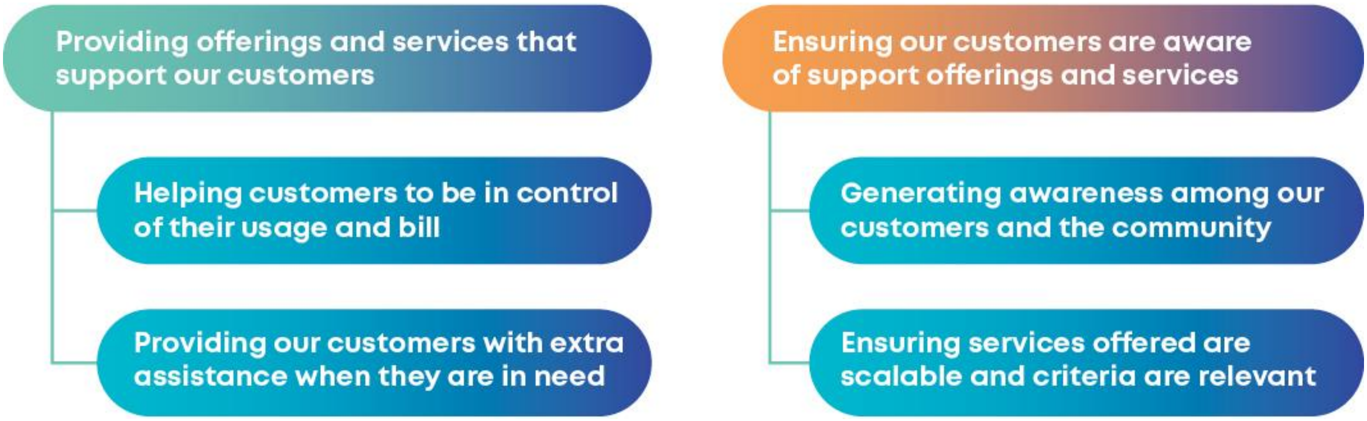
We will support our customers – as we've always done

We recognise the strain of rising living costs on our customers and acknowledge that increases to prices impact the affordability of our services. However, our commitment to supporting our customers through payment support programs and rebates remains unwavering.

Through the findings of Our Water, Our Voice, we know our customers understood the reasons for increases in their water bills, but they need to be moderated to protect people who are financially vulnerable – and we must help when it is needed. We understand the impact of increasing water bills for different customer groups, both residential and non-residential.

We are committed to assisting our customers through payment support programs and rebates. We recognise that we play an essential role in helping customers take greater control of their water use, lowering their bills, through education and water efficiency programs.

We will continue to support our customers through water efficiency programs (for example, WaterFix® Residential, WaterFix® Strata, WaterFix® Commercial and WaterFix® Schools) and monitoring programs (for example, to locate water leaks).



In 2025–30, we will uplift our support services with the assistance of the NSW Government and forecast we will enable more than $1 billion in payment assistance programs.

We will expand our communication about customer assistance to ensure those who need support are aware it's available.

We make a commitment to customers about our ability to deliver, to be efficient and to embrace innovation

Our customers have shaped the strategy that underpins this proposal. We have reorganised our business to effectively deliver on our defined customer outcomes. Our management structure has been revised to reflect the priorities outlined in these outcomes, with senior executives acting as custodians who are accountable for delivering them. Over time, we have also introduced a single strategic framework that aligns customer outcomes with enterprise planning, budgeting and activities, and includes performance measures and targets, and transparent reporting.

As outlined in our long-term plan, we have an adaptive approach so we can make decisions in response to investment triggers over time and to achieve optimal, cost-effective and sustainable outcomes for our customers. Success will be determined by the plan's deliverability, financeability and affordability.

Robust governance and assurance processes are in place to ensure that the investments which proceed reflect the right solution at the right time. We are packaging and programming investments and scaling our approach to assurance where possible for the most efficient planning and delivery.

Sydney Water has built market and internal workforce capability and capacity to deliver our program, including considerably increasing the number of capital projects in our pipeline. Deliverability continues to be a major focus, and we have a framework in place to achieve our goals.

Delivering this program over the next 10 years will require fit-for-purpose procurement:

- About 60 per cent of our infrastructure investment will be through the Major Project stream. We will use fit-for-purpose procurement, basing decisions on the needs of each project or program and considering the optimal risk allocation, packaging and scale, as well as market engagement and assumption testing.
- The Regional Program Delivery stream – for the north, south and west regions – will account for the remaining 40 per cent of infrastructure expenditure. A range of delivery mechanisms will be used, based on the scope and risk of each activity.

We will continue to engage throughout the submission process and beyond

Hearing from customers has been invaluable, shaping our strategy, investments and price proposal. The final phase of Our Water, Our Voice has concluded, but our broader customer engagement will continue while planning is underway for the next phase of our engagement journey.

The price proposal process offers further engagement opportunities. Sydney Water lodged the proposal with IPART in September 2024. IPART's independent public consultation will then give customers opportunities to share their views.

Towards the end of 2024, IPART is expected to hold a public hearing in which customers and communities can present their views. This will be followed by a draft determination of prices in early 2025. The final IPART-determined prices and service levels for Sydney Water customers will take effect from 1 July 2025.

We encourage you to be part of this process and have your say.

September 2024	October 2024 – March 2025	March 2025	July 2025
Sydney Water submits price proposal to IPART	IPART reviews the price proposal inviting public feedback	IPART releases the draft report and determination	New prices start for customers

20 ways our plan will help create a better life with world-class water services

Informed and empowered customers
Keep over 5 million customers informed about outages and empowered to manage their water use and bills through digital channels.

Help with bills
Uplift support services with NSW Government assistance, forecasting over $1 billion for payment programs in 2025–30 to support those in need.

Safe and clean water
Upgrade four water filtration plants by 2030 to ensure safe, clean drinking water across Greater Sydney, the Illawarra and Blue Mountains in all weather conditions.

Prevent pollution of waterways
Upgrade our water resource recovery facilities to ensure we meet our discharge licence requirements for core pollutant concentrations, protecting waterway health.

Positive customer experience
Maintain the same high level of service that has placed us in the top quartile of our peers for customer satisfaction since 2020.

Secure water supply
Able to meet up to 33% of drinking water demand with rainfall-independent supply by 2030, enhancing water security and reducing risk of severe restrictions.

Support housing needs
Deliver services to 300,000 new homes to support the NSW Government's growth ambitions and our growing population and cities.

Reduce environmental harm
Minimise the risk of significant incidents, such as overflows into waterways, by improving how we operate and maintain our assets, as well as undertaking targeted renewal of old and high-risk wastewater pipes.

Fair and affordable bills
Keep water bills among the most affordable among Australian capital cities while minimising the impact of necessary investments for safe and reliable services.

Reduce leaks
Enhance our water network leakage management to save 6 GL a year by reducing the volume of drinking water lost as leakage by 2% by 2030.

Invest for the future
Invest to secure Sydney's future by planning and building today to support population growth of 1.7 million people by 2050.

Recover resources
Increase the amount of recycled water available for supply from treated wastewater and harvested stormwater to around 62 GL per year, reducing water loss to the environment.

Improve water literacy
Help people understand water, where it comes from, how it's managed and where it goes through our education programs and tour of our Purified Recycled Water Discovery Centre.

Save water together
Provide more support to help customers each save over five litres a day, and assist community and business organisations to improve water efficiency and drought resilience.

Cool, green natural places
Actively manage nearly 30% more Sydney Water land to conserve waterways and habitats, incorporating Caring for Country practices and collaborating with the community and First Nations people.

New regional integrated stormwater servicing
Deliver Australia's largest stormwater harvesting program to reduce damaging flows in waterways in Western Sydney, supporting urban cooling and greening.

Safe swimming and recreation
Improve community recreation at sites across Greater Sydney by 2030, with collaboration and real-time swimming condition updates.

Reliable water
Ensure reliable water service, with under 2% of customers facing lengthy unplanned interruptions in a year, and prompt responses to minimise impact.

Net zero carbon emissions
Achieve net zero carbon emissions in our operations by 2030 by expanding solar and wastewater energy, securing a power purchase agreement, and using credible offsets to cut over 334,000 tonnes of CO_2 emissions.

Climate resilient systems
Advance our business climate risk management maturity and invest prudently to ensure water services and infrastructure can cope with climate change.

Chapter 1: Customer engagement

Key message

We have engaged more than 13,000 customers over the past two years to understand their priorities and have realigned our business to put customers at the centre. Our research found customers are community-oriented, cost-conscious and future-focused; they are satisfied with our service and expect us to continue delivering reliable water services now and for future generations, at an affordable price. We have assessed risks and worked with customers to balance their priorities, be efficient, and avoid unnecessary costs.

Summary

- Our focus on and dedication to customers has continued for more than a decade. Results from our ongoing customer research indicate that, typically, we consistently meet our customers' expectations and deliver high-quality services at an affordable price.
- As with any business, Sydney Water continues to evolve and our transition towards becoming a customer-led organisation is in line with global best practice for water utilities.
- To ensure our price proposal delivers services and expenditure that are customer-centric, we started a customer engagement strategy in July 2022 called Our Water, Our Voice. It is the largest customer engagement strategy in Sydney Water's history. We engaged with more than 13,000 customers over 21 months and in six phases and have used the insights we gained to shape our price proposal.
- Our Water, Our Voice is in addition to our ongoing customer contact. We continually engage with our customers via phone, email, fax and online channels resulting in 774,000 interactions annually (2023-24).
- With the support of the independent CCRG, our engagement strategy was designed to ensure customers could clearly communicate what's important to them, their preferences, their willingness to pay for services, and the decisions and trade-offs they are willing to make to keep bills affordable.
- In each phase of Our Water, Our Voice, customers told us that they choose to support Sydney Water in acting now to safeguard Greater Sydney's water future. Our customers are more future and community focused than ever before, albeit through a lens of affordability. A united voice from our customers is at the heart, and is the golden thread, of this price proposal.
- Our Water, Our Voice provided insights on existing and future service levels, preferences for community and environmental outcome areas (such as water resilience, waterway health, carbon zero emissions, greening and cooling, and leakage reduction), customer preferred investment plans (including the customer-preferred balance of medium performance, low risk and medium cost), primary insights for customers' maximum tolerable bill increase, and customer-preferred options for water use tariffs and price controls. These insights have been used throughout this proposal.

Key reference materials

APPENDICES

1 Customer engagement

READING ROOM

Case studies
Customer Engagement Strategy
Our Water, Our Voice reports
Stimuli provided to customers and CCRG in Phases 1–6

Guided by our 3Cs focus principles

CUSTOMER OUTCOMES

This chapter discusses Sydney Water's Our Water, Our Voice strategy. This strategy ensured that customer outcomes discussed in chapter 3 were informed by robust engagement and were used throughout our customer engagement to shape our business plans

BALANCE RISK AND LONG-TERM PERFORMANCE

In Phase 5 of Our Water, Our Voice, customers were asked to consider a trade-off between performance, cost and risk as they helped shape and inform Sydney Water's investment plan for the next five-year price path. From this engagement, we have developed performance measures and targets for each outcome that are aligned to customer preferences and proposed expenditure.

EQUITABLE AND EFFICIENT COST RECOVERY

We will focus on managing affordability and ensure cost recovery processes are aligned with customers' values around fairness. Supported by our customer engagement, our outcomes also reflect community and environmental objectives in the long-term community interest, while ensuring services are cost-reflective and affordable today and in the future.

How customers feel about Sydney Water and our services today

Results from our ongoing customer research indicate that, typically, we consistently meet our customers' expectations and deliver high-quality services at an affordable price. This demonstrates that we are building on strong foundations. We have made a considerable effort over the last 10 years to focus on understanding and responding to customer needs, expectations and values.

Sydney Water uses a variety of engagement tools to understand where we're going well and how we can improve. Each one is separate and distinct in its methods and aims, but by triangulating all the tool findings, Sydney Water can combine the insights to develop reliable customer insight data to inform our business.

Through our ongoing Brand Tracker Customer Survey, Sydney Water continuously tracks how our customers perceive our organisation, products and services, and overall service quality. Results consistently show that customers are mostly satisfied with the quality of service they receive from Sydney Water (customer satisfaction) and many would speak positively of Sydney Water if asked (customer advocacy). In this survey, Sydney Water performs well compared to similar service providers, currently ranking third behind Australia Post and day-to-day banks for customer advocacy. We rank first compared to similar service providers for customer satisfaction[1].

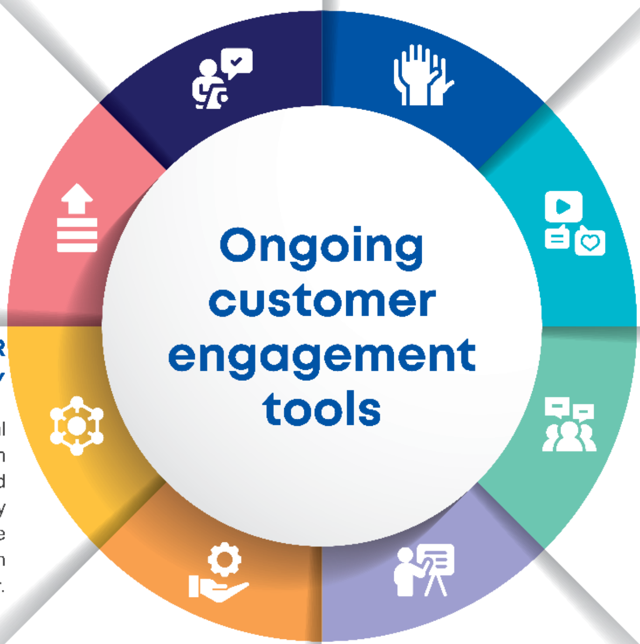
Sydney Water also performs well compared to other Australian water utilities in the Water Services Association of Australia's two-yearly customer perceptions survey. Sydney Water ranked second for headline metrics such as reputation, trust and satisfaction. For 'My water provider delivers value for money', Sydney Water ranked first compared to 33 water utilities across Australia.

Our insights are informed by our customer contact centre which handles over 770,000 interactions annually, including 392,000 calls, 88,000 emails, and 290,000 self-service contacts. This allows customers to be heard, have questions answered, and access nearly 50,000 payment arrangements for those in need.

Despite having the lowest proportion of dissatisfied customers compared to other service providers (Brand Tracker p 44), we received 7,133 complaints in 2023–24, of which 5,325 were deemed Sydney Water's responsibility. We view customer feedback through the complaints process as an opportunity to identify root causes of complaints, and we use these customer insights to drive process and service improvements.

Figure 1.1: Summary of Sydney Water's customer engagement tools

[1] Link to Brand Tracker report for Apr–Jun 2024 in reading room



CUSTOMER POST-INTERACTION FEEDBACK

A large number of smaller surveys conducted across key customer touchpoints and customer channels including Customer Hub, Contact Centre, Sydney Water website, etc.

OUR WATER, OUR VOICE

Starting in July 2022, it remains Sydney Water's largest customer engagement strategy providing valuable insights into our customers' views, preferences, decisions, willingness to pay and the trade-offs they are willing to make to keep bills affordable.

BRAND TRACKER

Launched in July 2020, it continues to provide insights into our key customer metrics, perceptions about Sydney Water's performance and provides feedback on our products, services and overall service levels. It also includes comparisons against other service providers.

COMMUNITY SENTIMENT MONITOR

Launched in July 2020, it measures community sentiment on a range of issues, including water quality, leaks and breaks and water conservation.

WATER LITERACY TRACKER

Since January 2022, it continues to test community support for and comfort with different water sources, barriers to adopting new water sources and the overall level of knowledge in the community around the urban water cycle and the challenges that impact water supply security into the future.

SERVICE FAULTS TRACKER

In place since 2007, it helps test customer satisfaction around their experience post reporting service issues including leaks, water outages and wastewater overflows.

STAKEHOLDER PERCEPTIONS SURVEY

In place since 2014 this annual study provides insights from 20 stakeholder groups around their perceptions of Sydney Water's performance and the quality of their relationship with Sydney Water.

CAMPAIGN TRACKER

Provides regular tracking of customer response towards our key advertising campaigns around water conservation and wastewater.

Our customers' voices will guide our decisions and shape the future of our services

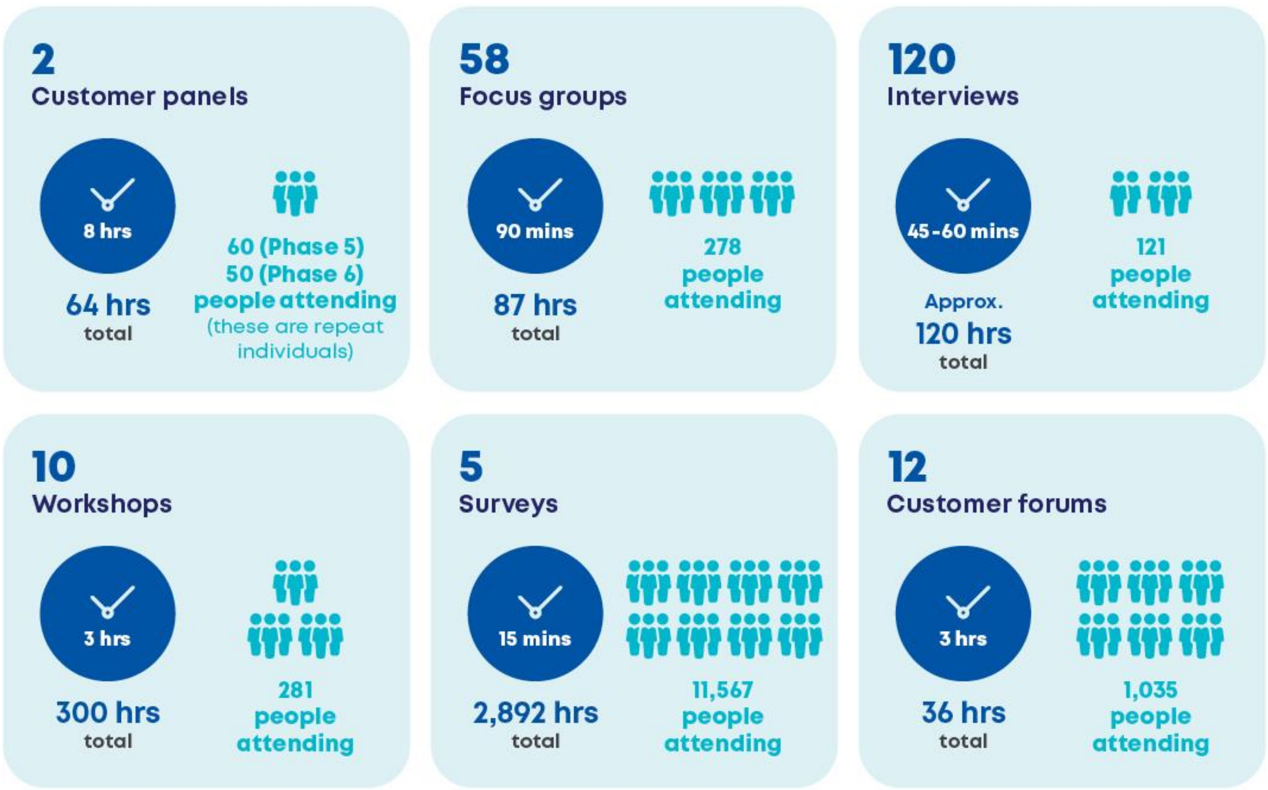
At Sydney Water, customers are at the heart of everything we do. We are focused on continuous improvement to evolve into a highly respected customer-led organisation. Underscoring this commitment is our most recent customer engagement milestone, which substantially informs this price proposal through our significant dialogue with customers. By being customer-led, Sydney Water is championing customer-integrated approaches to influence and enhance our water services and overall customer experience.

In July 2022, Sydney Water started an in-depth 21-month customer engagement strategy, Our Water, Our Voice – the name was chosen by our customers. The insights we gained have significantly influenced this regulatory price proposal and represent only the first stage of our commitment to continuous, in-depth customer engagement. Our Water, Our Voice has been shown to be a highly effective means to maintain customer collaboration into the future. Sydney Water's customer engagement strategy is published on our website, and sets out our commitment to genuine engagement with customers, our objectives, how we will engage and the principles underpinning our engagement.

Through Our Water, Our Voice, customers have clearly expressed what they value most from Sydney Water. Their top priorities remain high-quality drinking water; reliable water and wastewater services; and fair, affordable prices. While these priorities have not changed since 2020, customers' expectations and the perceived value of Sydney Water's services has increased.

Today, customers still prioritise essential services and affordability as they did in 2020, but they also value the future sustainability of Greater Sydney and its communities. They support and have shown willingness to pay for initiatives that ensure a safe, secure water supply, even in the face of our current economic challenges, to safeguard the quality of their water services and the services that underpin regional growth and prosperity.

Figure 1.2: Engagement methods used and how many people were engaged



Snapshot of Our Water, Our Voice customer engagement

The largest, in-depth customer engagement strategy in Sydney Water's 136 years of providing water services to Greater Sydney, Our Water, Our Voice has proven to be the cornerstone of Sydney Water's transition towards a customer-led organisation. Through Our Water, Our Voice, and with the support of the CCRG, we engaged with more than13,000 customers over 21 months to gather insights into their views, preferences and willingness to pay, along with the trade-offs they are willing to make to keep bills affordable.

We assessed and managed risks with customers by educating our participants on topics and assisting them to make independent decisions, using graphic aids to weigh up risks, performance and costs, and to visually demonstrate the price impacts on bills. We took these measures to ensure that our customer-focused price proposal is efficient and does not include unnecessary expenditure. Our approach ensures a price proposal that's fair and reflects genuine customer needs and preferences.

Role of the Customer and Community Reference Group

Sydney Water established an independently chaired CCRG in 2022 to represent various community and customer interests. This group evolved from previous advisory committees dating back to the late 1990s. The CCRG's broader remit includes:

- ensuring rigorous customer engagement
- accounting for wider community perspectives
- shaping the strategic direction of Our Water, Our Voice
- providing feedback to improve the customer engagement strategy
- ensuring strategic plans, investments and regulatory submissions align with long-term customer and community interests.

The CCRG collaborated closely with Sydney Water during the later phases of Our Water, Our Voice, aligning strategic planning with customer outcomes. This included refining measures of success to reflect what customers said they need and want from Sydney Water and to ensure each measure would be understandable from a customer perspective.

The CCRG includes diverse customer and community perspectives. These include the perspectives of First Nations people, members of culturally and linguistically diverse communities, older Australians, young people, people living with disability, representatives of advocacy groups (social and consumer), people experiencing financial hardship, people living in regional areas (Illawarra and Western Sydney), representatives of environmental groups, members of local government, business people and developers.

The CCRG met 12 times between November 2022 and August 2024. Standard agendas included providing feedback and guidance on issues and topics relating to customer engagement, this price proposal and strategic planning. They also considered other regulatory matters such as the operating licence and a customer contract review, customer service issues and Sydney Water's performance.

A subgroup of CCRG members, formed to support Sydney Water in the design and execution of Our Water, Our Voice, attended design and planning workshops for phases 4, 5 and 6. They also attended rehearsals for each of the eight days of phases 5 and 6. They reviewed and provided input into all session materials for these phases, challenging Sydney Water to develop materials that were understandable for customers, objective and free of bias. Additionally, members of the CCRG attended in-person customer engagement events (forums, workshops and panel sessions) in phases 3, 4, 5 and 6. In total, nine members were present to observe 20 customer engagement events.

Further details about performance reporting, CCRG meeting minutes and action registers can be found on our website.

Our Water, Our Voice – how we engaged customers

Our Water, Our Voice was conducted in six iterative phases starting in July 2022. Each phase built upon insights from the previous phase, exploring topics that mattered most to customers. Our approach to each phase of engagement was carefully developed, employing robust research methods to ensure the feedback represented all our customers.

Sydney Water's Board, Executive team and CCRG assisted in shaping the strategic direction of Our Water, Our Voice and the phases of engagement. This approach enabled us to understand our customers' key priorities, which were consistently confirmed through each phase of engagement. Ultimately, our engagement provided clear direction from customers on where to focus investment and how much customers were willing to pay.

Summary of Our Water, Our Voice

- Was originally developed in consultation with Sydney Water's Community Advisory Committee in 2022. The committee represented our customers and advised us on a customer engagement approach that could help us develop a customer-led research strategy. The Community Advisory Committee was replaced by the Customer & Community Reference Group (CCRG) in late 2022.
- Is a customer-led, multi-phased strategy. This means that customer has a real say in what we discuss., For example, in Phase 1 our customer told us 15 priorities they really value from their water utility and ranked them in order of importance. These 15 customer-led priorities then provided the foundation for the following engagement phases and topics.
- The program provided our customers with information in a transparent, objective way to make informed decisions with an understanding of the benefits and drawbacks of all the options presented.
- Is carefully developed with engagement activities that encouraged consultation, involvement and collaboration with our customers on important planning decisions and is continuously improving.
- Has a robust research methodology to ensure that information gathered was accurately reported and acted on and it improves as we learn. It is an iterative strategy.
- Pro-actively seeks out the voices of hard-to-reach groups to ensure customer feedback is representative of the customers we serve.
- Updates our customers regularly, particularly when phases completed, with accessible summaries to demonstrate how Our Water, Our Voice impacts our ongoing decision-making.
- Encourages participation from customers and stakeholders, understanding that this collaboration is critical to delivering value for customers.
- Has comprehensive participation of Sydney Water's Board, executives and Managing Director through shaping of the methodology, participation in activities and the development of an independent Customer & Community Reference Group. In practice, it also included an evaluation of each phase to make strategic decisions.

To facilitate continuous improvement in the process, we have also sought feedback and input through each phase from external stakeholders, including IPART, and independent consultants. This led to enhancements to our customer engagement , including the addition of phases to further explore topics to better inform our price proposal. External stakeholders, including IPART, NSW Health, the NSW Environment Protection Authority (EPA), the Department of Climate Change, Energy, the Environment and Water (DCCEEW) and WaterNSW attended various customer engagement forums and workshops as observers.

Role of Sydney Water's Board and Executive

The Executive and the Board's Economic Regulation Committee received regular updates over 10 meetings, reviewed findings, provided input and helped shape all phases of the customer engagement strategy. Members of the Executive team opened all customer forums and the customer panel and responded to customer questions (alongside other Sydney Water subject matter experts).

Our Water, Our Voice customer engagement journey

1

JUL 2022 – JAN 2023

Phase 1*

Capturing customer priorities

During Phase 1, customers identified and ranked 15 key priorities for Sydney Water to deliver by the end of this decade.

The top customer priorities for Sydney Water are:

- Maintaining safe and clean drinking water.
- Ensuring bills remain affordable via cost management, payment plans and avoiding future cost spikes.
- Maintaining clean, safe waterways and water recreation areas by reducing pollution.
- Enhancing the water network's resilience to drought through building water recycling and/or desalination infrastructure.
- Reducing water loss by minimising leaks and breaks in the water network.

4,282 Customers | **2** Forums | **34** Interviews | **14** Focus groups | **4,009** Online survey responses

2

NOV 2022 – JAN 2023

Phase 2

Capturing customer service insights

During Phase 2, you, our customers, identified your preferences for how we communicate with you. We also heard your views on service levels, including planned and unplanned outages, water pressure and wastewater overflows.

2,031 Customers | **5** Forums | **34** Interviews | **14** Focus groups | **1,521** Online survey responses

3

NOV 2022 – AUG 2023

Phase 3

Customer insights for better business planning

In Phase 3, we once again took the customer ranked priorities from Phase 1, and this time placed our focus on understanding the priorities that have a community and environmental focus. This phase provided the insights for service levels around community and environment outcomes.

2,418 Customers | **10** Customer workshops | **18** Interviews | **16** Focus groups | **2,034** Online survey responses

4

MAY 2023 - FEB 2024

Phase 4*

Service levels and investments for the future

Using insights from Phases 1 to 3, we explored customer preferences for how key customer priorities should be delivered. We also tested customer willingness to pay for the outcomes we will deliver over the next 10 years, to maintain customers' preferred levels of service and address future challenges. These include Greater Sydney's growth and climate change.

4,551 Customers | **5** Forums | **34** Interviews | **14** Focus groups | **4,003** Online survey responses

APR 2023

IPART releases Water Regulation Handbook

APR 2023 – JUL 2023

Sydney Water makes a pivotal change in methodology for Phase 5 and 6, moving to a deliberative panel format.

5

AUG 2023 - MAY 2024

Phase 5

Customer recommended price proposal part 1

During this phase, we collaborated with customers to develop our next price proposal for 2025-2030. In Phase 5, customers were asked to consider a trade-off between performance, cost and risk, as they helped shape and inform Sydney Water's investment plan for the next five years.

60 Customers

6

OCT 2023 - AUG 2024

Phase 6

Customer recommended price proposal part 2

During this phase, we collaborated with customers to develop our next price proposal for 2025-2030.
In Phase 6, customers shaped and informed how Sydney Water's services are paid for, including the costs to deliver our investment plan for the next five years.

50 Customers

JUN 2023 – JUN 2024

IPART reviews Sydney Water's Operating Licence. New licence begins 1 July 2024

SEP 2024

Sydney Water submits price proposal to IPART

OCT 2024 – MAR 2025

IPART reviews the price proposal

MAR 2025

IPART releases the draft report and determination

1 JUL 2025

New prices start

*Phases 1 and 4 utilised choice modelling to quantify customer willingness to pay.

Ensuring confidence in customer engagement

Central to our price proposal is ensuring who we engage with, and the insights we gather, accurately represent our entire customer base. To achieve this, we employed robust research methods and supported participants in making informed decisions. We also collaborated with industry specialists to guide our approach, refined our approach iteratively based on feedback, and cross-checked our engagement insights against those from similar programs**. This comprehensive effort delivers a price proposal grounded in robust engagement that reflects our customers' priorities.**

In our inclusive approach to engagement, ensuring we heard from a wide representation of our customers through Our Water, Our Voice, we took great care to remove barriers to participation to achieve a broad and deep engagement. Through six phases of research, we've had conversations with customers and stakeholders including customers in culturally and linguistically diverse communities, people living with a disability and First Nations people.

Sydney Water engaged with a broad cross-section of customers and the community. Customers participating in the qualitative research were selected to be broadly representative of the community across key demographics. We used recruitment agencies' target recruitment screening questionnaires and specialist cultural engagement partners to ensure that those selected went through best practice selection processes.

For more information on the recruitment and selection process, please see examples on pages 24–31 of the *Phase 4 Final Report* and pages 21–23 of the *Phase 5 Final Report* and *Phase 5 Final Report* appendices A and C in the reading room).

Customers who participated in the workshops and focus groups included:

- First Nations people
- members of culturally and linguistically diverse communities
- people living with a disability
- people in financially vulnerable circumstances
- land and property developers
- value makers – businesses that act as intermediaries between customers and Sydney Water (including plumbers, engineering consultants, property managers, landscape designers, architects and those in similar roles or professions)
- people from the business community
- other stakeholders such as local government.

Our customer engagement strategy specifically addresses the need to engage through alternative methods such as:

- peer online focus groups with First Nations and people from the business community
- in-language online focus groups with members of culturally and linguistically diverse communities in six different languages
- in-depth interviews with developers and stakeholders
- paired in-depth interviews with people with a disability.

Materials and information were made accessible, including through translating content and providing facilitation in six languages by a specialised research partner. Some groups that have specific relationships with Sydney Water, such as developers and local government stakeholders, were also invited to share their views on issues relevant to their needs and expectations of Sydney Water.

Overview of key stats

91
Stakeholders

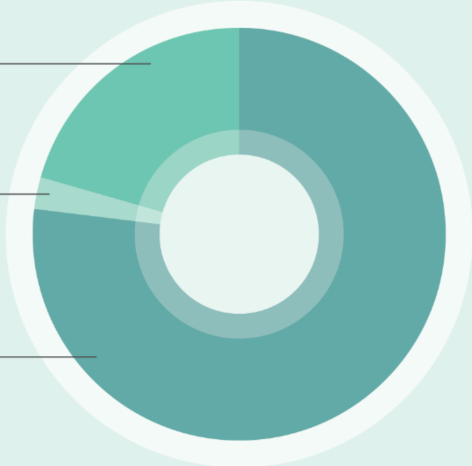
75
Small to medium sized businesses

1,818
People living with a disability

3,535
CALD customers

395
First Nations customers

13,179
Residential customers



In languages:
KOREAN MANDARIN
CANTONESE GREEK
ARABIC VIETNAMESE

1,829
Website visits

95,991
Social media impressions

24 Months of engagement

12
Customer forums

1
Customer panel

5
Online surveys

120
In-depth interviews

10
Workshops

58
Focus groups

Engagement methods

The Our Water, Our Voice customer engagement strategy recognises that best practice engagement involves using a range of qualitative and quantitative research and engagement methods to ensure broad and representative participation across the community. It also enables deep engagement that empowers customers to make informed choices and recommendations about complex topics.

Earlier in Our Water, Our Voice, the objective was to get a breadth of views held by Sydney Water customers about the most important things for Sydney Water to deliver in the next five to 10 years. Consequently, we held large-scale forums (around 100 participants) at geographical centres across Sydney and augmented these with smaller engagements with specialised groups. This generally reflects a 'consult' level of engagement, according to the IAP2 public participation spectrum.

Throughout phases 1 to 4 of Our Water, Our Voice, quantitative surveys with large representative samples were used to validate insights from qualitative processes or to model willingness to pay for different servicing options. This ensured that the insights we rely on as evidence for our price proposal, including customer outcomes, investment areas and levels of expenditure, have been rigorously tested across a large sample of our customer base, with multiple validation points.

In phases 5 and 6, we pivoted our customer engagement methodology to form a customer panel. This was in response to direction provided through the IPART *Water Regulation Handbook* and feedback provided by members of the CCRG. This represents a much deeper form of engagement with a smaller group. The intent shifted from seeking views that reflect the general population to working more closely with customers to seek their guidance on key aspects of our strategic plan and price proposal. It involved building foundational knowledge and understanding among participants so they could fully consider the options and make informed choices. This part of the program is more reflective of 'involve' or 'collaborate' levels of engagement, according to the IAP2 spectrum.

SUMMARY OF THE OUR WATER, OUR VOICE RESEARCH APPROACH

Forums
In person event up to 100 people • 3 hrs duration

A highly exploratory qualitative method, designed to unpack priorities, expectations and issues in a collaborative manner with a large group of customers.

3 hrs

Up to 100 people

Focus groups
Up to 6 people • 90mins duration

Focus groups engage with like groups where there's great value in exploring the experiences of peers. These groups include small and medium businesses, First Nations People and Cultural and Linguistically Diverse (CALD) groups.

1.5 hrs

Up to 6 people

In-depth interviews
One to two people • 1 hour duration

A combination of one-to-one and paired interviews for qualitative research with hard-to-reach stakeholders and vulnerable customers.

1 hr

1–2 people

Customer workshops
In person event with up to 30 people • 3 hour duration

Collaboratory workshops with customers to develop a solution or delivery option to address a business problem or challenge.

3 hrs

Up to 30 people

Online region-wide surveys
Between 1,500-4,000 people • 15 mins duration

Online surveys, including to validate findings from qualitative methods, rank the relative importance of customer priorities, and determine willingness to pay for differing levels of service.

15 mins

1,500 people

Customer panel
Approximately 50-60 people • multiple days duration

In depth deliberative process with a small group of customers who come together to solve a significant challenge that is important for customers. Participants are provided with extensive information and sufficient time to deliberate on the challenge and provide informed advice and recommendations.

8 days

Approx. 60 people

A robust engagement approach

Sydney Water delivered Our Water, Our Voice supported by a consortium of industry specialists who assisted in designing and delivering the customer engagement strategy. We have collaborated to ensure that customers' preferences were heard and that the strategy was supported with unbiased information that all customers could easily engage with. Specialist research and economics partners conducted all research and engagement activities for Our Water, Our Voice in compliance with ISO 20252:2019 *Market, opinion and social research, including insights and data analytics – Vocabulary and service requirements*.

Table 1.1 Industry specialists who assisted in the design and delivery of Our Water, Our Voice

Industry partners	Customer engagement speciality	How they ensured customers' voices were heard
Verian (formerly Kantar Public)	Quantitative and qualitative research, specialising in the public/government sphere, including customer forums, focus groups, in-depth interviews and surveys (MaxDiff survey, validation)	Created an impartial voice that communicated directly with customers and reported back on what mattered to customers
CaPPRe	Designing quantitative research studies for estimating willingness to pay, such as DCEs	Surveyed a large sample of customers (around 4,000) who were representative across key ABS demographic groups. The survey was designed for comprehensibility at a secondary education level, with numerous internal checks to remove common biases
Synergies	External quality assurance of regulatory inputs into the engagement process to ensure the design was credible and unbiased	Provided external advice on materials given to customers, ensuring information customers saw was accurate and free of bias
Q&A Market Research Services	Recruitment screening for customer forums	Ensured the inclusivity of the customer base by incorporating under-represented audiences, giving customers confidence that customer forums were representative and free of selection bias

Insights from customers have shaped our price proposal

The central theme that emerged throughout our customer engagement and was investigated at each phase is that customers' values reflect a much greater future and community focus than ever before, albeit with an eye on affordability. This shift parallels ongoing customer sentiment that we still deliver as a priority on basic services, like maintaining clean and safe drinking water among other core services.

An overview of the central themes as they were reflected in each phase of engagement is provided as follows. A full break down of each of the phases including the overall phase objectives, what we did, what we heard, how we used the customer insights and how the existing phase informed the next phase, alongside an 'in focus tool showcase' and links to further details is provided in *Appendix 1: Customer engagement*.

Figure 1.3: Themes reflected throughout each phase of Our Water, Our Voice

Validating insights from Our Water, Our Voice

Our existing and ongoing longitudinal customer research tools run parallel to Our Water, Our Voice customer engagement, enabling us to validate insights and preferences identified through the customer engagement activities. For example, the current satisfaction levels with Sydney Water services support findings from Phase 2 (appropriateness of current service levels) and Phase 4 (importance of service attributes in DCE) that customers prefer Sydney Water to maintain current service levels to households.

A core theme throughout Our Water, Our Voice is the importance customers place on outcomes that benefit the community and the environment, including protecting waterways for environmental and amenity purposes, and safeguarding water supply for the future. This is consistently reflected in Sydney Water's Brand Tracker, with perceptions that Sydney Water is an environmentally sustainable organisation, supports the sustainable supply of water, and is trusted to protect the environment among the most significant drivers of enterprise advocacy (the willingness of customers to speak positively about Sydney Water)

Continuing our journey toward a customer-led organisation

Sydney Water acknowledges that customers' expectations, preferences and values will evolve over time, alongside an ever-changing external operating environment. In response, we will refresh our understanding of our customers and align our plans with new and changed customer insights. That's why embedding ongoing customer engagement into our business-as-usual operations, alongside our existing longitudinal customer research and ongoing engagement with community on infrastructure projects and operational activities, is an ongoing focus.

As we continue our transition to a customer-led organisation, we are actively involving our customers in the planning, development and delivery of our water services. We are seeking customer feedback, tailoring our services to meet customer needs, and ensuring there is transparency in our operations. By doing this, we aim to provide better, more efficient water services that align with customer expectations and build stronger, more trusting relationships.

Having completed the six phases of Our Water, Our Voice, we will shift into a continuous customer engagement process. We will take the lessons learnt from Our Water, Our Voice, along with strong involvement from the CCRG, to shape and guide the next stage of this journey. Our intent is to fully embody IPART's guiding principles in our ongoing customer engagement, ensuring that we continue to use best practice research methodologies, but also providing more opportunities for customers to participate in our decision-making at 'collaborate' and 'empower' levels of engagement. We will also continue to adopt innovative approaches to ensure that all parts of the community have a voice in shaping Sydney Water's strategic and operational outcomes going forward.

The decisions that we make across all levels of the organisation come together to deliver the experience customers have. We will continue to have an organisational focus on using the customer insights gained to inform our strategy, decisions and actions. To do this, we need strong customer-centric behaviours and mindsets across the organisation, with every leader, employee, interaction, process and decision demonstrating that we are listening to what our customers told us. Our Customer Charter, published on our website, clearly articulates what we've heard and what we've promised customers.

Strong leadership is critical to support, encourage and reward a customer-centric mindset and ensure employees have the appropriate resources and training to help them embody customer centricity. Recruiting, educating and connecting each employee's role to the customer, and then empowering employees to deliver on the target customer experience, are key. We will continue to roll out the following initiatives:

- Our 'Customer Pulse' program sees senior leaders spend a day with customer-facing staff to better learn about customers' expectations of them.
- Online training and tailored workshops with individual teams (including contractor and delivery partners) help our people
- understand customers' expectations and how their role connects to delivering on them.
- Our decision frameworks will be further reviewed and refreshed to reflect customer insights into priorities and expectations.
- Position descriptions will change to ensure customer expectations and connection to role are clear.

As we establish our ongoing customer engagement, Sydney Water's longitudinal research tools will continue to be important for both identifying areas for deeper engagement and triangulating the results. We will also continue to use the tools to test customer satisfaction with key elements of our customer outcomes to ensure that the level of service within each outcome aligns with customers' expectations.

We will also continue to participate in the WSAA's two-yearly Customer Perceptions Study, which benchmarks our performance with other Australian water utilities. Similarly, our ongoing process of engaging with impacted communities on infrastructure projects and operational activities helps us to keep our finger on the pulse of community sentiment and deliver our services in ways that minimise negative impacts on the community and maximise benefits.

Chapter 2: Customer outcomes

Key message

Through Our Water, Our Voice, customers told us they prioritised safe water, affordability, healthy waterways and water conservation. Based on this, we formed our three customer outcomes: great customer experience, water quality and reliability, and environmental protection.

Summary

- Sydney Water's customer outcomes each have objectives that set our commitment to customers. These outcomes are:
    - **Customer experience:** Deliver a great customer experience
    - **Water quality and reliability:** Provide safe, clean, reliable drinking water every day
    - **Environmental protection:** Ensure we protect our waterways and environment now and in the future.
- These outcomes reflect the comprehensive engagement we have carried out as part of Our Water, Our Voice, and respond to customers' priorities.
- We have assessed risks and worked with customers to develop measures, targets and investment actions that balance their priorities, show efficiency, and avoid unnecessary costs.
- We will hold ourselves accountable for performance for these outcomes via annual reporting to customers.
- The three customer outcomes are now part of our renewed Strategy and our enterprise planning, along with two organisational enablers that identify how we will deliver the customer outcomes. Their successful delivery defines our success.
- In April 2024, Sydney Water started an organisation-wide realignment of our workforce. This is a significant step towards delivering on our customer outcomes and organisational enablers.

Key reference materials

APPENDICES	READING ROOM
2 Customer outcomes	Strategic Investment Plans

Guided by our 3Cs focus principles

CUSTOMER OUTCOMES

We have set our customer outcomes in line with what customers told us in Our Water, Our Voice. This chapter explores how customer priorities inform our proposed outcomes, and how they have shaped this proposal.

BALANCE RISK AND LONG-TERM PERFORMANCE

In Phase 5 of Our Water, Our Voice, customers were asked to consider a trade-off between performance, cost and risk as they helped shape and inform Sydney Water's investment plan for the next five-year price path. These trade-offs were based on customer outcomes explored in this chapter and are reflected in our final proposed expenditure.

EQUITABLE AND EFFICIENT COST RECOVERY

Affordability is a clear priority for our customers and is central to a great customer experience. However, our customers are clear that we must deliver water quality and reliability, as well as environmental protection.

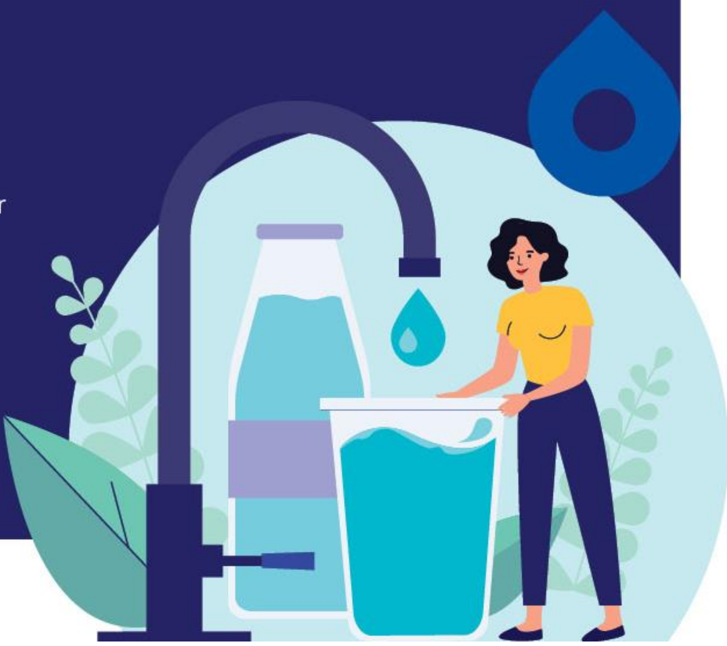
Exploring customer priorities

Through customer engagement, Sydney Water has developed clear insights into the services that are most important to our customers. Starting with a blank slate in the first phase of the Our Water, Our Voice customer engagement strategy, we invited customers and stakeholders to identify and rank their priorities. Customers highlighted the importance of Sydney Water delivering essential services, fulfilling obligations, and maintaining affordable bills. Customers also told us they are focused on intergenerational equity, community benefits, water resilience and the environment.

During the first phase of Our Water, Our Voice engagement, customers provided Sydney Water with 15 high-value priorities ranked in order of importance. The top priorities provide a clear mandate for Sydney Water: maintain the service standards we've come to expect, keep them affordable, and focus on water resilience and the health of our waterways.

The top customer priorities (ranked) for Sydney Water are:

1. Maintaining safe and clean drinking water
2. Ensuring bills remain affordable via cost management, payment plans and avoiding future cost spikes
3. Maintaining clean, safe waterways and water recreation areas by reducing pollution
4. Enhancing the water network's resilience to drought through building water recycling and/or desalination infrastructure
5. Reducing water loss by minimising leaks and breaks in the water network
6. Increasing water savings and reducing water usage through community-based water saving programs
7. Improving natural waterways and habitats to protect the environment
8. Reducing water loss to the ocean by improving stormwater management, capture and storage
9. Reducing the chances of your drinking water occasionally smelling or tasting different
10. Minimising the impact of outages both planned and unplanned
11. Contributing to a cooler environment and more pleasant green public spaces through trees and vegetation
12. Maintaining a standard of customer service that meets or exceeds your expectations
13. Reducing net carbon emissions to zero by 2050 or sooner via more energy efficient operations and renewable energy
14. Reducing the frequency and duration of severe water restrictions
15. Ensuring better informed customers through improved/modern communications to assist with managing water use



Customers were clear on values and preferences, making it easy to guide decisions

Of the 15 priorities, we are focusing our investment, resources and performance monitoring on the seven top customer priorities, while also ensuring that we are delivering on the other priorities, which support the mandate from both environmental and customer service perspectives.

Priority 1: Maintaining safe and clean drinking water

> ***'I love that I can get excellent quality water just by turning on the tap and am grateful because for so many people in the world this is not possible.'***
> ***Residential customer*** | Parramatta customer forum

What we heard that customers valued and preferred

Maintaining a safe, clean supply of drinking water is our customers' highest priority.

Maintaining current standards is a non-negotiable for our customers (Phase 1).

This priority aligns with our public health and operating licence obligations.

What we heard from customers guides our actions

Our commitment is to **maintain drinking water quality** that meets health guidelines at all our drinking water supply systems.

We will **continue to plan for and invest in capital responses** to manage any impacts on our drinking water from declining raw water quality in our catchments. If our risk exceeds acceptable levels, we will need to trigger additional investment to meet our customers' top priority.

Priority 2: Ensuring bills remain affordable via cost management, payment plans and avoiding future cost spikes

> *'With rising costs in every area of our lives, the base costs of water and sewerage services needs to be managed.'*
> **Residential customer** | MaxDiff survey

What we heard that customers valued and preferred

Affordability is a top priority for customers, who want manageable bills and for Sydney Water to avoid future cost spikes (Phase 1 Priority 2).

When making decisions, they also want Sydney Water to consider those who can't afford higher bills.

Customers were clear that they wanted current service levels maintained while preserving affordability.

Given the increase in bills considered, customers were concerned about the impact on people who are financially vulnerable.

Customers support Sydney Water and/or government helping customers in hardship and making customers more aware of the support we offer.

What we heard from customers guides our actions

To maintain current service levels, customer bills must increase over the next five years, with the increases managed over time to minimise the impact.

We will maintain affordability within water industry benchmarks, specifically keeping bills within the Australian benchmarks.

We will continue our programs to provide help and support to people in several ways, including promoting our payment assistance programs, and reviewing and updating eligibility criteria for them. We will continue to manage our expenditure carefully and efficiently.

Priority 3: Maintaining clean and safe waterways and water recreation spaces by reducing pollution

> *'Preventing pollution is the biggest immediate priority for Sydney Water.'* | **Residential customer**

What we heard that customers valued and preferred

Customers value clean local waterways because of their health and recreational benefits. One of their top priorities is for us to avoid polluting waterways (ranked 3 in Phase 1). Many customers are positive about the state of Greater Sydney's beaches, but not the health of the region's rivers.

The lands and waterways around Sydney hold important significance and cultural importance to our First Nations customers and community. Our First Nations customers identified the importance of cultural integrity and respect in our service provision.

This includes how we approach to land management and care for Country (Phase 1).

Customers said we should reduce wastewater pollution and litter from stormwater into waterways. Customers want Sydney Water to prioritise other areas that need urgent attention and are business critical. Avoiding further harm or deterioration to Sydney's waterways, including minimising the impacts caused by Sydney's growth, is non-negotiable for customers. Customers advocated strongly against compromising on risk.

Customers are generally happy with the reliability of the day-to-day wastewater services we provide to their homes and businesses. Most participants valued preventing pollution problems from occurring over responding to them as they arise.

What we heard from customers guides our actions

While our aim is always to operate in a compliant manner, we face significant challenges with performance – including rapid population growth, increasing costs and timeframes for treatment plant upgrades, and addressing a significant backlog in maintenance. We'll boost our wastewater systems' resilience to a changing climate, ensure our existing infrastructure is fit for purpose, and cater for growth to support Greater Sydney's housing needs.

We'll **improve the performance of wastewater treatment** facility assets through significant and consistent investment**.** Our target focuses on concentration of priority pollutants because we have some control over this, and demonstrates our ability to plan and invest for growth and maintain our assets.

In alignment with customers' preferences, we've applied a **medium cost, risk and performance profile for preventing pollution**. It reflects planned upgrades to treatment plants and realistic timeframes for implementation, forecasts growth, and accounts for deteriorating performance at plants over time.

We'll **maintain the number of pollution and environmental harm incidents** at their current level, which is consistent with recent average-weather performance. Even a flat trend in environmental harm incidents requires investment to address growth and ageing assets, and avoids a significant number of incidents due to improvements in detection and response.

Priority 4: Enhancing the water network's resilience to drought through building water recycling and/or desalination capacity

> *'Why can't it be recycled to make usable again? We need to increase the capacity for recycling water.'*
> ***Residential customer** | Sydney customer forum*

What we heard that customers valued and preferred

Customers are concerned about the future resilience of the water supply in the face of growth and climate change, and want Sydney Water to build more water recycling and/or desalination capacity (Phase 1). The customer panel wanted us to act now to secure water supply (Phase 5).

Customers expect us to proactively plan for drought and to act on the water supply and water conservation to improve the resilience of Greater Sydney's water supply. They accept that water restrictions are an option to manage drought, but they value investment to reduce the severity of restrictions and to make them equitable for the community. They expect Sydney Water to reduce water loss by minimising leaks and breaks in our network (phases 1, 4 and 5).

Customers and stakeholders support exploring all options for securing future water supplies, including optimising existing assets, conserving water, building desalination plants and recycling water (phases 1 and 4). The panel was hesitant about recycled drinking water due to having limited information about it, but members were generally positive about desalination and recycled water for non-drinking purposes (Phase 4). The key considerations for new water supply investments are environmental impact and rainfall dependency (Phase 4).

Members of the customer panel indicated that they're willing to pay more on their water bills to maintain current levels of water supply resilience. Through our DCE study, average homeowning customers placed a value of $15-$20 each quarter over the next five years to maintain the current estimated time of 5½ years without enforced severe water restrictions, rather than reducing this estimate to four years (Phase 4).

When considering the trade-offs, the customer panel valued Sydney Water's focus on reducing the risk of severe water restrictions. They were willing to pay an additional $15–$20 each quarter over the next five years to support investments in increased supply, leak management, and water conservation programs (Phase 5).

Customers on the panel said they could reduce their use from the current average of 185 litres per person per day to 100–125 litres and maintain this during a drought (Phase 4).

What we heard from customers guides our actions

In response to customer feedback, we'll **improve the resilience of Greater Sydney's water supply** by investing in new RFIS. By doing so, we will be more prepared for drought and potentially reduce the time it will take to bring a new supply option online. We will invest in expanding and upgrading our water services to cater for growing cities and a growing population, while also improving the interconnectivity of our system and reducing single dependencies.

We will **continue planning** to expand the existing Sydney Desalination Plant. We will maintain stakeholder and customer support for PRW as part of our water supply augmentation plan.

We'll proactively invest in solutions to remove flow and loads from coastal systems via recycled water and PRW, **in line with our economic assessment**

Priority 5: Reducing water loss by minimising leaks and breaks in our water network

> **'We have had a number of pipe bursts in our street and it took weeks for Sydney Water to fix the problem. We have been told that the problem is with old pipes.'**
> ***Residential customer* | *Sydney customer forum***

What we heard that customers valued and preferred

Customers expect us to reduce water loss by minimising leaks and breaks in our network.

Consistent water access is important for homes and businesses, both for livelihood and for supporting economic development. Customers expect us to continue to minimise the impact of planned and unplanned outages (Phase 1).

Around 70 per cent of customers on the panel supported a reward/penalty concept for performance beyond 15 per cent either side of our performance target for system leakage (Phase 6).

Customers value reliable services to households and want these maintained with no service degradation, but also no compelling need to improve service – with most respondents indicating that the current standard was 'about right' (phases 1, 2 and 5)

What we heard from customers guides our actions

We'll maintain our minimum service levels for water continuity in our revised operating licence, aligned to our five-year historical average performance, and adopt this as our performance target, expressed inversely as a percentage. This reflects feedback from the Customer and Community Reference Group (CCRG) to simplify the language.

We'll also commit to improving system leakage through an outcome delivery incentive, with financial rewards and penalties to drive improvement in our performance.

Priority 6: Increasing water savings and reducing water use through community-based water saving programs

> **'Limiting water wastage – including broken pipes, taps and house/sprinklers left on.'**
> ***Residential customer* | *Sydney customer forum***

What we heard that customers valued and preferred

Customers are also open to doing more to conserve their own water use. However, they feel that we should do more to educate them on how they can do this and provide community-based water savings programs (Phase 1).

Customers on the panel were open to extra water conservation, but felt that Sydney Water should do more to educate the community on water conservation (Phase 4 and 5).

What we heard from customers guides our actions

To help customers use water efficiently, we'll set a community outcome-focused target to **improve drinking water use (residential)**, contributing to the GSWS water efficiency targets of 38 GL by 2030 and 49 GL by 2040.

We will deliver water conservation programs and invest in reducing leakage **in line with our economic assessment**, supporting educating our community on water conservation (under our customer experience outcome).

Priority 7: Improving natural waterways and habitats

> **'The more people coming into Sydney the worst it's going to get. They're building a whole new city down the road near the airport. What do they think that's going to do to the river?'**
> ***First Nations customer* | *Focus group***

What we heard that customers valued and preferred

Customers value clean local waterways for the health and recreational benefits they provide. One customer priority is for us to improve natural waterways and habitats (ranked 7 in Phase 1). They value protecting the natural environment and creating places for plants and animals to thrive, and the benefits this creates for the community. Swimming is valued, but is a secondary priority compared to the other values.

Customers on our panel are willing to pay more to improve waterway health, particularly when Sydney Water can improve natural systems for overall community benefit. Based on our DCE study, homeowning customers were willing to pay an additional $21 on top of their quarterly bills (in addition to the estimated increase) to see 200 identified urban waterways improved (Phase 4).

What we heard from customers guides our actions

Our most significant investment is to provide stormwater services in the Mamre Road and Aerotropolis precincts. We've assumed maintenance of drainage assets is **fully funded via customer cost recovery**. We'll enhance amenity, aesthetics and ecology of waterways through naturalisation where we can do so **without additional costs to customers**.

We will improve active management of our land, with natural areas to provide environmental and ecological outcomes, even as we increase our asset base through new stormwater servicing. We will improve management of waterways by learning from the knowledge and traditional practices used by Aboriginal and Torres Strait Islander peoples.

We will improve water quality and public access at specific sites by collaborating with councils via our Waterway Health Improvement Program. We will continue to **support and work with councils and government** to improve implementation of water-sensitive urban design (including via our Waterway Health Improvement Program) and help them increase the use of recycled water for irrigating public open spaces.

Details on the remaining priorities, including what we heard that customers valued and preferred, and how that guides our actions, is provided in *Appendix 2: Customer outcomes*.

Customer priorities helped shape our customer outcomes

After a thorough review of the 15 priorities shared with us during the first phase of Our Water, Our Voice, we engaged with customers in Phase 2 to strategically group priorities into main outcomes, called 'customer outcomes'. Customers initially grouped their priorities into four themes, which the CCRG (see **Figure 2.2**) assisted us to refine to three outcomes. Our strategic outcomes are further supported by a set of key objectives, measures and targets, each of which is aligned to a key customer priority identified in Our Water, Our Voice and customer insights from phases 2–5.

Figure 2.2: Summary of the customer engagement informing outcomes

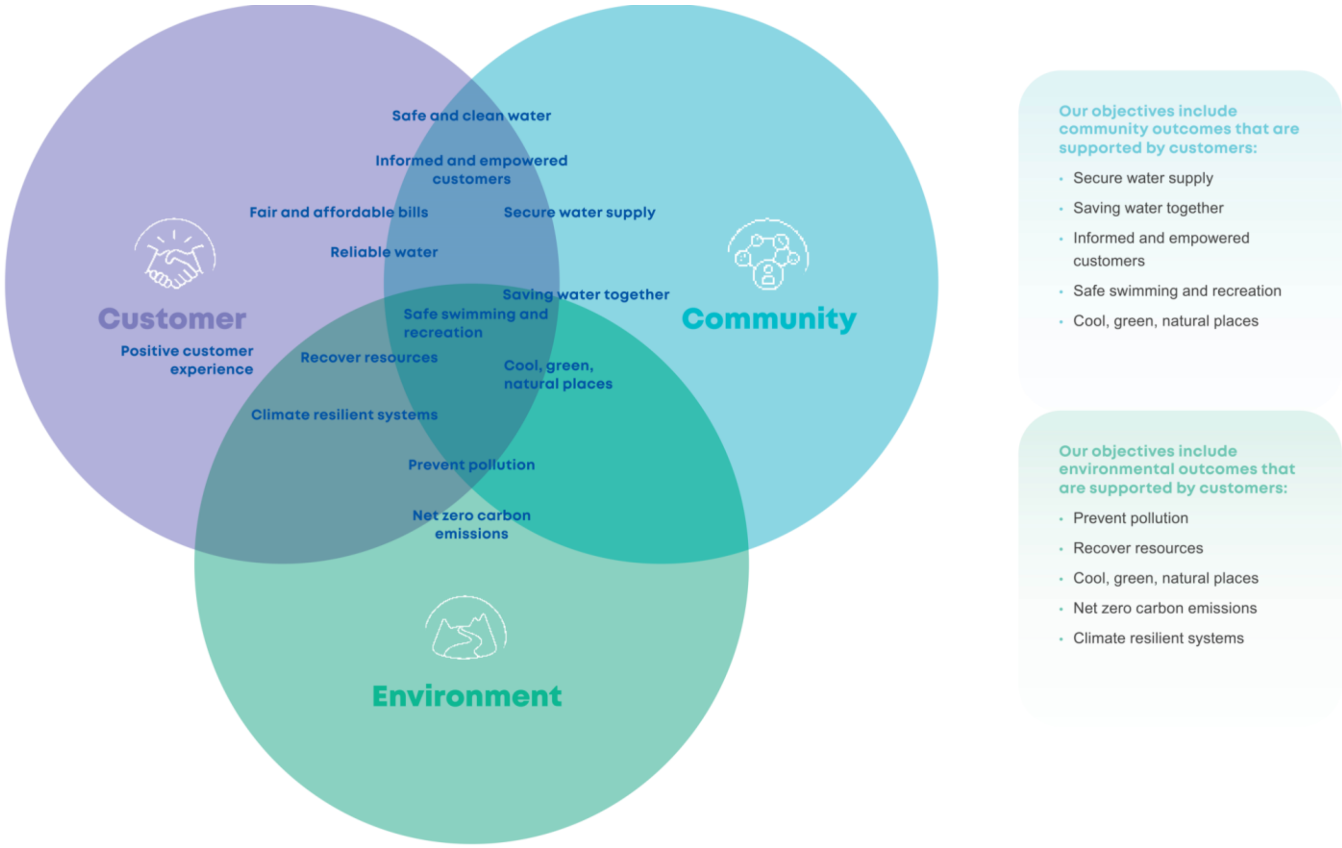
Our three customer outcomes define ‘what’ Sydney Water aims to achieve for our customers.

Customer experience	Water quality and reliability	Environmental protection
Provide a great customer experience	Deliver safe, clean, reliable drinking water every day	Ensure we protect our waterways and environment now and for the future

Our customer outcomes also include community and environmental objectives

As outlined in IPART’s *Water Regulation Handbook*, Sydney Water has proposed outcomes across the customer, community and environmental dimensions. All of our three customer outcomes focus on community and environmental impacts, alongside outcomes directly experienced by customers. These are clearly seen in the objectives identified under each outcome. This multiple focus reflects the broader scope of what our customers expect from Sydney Water now compared to five years ago. We considered broader community and environmental priorities, while ensuring services are cost-reflective and affordable today and in the future. We identified these priorities through Our Water, Our Voice and other engagement with groups such as local government, First Nations people, government agencies and regulators.

Figure 2.3: Outcome objectives grouped by customer, community and environmental outcome areas



Our commitment to customers

Our customer outcomes represent the primary goals we have for providing our customers with their most valued services. Each one explains what we aim to achieve and includes specific objectives that reflect customer priorities and areas of focus.

Figure 2.4: Sydney Water's customer outcomes, their proposed costs and objectives for each customer priority

Delivering on our customer outcomes

To deliver on the customer outcomes, we need to significantly increase infrastructure investment and continue to efficiently and effectively deliver our services while maintaining our performance into the future in the face of significant challenges. The following tables show each customer outcome, describing their objectives and targets, our planned actions and the required investments. The tables detail the key activities we will undertake by 2030 and our measures of success, and the capital investment and operating expenditure necessary for achieving each customer outcome, and ensuring optimal customer value and manageable bill costs.

Our enterprise planning process is supported by strategic investment plans for customer experience, water quality and reliability, and environmental protection. These provide our business with a detailed 10-year roadmap for what we need to accomplish to deliver these customer outcomes in alignment with the direction in our LTCOP (see **Chapter 5**). These plans are essential for achieving our customer outcomes, balancing expenditure with risk, performance, cost and customer price impacts. This comprehensive approach ensures that our investment planning and the associated capital works and opex are strategically aligned to deliver on the outcomes our customers value most along the price path and into the longer term. The strategic investment plans can be found at *Appendix 2: Customer outcomes*.

Each customer outcome is outlined by objective, our commitment to customers, what we will do by 2030, our measures of success and a summary of what the key activities will cost (excluding efficiency adjustments).

Customer experience – Deliver a great customer experience

Table 2.1 Customer experience objectives

Objective 1: Fair and affordable bills	Objective 2: Positive customer experience	Objective 3: Informed and empowered customers	Objective 4: Safe swimming and recreation
Our commitment to customers We provide value for money, keep bills affordable and support those in need	***Our commitment to customers*** We are inclusive and helpful, treating all customers fairly and with respect	***Our commitment to customers*** We keep customers informed and include communities in the decision-making process	***Our commitment to customers*** We support improved community access to lands and waters for safe swimming and recreation
What we will do by 2030 Provide proactive and directed information and education about payment assistance programs, scaled up as needed to meet customer demand (with NSW government assistance forecasted over $1 billon) Keep bills low by managing our assets and water network (see Water Quality and Reliability and Environmental Protection outcomes) Continue to provide retail services, such as accounts ($198m opex)	***What we will do by 2030*** Transform developer application and contribution payment processes, including providing self-service options ($11 million digital investment) Improve field mobility to save time and money and improve the customer experience ($3m digital investment) Renew stormwater assets to protect public safety and properties and manage flood risk ($280 million, capex) Continue to provide retail services, such as accounts, and look for opportunities for commercial products and services (opex)	***What we will do by 2030*** Continue to inform and engage with customer and stakeholders as well as educate the community on the value of water through advertising and digital media campaigns, school education programs and provision of PRW tours ($142 million opex) Replace current customer meters with digital meters that provide greater transparency of water use ($293 million, capex)	***What we will do by 2030*** Enhance waterway coordination to improve customer waterway outcomes Maintain membership of collaborative catchment and coastal management groups (Note: this requires minimal opex and capex)
Our measures of success **Affordability** – Average residential customer bill as a percentage of the average disposable income for the Greater Sydney Region **Target** ≤1.24% by 2030	***Our measures of success*** **Customer satisfaction** – Measured position compared to the top quartile of benchmarked peers in the quarterly Brand Tracker Customer Survey (external survey), based on a customer rating for overall service satisfaction of 8 or above out of 10 **Target** top quartile	***Our measures of success*** **Water literacy** – Literacy score (Out of 10) from the quarterly Water Literacy Tracker (an external survey) testing customers' understanding of water, where it comes from, how it's managed, and where it goes **Target** ≥ 5.75 out of 10 by 2030	***Our measures of success*** **Public access and recreation** – Annual increase in the number of sites with improved community access for recreation (including swimming). This includes Sydney Water–managed sites for temporary or long-term access and sites managed by councils or other agencies. **Target** ≥ 1 extra site per year

Water quality and reliability – Provide safe, clean, reliable drinking water every day

Table 2.2 Water quality and reliability objectives

Objective 1: Safe and clean water	Objective 2: Secure water supply	Objective 3: Saving water together	Objective 4: Reliable water
Our commitment to customers Our water is kept safe and clean to drink	***Our commitment to customers*** We build water supply resilience to climate and growth	***Our commitment to customers*** Our water is used more efficiently, and we support the community to save water	***Our commitment to customers*** Our water services are reliable every day
What we will do by 2030 • Deliver water filtration plant (WFP) upgrades and pretreatment at Prospect, Nepean, Cascade, Orchard Hills and other WFPs ($1 billion, capex) • Deliver WFP renewals ($274 million, capex) • Install new WFPs or augment existing plants to support growth ($388 million, capex) • Continue to operate, maintain and monitor our WFP and build-own-operate plants ($884 million, opex) • Continue to provide laboratory and water quality testing services ($99 million opex) • Launch water quality automation program ($9 digital investment)	***What we will do by 2030*** • Build RFIS (purified recycled water) ($481 million, capex) • Expand Sydney Desalination Plant network ($920 million, capex) • Provide access to water services to growing number of new homes and businesses ($2.3 billion, capex) • Make bulk water purchases ($2.9 billion opex)	***What we will do by 2030*** • Enhance the leak reduction program to improve leak detection, minor preventative maintenance, response times and water pressure management ($150 million, opex) • Continue ongoing implementation of the enhanced water conservation plan customer water efficiency and education programs ($50 million, opex)	***What we will do by 2030*** • Renew critical and reticulation water mains and water network assets to maintain supply ($883 million, capex) • Continue to operate and maintain our water network to maintain services to customers and better manage the impact of outages ($699 million, opex) • Enhance the monitoring and control of our infrastructure through spatial futures ($8 million, digital investment)
Our measures of success **Drinking water quality:** Percentage of systems where drinking water meets health guidelines **Target** 100% each year	***Our measures of success*** **Available water supply:** Proportion of drinking water demand that can be met by RFIS **Target** ≥ 33% by 2030	***Our measures of success*** **System leakage:** Percentage of drinking water supplied lost as leakage **Target** ≤7% by 2030 **Drinking water use (residential):** Residential drinking water use per person per day (in LPD, litres per person per day) **Target** <182 LPD by 2030	***Our measures of success*** **Water continuity:** Percentage of customers affected by an unplanned water interruption for more than five hours **Target** < 2% each year

Environmental protection – Ensure we protect our waterways and environment now and for the future

Table 2.3 Environmental protection objectives

Objective 1: Prevent pollution	Objective 2: Recover resources	Objective 3: Cool, green and natural places	Objective 4: Net zero carbon emissions	Objective 5: Climate resilient systems
Our commitment to customers We prevent pollution of waterways and the environment by improving our wastewater and stormwater systems. We support our community to control pollution at source	***Our commitment to customers*** We maximise recycling and reuse of water, energy and materials. We minimise and manage our waste	***Our commitment to customers*** We contribute to community wellbeing through providing recycled water to green and cool public spaces. We care for Country, and conserve and restore waterways and natural habitats	***Our commitment to customers*** We achieve net zero carbon emissions in our operations from 2030 in response to the increasing impact and risk of the changing climate	***Our commitment to customers*** Our water services and infrastructure (drinking water, wastewater, recycled water and stormwater) can cope with climate change
What we will do by 2030 • Continue with wastewater treatment renewal program ($1.3 billion, capex) • Renew critical wastewater trunk mains ($1.1 billion, capex) and continue to renew wastewater networks ($440 million, capex) • Extend wastewater treatment and networks capacity to meet environmental requirements in response to growth ($5.6 billion, capex), including ○ complete Upper South Creek (USC) Advanced Water Recycling Centre (AWRC) and pipelines ○ complete Malabar system augmentation near term ○ provide access to wastewater services to service growth in new homes and businesses ○ invest to meet the Hawkesbury–Nepean Nutrient Management	***What we will do by 2030*** • Deliver committed recycled water schemes, including to the Sydney Science Park (unregulated) • Complete North Head Biosolids Amplification project ($34 million, capex) • Participate in unlocking the circular economy through delivery of USC resource projects (included in other items)	***What we will do by 2030*** • Deliver a new regional integrated stormwater harvesting and recycled water scheme across the Aerotropolis and Mamre Road precincts) ($1.4 billion, capex) • Deliver the Waterway Health Improvement Program ($53 million, capex) • Continue to maintain stormwater natural assets ($48 million, opex)	***What we will do by 2030*** • Complete emissions reduction renewable energy projects including cogeneration and solar facilities ($77 million, capex) • Continue renewable energy facilities operations and maintenance ($44 million, opex) • Complete net zero carbon emissions program including secure green power purchasing agreement and purchase carbon offsets (opex to be explored)	***What we will do by 2030*** • Establish a program to identify and prioritise climate change risks • (Note: we don't have a dedicated capital program. This is considered within individual growth and renewal projects where deemed prudent and efficient to do so)

Framework (HNNMF) (including the North West Treatment Hub) • Reduce wet weather overflows ($242 million, capex) plus internal surcharges ($80 million, capex) • Complete Vaucluse Diamond Bay upgrade ($85 million, capex) • Continue to perform wastewater treatment and network operations and maintenance ($2.1 billion, opex) • Initiate a range of offset activities to improve waterway health under the HNNMF ($65 million, opex)				
Our measures of success **Quality of treated wastewater –** Percentage of water resource recovery facilities (WRRFs) where the quality of wastewater discharged complies with annual concentration limits of core pollutants that treatment plants are designed to treat (core pollutants) **Target** = 100% by 2030 **Pollution and environmental harm incidents** – Number of pollution incidents or other incidents that cause, or could cause, environmental harm, mainly as a result of wastewater treatment and network incidents. This also includes other incidents such as water discharge, vegetation or heritage impacts. **Target** ≤ 1053	***Our measures of success*** **Volume of recycled water available** – Volume of our recycled water that is available for supply, including treated wastewater and harvested stormwater (GL/year) **Target** ≥ 62 GL/yr by 2030	***Our measures of success*** **Natural area and green infrastructure land actively managed** – Percentage of Sydney Water land area with natural values and green infrastructure that is actively managed **Target** ≥ 78% by 2030	***Our measures of success*** **Net carbon emissions (tCO_2-e)** – Volume of Scope 1 and 2 carbon emissions (CO_2-e tonnes per year where CO_2-e refers to 'carbon dioxide equivalent') **Target** = Achieve net zero carbon emissions by 2030	***Our measures of success*** **Climate risk maturity health check** – Enterprise-scale level of climate risk management maturity rated through the NSW Climate Risk Maturity Health Check Tool **Target** = Achieve advanced rating by 2030

Outlining performance measures and tracking progress

We have developed performance measures aligned to each of the customer outcomes and objectives, as identified in the previous section. We've established quantified measures that align with our operational responsibilities for delivering outcomes, addressing immediate needs and future-focused enhanced management. In response to feedback on our proposed measures from our CCRG, we enhanced these measures to support all our objectives and revised the language to be more customer friendly. We also prioritised measures that customers find most meaningful, ensuring they clearly relate to the effects of our services on the community and environment, and include joint initiatives like water conservation.

For all measures, we have proposed short- and medium-term targets that we commit to delivering during this price period. We have also identified longer-term targets that are informing our 10-year Strategic Investment Plans. We tested and refined key target levels to measure our success during the price period with customers during further in-depth engagement. The rationale for selecting these measures and targets, including how they align with our strategic goals, customer expectations and investment plans, is outlined for each outcome in our Strategic Investment Plans.

In setting demanding but realistic targets, we considered:

- customers' expectations for providing drinking water, wastewater and stormwater services
- long-term plans and our future-focused strategic directions
- past organisational performance and other suitable industry benchmarks
- the impacts of environmental conditions including the variable and changing climate
- management of risks at the lowest total costs
- meeting our obligations to regulators and stakeholders, including customer protection operating licence standards and other regulatory requirements, as a minimum, and improving environmental compliance
- continuously improving the services we deliver to our customers.

We will ensure accountability to customers by communicating our progress toward targets and publicly reporting on outcomes via annual reports, as detailed in Chapter 14. Sydney Water also proposes a performance target for water system leakage, with penalties or rewards for performance. This was supported by a customer panel in Phase 6.

CCRG shaped our outcomes and measures

Language – needs to be easy to understand and inclusive

Measures – should not just be the same as those required by the regulators or from a Sydney Water perspective, but should be measures that customers want to see

Education – the importance of educating customers, not just informing them; for example, providing support related to financial literacy and budgeting

Communication and responsibility – needs to be two-way with customers; that is, customers as much as Sydney Water are responsible for taking action (for example, in relation to water conservation)

Partnering – the importance of working together with the community and customers

Affordability – a critical issue for customers that is becoming increasingly important as market conditions tighten, particularly for those customers who have no budget elasticity; for example, pensioners.

What service standards we will meet

Our customer outcome targets set the service levels we aim to achieve with our investments, guided by the minimum service standards in our operating licence. These standards include our water continuity, water pressure, and dry weather wastewater overflow standards, specifying levels such as ensuring 98 per cent of properties are unaffected by unplanned water interruptions. Through customer engagement, including feedback and a Phase 4 DCE, we found that customers are generally satisfied with the current standards and do not wish them to change. This information informed the review of our operating licence, ensuring our service levels align with customer expectations.

Table 2.4 Performance measures and targets for customer outcomes. For more information on how these measures are calculated and details on historical baseline performance and longer-term targets, see *Appendix 2: Customer outcomes*.

	Performance measures	Baseline	Targets (short, medium, long term)			Trend
		2023–24 (or other)	2025–26	2029–30	2034–35	
Customer experience	**Affordability:** average residential customer bill as a percentage of average disposable income for the Greater Sydney Region	0.86%	≤0.98%	≤1.28%	≤1.46%	Maintain (benchmark range)
	Customer satisfaction: measured position compared to the top-quartile of benchmarked peers in the quarterly Brand Tracker Customer Survey (an external survey), based on a customer rating for overall service satisfaction of 8 or more out of 10	Top quartile	Top quartile	Top quartile	Top quartile	Maintain (benchmark range)
	Water literacy: literacy score (out of 10) from the quarterly Water Literacy Tracker (an external survey) testing customers' understanding of water, where it comes from, how it's managed, and where it goes	4.9	≥5.15	≥5.75	≥6.5	Improve
	Public access and recreation: annual increase in number of sites with improved community access for recreation (including swimming). This includes sites managed by Sydney Water for temporary or long-term access and sites managed by local councils or agencies	1 extra site	≥1 extra site	≥1 extra site	≥0	Maintain
Water quality and reliability	**Drinking water quality:** percentage of systems where drinking water meets health guidelines.	100%	100%	100%	100%	Maintain
	Available water supply: proportion of drinking water demand that can be met by RFIS	17%	≥17%	≥33%	≥38%	Improve
	Drinking water use: residential drinking water use per person per day (in LPD, litres per person per day)	183 LPD (Q3 result, observed 12 month rolling average)	<183 LPD	<182 LPD	<173 LPD	Improve
	System leakage: percentage of drinking water supplied lost as leakage (proposed as ODI, outcome delivery incentive)	9% (Q3 result, observed 12 month rolling average)	≤8%	≤7%	≤7%	Improve
	Water continuity: percentage of customers affected by an unplanned water interruption for more than five hours	1.7%	< 2%	< 2%	< 2%	Maintain
Environmental protection	**Quality of treated wastewater (concentration – core pollutants):** percentage of WRRFs where quality of wastewater discharged complies with annual concentration limits of core pollutants that treatment plants are designed to treat	96.2%	≥84.6%	100%	100%	Improve
	Pollution and environmental harm incidents: number of pollution incidents or other incidents that cause, or could cause, environmental harm, mainly as a result of wastewater treatment and network incidents. This also includes other incidents such as water discharge, vegetation or heritage impacts	1053	≤1053 *	≤1053 *	≤1053 *	Maintain (recent average weather performance)
	Volume of recycled water available: volume of our recycled water that is available for supply, including treated wastewater and harvested stormwater (gigalitres (GL)/year)	39 GL/yr (Average 2019-20 to 2023-24)	≥46 GL/yr	≥62 GL/yr	≥114 GL/yr	Improve
	Natural area and green infrastructure land: percentage of Sydney Water land area with natural values and green infrastructure that is actively managed	22%	≥75%	≥78%	≥80%	Improve
	Net zero carbon emissions (tCO_2-e): volume of Scope 1 and 2 carbon emissions (CO_2-e tonnes per year, where CO_2-e refers to 'carbon dioxide equivalent')	390,000 tCO_2-e (2020–21)	≤279,000 tCO_2-e	Achieve net zero emissions	Maintain net zero emissions	Improve
	Climate risk maturity health check: Enterprise-scale level of climate risk management maturity rated through the NSW Climate Risk Maturity Health Check Tool	Fundamental/ repeatable	Systematic	Advanced	Advanced	Improve

* For pollution and environmental incidents targets we have set a variability band of one standard deviation of the long-term average performance which creates an upper bound of 1,497 incidents per year.

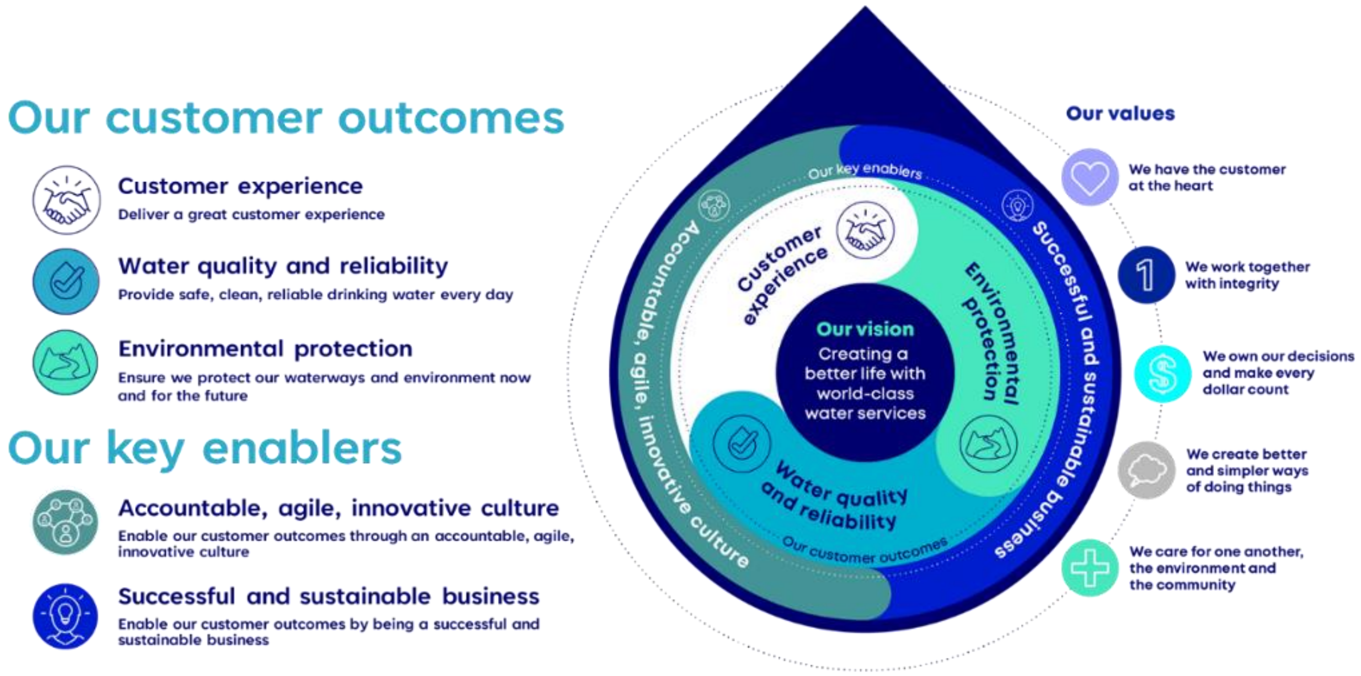
Refreshing our organisational strategy to ensure alignment with customer priorities

We are delivering on our vision to create a better life with world-class water services. Our strategy guides how we shape our business and make decisions to achieve this. Guided by the findings of Our Water, Our Voice, we have evolved our strategy to ensure we address our customers' priorities.

This has resulted in the creation of a new strategic planning framework based on the three key customer outcomes (customer experience; water quality and reliability; and environmental protection) and two organisational enablers to detail how we will work to accomplish these outcomes (Accountable, Agile, Innovative Culture; and Successful and Sustainable Business). The three customer outcomes and two enablers form our new strategic outcomes. Further information on how we developed the customer outcomes and key enablers is provided in the following section.

Our updated strategic planning framework integrates all our learnings from customer engagement to ensure our strategic objectives are led by what customers have told us they value, while taking into account the long-term challenges and opportunities discussed in **Chapter 3**. Some of these challenges are already manifesting, and customers have also been very clear about their priorities. We have therefore already taken the important step of aligning our management structure to better reflect customer priorities. We have appointed senior executives as custodians with accountability for each of these outcomes. This will feed into our strategic objectives, our long-term planning, and our annual planning and budgeting processes.

Figure 2.4: Alignment of Sydney Water's strategy with customer outcomes



How we will enable our business to deliver customer outcomes

Supporting our three customer outcomes, we have two organisational enablers for Sydney Water, outlining 'how' we will enable our business to deliver our customer outcomes. Our people are the single most important ingredient in our vision for the potential future for Sydney Water. They are designing how we will build and deliver our aspirations. They are delivering services to the communities we support. And our strategic outcome – **Accountable, Agile, Innovative Culture** – is critical to our success. Engagement with our stakeholders confirmed the expectation that we are a financially and socially responsible business. Our second strategic outcome – **Successful and Sustainable Business** – lays the foundation for being a positive influence in the sector and communities we serve. Our enterprise planning process for key enablers is supported by two strategic investment plans for Accountable, Agile, Innovative Culture; and Successful and Sustainable Business. These provide our business with a 10-year roadmap of what we need to accomplish to mature our business, to enable us to achieve what our customers want, through the relevant measures and targets.

Figure 2.5: Organisational enablers for Sydney Water

Supporting performance measures

We will determine our success in enabling our customer outcomes over the price period through the following measures, monitored internally and reported as relevant through our annual report:

- **Safety** (Total Recordable Injury Frequency Rate score for Sydney Water employees and contractors)
- **Employee Experience Index** (A new aggregate measure that shows that Sydney Water's workforce is engaged and members have positive work experiences)
- **Sustainable investment efficiency** (return on invested capital reflects the efficiency of capital utilisation)
- **Delivering infrastructure when it is required** (overall measure of delivery) percentage score assesses our efficiency and reliability in delivering infrastructure assets from planning, design and construction to deployment
- **Various measures** related to diversity and equity, research and innovation, our financials, digitalisation and sustainability.

Chapter 3: Operating context

Key message

We have delivered water and wastewater services for 136 years. Now, climate change, population growth and ageing infrastructure challenge us to plan and deliver differently to secure Sydney's water future.

Summary

- Our past decisions have largely served us well, and today's customers enjoy world-class water services paid for by bills that are among the lowest in Australia.
- As we plan for the future, delivering our services becomes more challenging amid complex and overlapping issues affecting Sydney's water supply. These challenges are already impacting our performance, and we understand the additional burden customers face with rising costs.
- During the past four years, we experienced the combined effects of drought, heatwaves, bushfires, floods and extreme rainfall. These events, examples of what is likely to occur more frequently due to climate change, have forced changes to the way we operate our networks and compromised our ability to comply with some of our regulatory requirements.
- Our customers have benefited from significant economies of scale, but this has come with an over-reliance on a small number of large-capacity assets. We must build systems that are resilient to all hazards, whether known or unknown.
- A significant share of our current asset base requires more maintenance than has been needed historically, due to age and falling health/condition ratings. Around 15 per cent of our assets are fully depreciated and about 26 per cent are past their theoretical end-of-life.
- Sydney Water is undertaking the largest expansion of any water utility in Australia to help support the NSW Government's housing goals. Growth will exhaust remaining excess capacity in existing systems while also expanding to areas with no infrastructure and high investment costs.
- Individually, these challenges are substantial, but their combined impact is compounded. However, change also presents opportunities. Effective solutions can address multiple issues simultaneously, at a reduced cost to customers.
- For example, new digital technologies can improve efficiency and customer experience, while infrastructure investments can enhance resilience, sustainability and cost-effectiveness, meeting expectations of a modern water utility.

Key reference materials

APPENDICES

Nil

READING ROOM

Greater Sydney Water Strategy
Growth Servicing Plan 2024 – 2029
NSW Climate Risk Ready Guide

Guided by our 3Cs focus principles

CUSTOMER OUTCOMES

Customers recognise these challenges add complexity to delivering their outcomes and want us to plan to meet them.

BALANCE RISK AND LONG-TERM PERFORMANCE

We have experienced how drought, floods, a pandemic and ageing assets can compound and adversely impact the performance of our assets and our ability to respond.

EQUITABLE AND EFFICIENT COST RECOVERY

These challenges add to the cost of delivering customer outcomes that also challenge affordability.

We are proud of our history

For 136 years, we have delivered water services and continually adapted as the city has grown, customer expectations have evolved, and new challenges have emerged. As set out in **Figure 3.2** most of our major investments over the past century have fundamentally changed how water is managed and contributed to a better life for our customers. For example, construction of new water supply storage facilities and bulk water supply systems in the 19th and 20th centuries improved water security for our growing city. In much more recent times, supporting our customers to use less water has meant the city now uses around 12 per cent less drinking water than it did 20 years ago, despite being home to almost 1 million more people. Our water conservation programs have also deferred major investments in extra wastewater capacity. It is through smart investments like this that we have been able to deliver world-class services to customers while keeping prices among the lowest in Australia (**see Figure 3.1**).

Figure 3.1: Real price indices for water and wastewater services (base CPI: June 2024), Sydney versus Australia

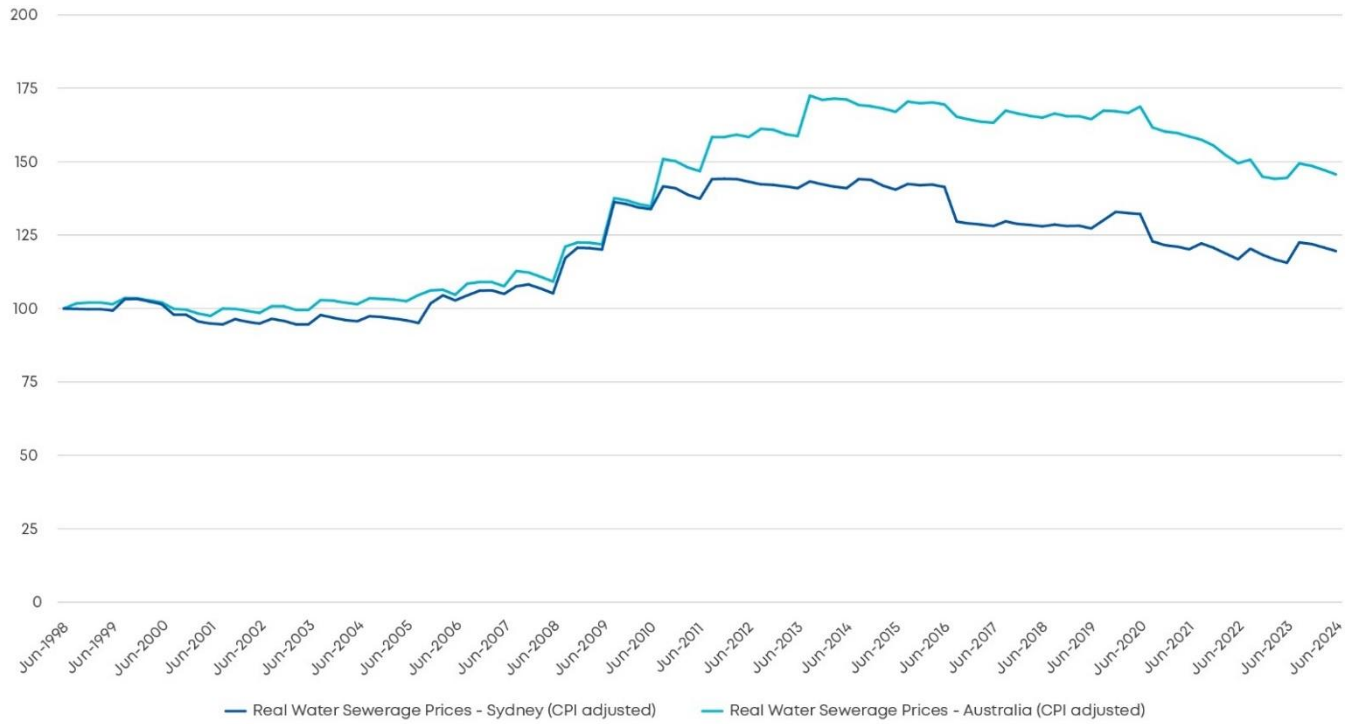
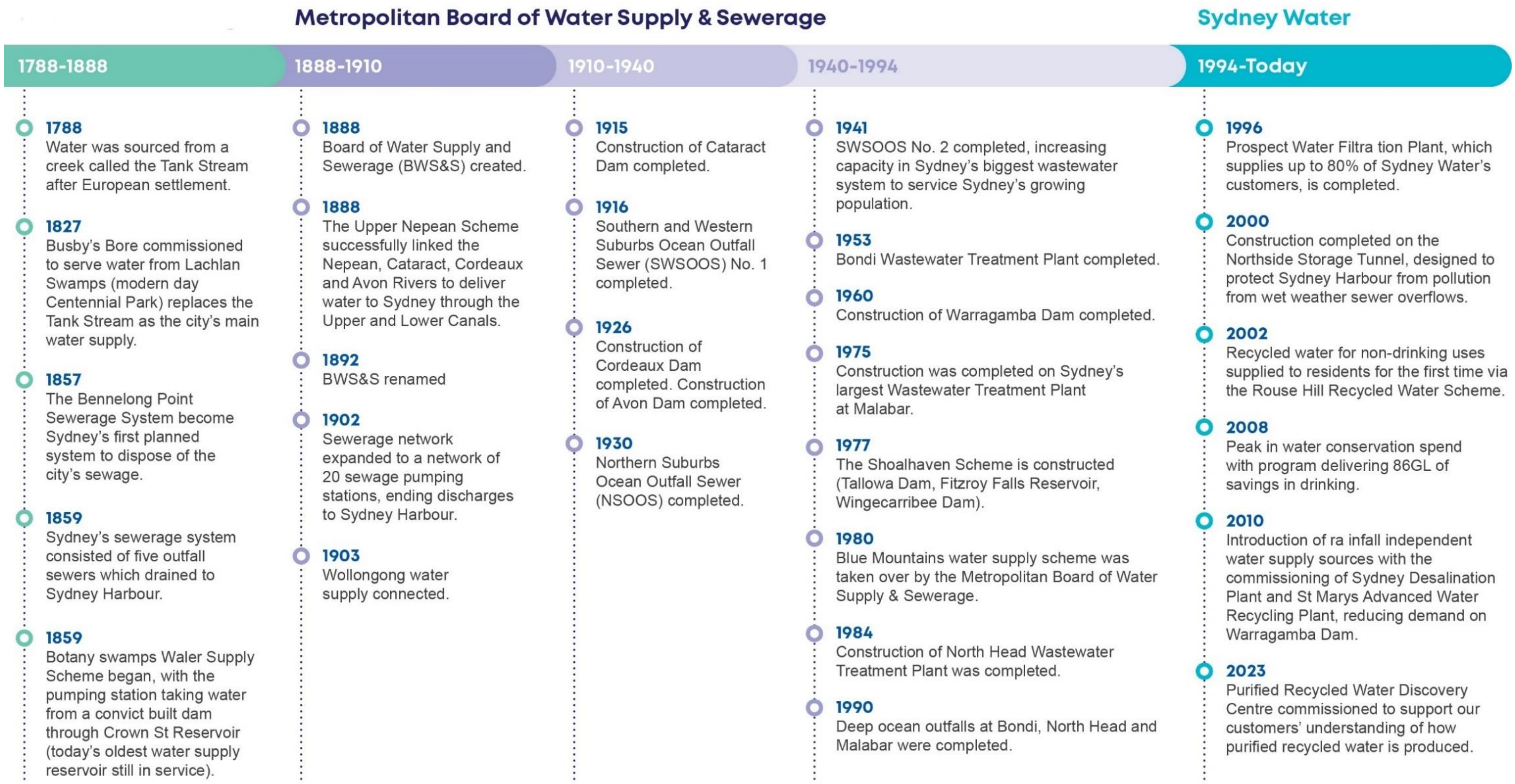


Figure 3.2: Timeline of major investments in water and wastewater services since 1788



Supporting our customers in difficult times

We have observed a rising trend of customers requiring assistance due to cost-of-living pressures. Initially, this was due to the impacts of the COVID-19 pandemic but more recently it is linked to the general increase in the cost-of-living due to higher inflation and interest rates.

As part of our COVID-19 response, we provided additional support to customers and employees facing financial challenges. In 2020, enquiries to our Customer Care team about specialist financial support increased 30 per cent on previous years, primarily from people who had lost their jobs due to the pandemic. In 2020–21, more than 20,000 customers were given extra time to pay their bills, and 58,000 customers were put on special payment arrangements.

In the second half of 2022–23, we logged the highest number of requests for bill assistance since COVID-19 strained household budgets two years earlier. We continue to offer assistance and have not reinstated all debt recovery activities (for example, we have not restricted supply of water due to non-payment).

Sydney Water plans to manage affordability concerns by continuing and scaling up our existing financial support offerings (see **Chapter 12** for more information). This is further supported by our proposal for a price path that seeks to spread the impact of price increases over the entire five-year regulatory period rather than concentrating them in one year (see **Chapter 11**).

Statement of Expectations from our shareholder, the NSW Government

In April 2022, for the first time the NSW Government issued a formal Statement of Expectations, with the aim of aligning Sydney Water's strategic direction with government expectations and priorities. The existing Statement of Expectations reflects the priorities and expectations of the previous government and is currently being updated to ensure that expectations of the current government are conveyed.

While the Statement of Expectations does not override any regulatory obligations or create any new functions, it provides a mechanism for government to give guidance to our Board of Directors as they review and approve our investment plans and make other decisions. The final Statement of Expectations will be made publicly available to provide clarity to stakeholders, such as our regulators, and support a coordinated approach to achieving sector outcomes.

The Statement of Expectations covers a wide range of subjects, including:

- working with stakeholders and the community to build support for evidence-based recommendations regarding potential water supply augmentation needs
- supporting economic sustainability through the efficient and effective delivery of infrastructure and services, including by delivering projects on time and on budget
- sharing data with the public or stakeholders to improve transparency of decision making
- contributing to thriving and liveable communities through better integration of land-use planning and waterway health and resource management
- reducing the carbon footprint of operations in alignment with the Government's climate change plans, including meeting emissions reduction targets
- minimising cost-of-living pressures now and in the future, through measures such as investment prioritisation, and being efficient and effective in delivering services
- investing in research, innovation and new technologies that enable more resilient and better services
- ensuring robust and sustainable procurement practices
- providing for high standards of safety, corporate governance and expectations for workplace culture and diversity.

The Statement of Expectations for Sydney Water is well aligned with our investment focus to deliver our customer outcomes, guided by our LTCOP and insights from customer engagement. In particular, the significant investment in new infrastructure to support the growth priorities of the State and address critical housing needs represents the largest component of this price proposal.

Along with several of our new operating licence obligations, the Statement of Expectations has informed our planning for addressing long-term customer and community interests and climate change impacts. It has also informed our areas of focus that enable outcomes related to our business performance and workplace culture.

Serving our existing customers: recent performance and future risks

We entered the current determination period with plans to significantly improve the performance of our water and wastewater assets. Our plans were a response to a decline in several service delivery and compliance outcomes in the previous (2016–20) period, as well as recognition that the health of our asset base has continued to decline due to increasing age and the deferral of some maintenance activities. For example, we maintain around 49,000 km of water and wastewater pipes across our area of operations, and nearly half of this length is now more than 50 years old.

Using degradation modelling and other techniques, we estimate that between 12 and 23 per cent of our current water and wastewater assets already have a high probability of failure (see Table 3.1 and Table 3.2). The need for increased levels of monitoring, maintenance and asset renewal is only expected to increase over time.

While we have seen improved performance in several areas in recent years, the current determination period presented the following critical challenges that affected our ability to deliver services:

Extreme weather – We responded to a significant increase in extreme weather events, particularly city-wide rainfall events and localised storms (see Figure 3.3). These events caused additional pressure on our 24/7 service crews, including an increased number of reactive alarms requiring attendance from operational teams to maintain continuity of service and prevent pollution incidents.

Unforeseen global events – With the onset of the COVID-19 pandemic in early 2020, we had little choice but to defer and re-profile many of our work programs, both planned and unplanned, as the NSW Government issued a series of public health orders imposing movement restrictions and public lockdowns. Although there were some exemptions for essential service providers such as Sydney Water, our workforce was still affected by increased rates of sick leave and the wider impact of lockdowns. As the pandemic persisted, there were global impacts on the supply of goods and services, further disrupting our ability to deliver reliable services to our customers and increasing costs. Later in the period, the Russia–Ukraine conflict rekindled some supply chain challenges and led to rising prices for a range of critical inputs such as energy and chemicals.

Customers can have confidence in our drinking water

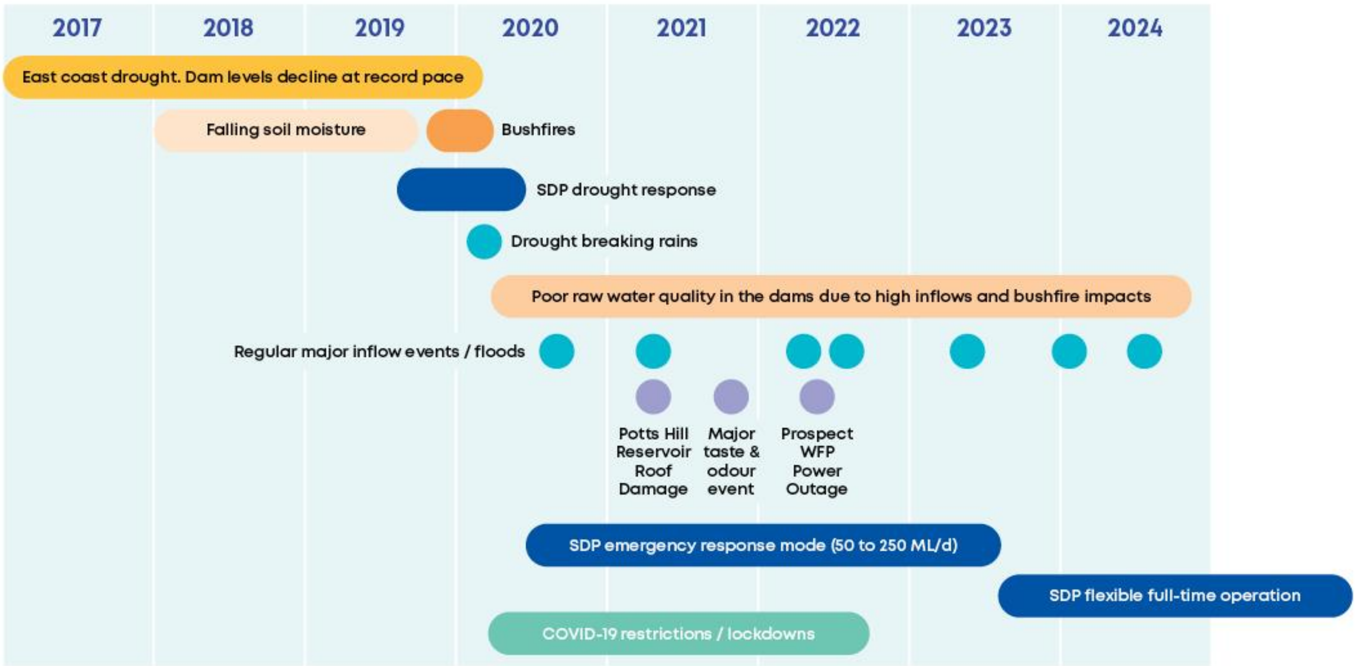
Water quality has been a longstanding priority for both customers and Sydney Water, and this was reaffirmed during the Our Water, Our Voice customer engagement program. Our long-term commitment to high-quality drinking water has been unwavering.

In 1952, Sydney Water's laboratories were the first in Australia to be accredited by the National Association of Testing Authorities. Now, more than 70 years on, we have held continuous accreditation and are the largest dedicated water and wastewater laboratory in the Southern Hemisphere, providing the highest level of assurance to the community of Sydney Water's quality product. Many regional councils and other authorities around NSW also rely on our testing and assurance. services.

Drinking water services

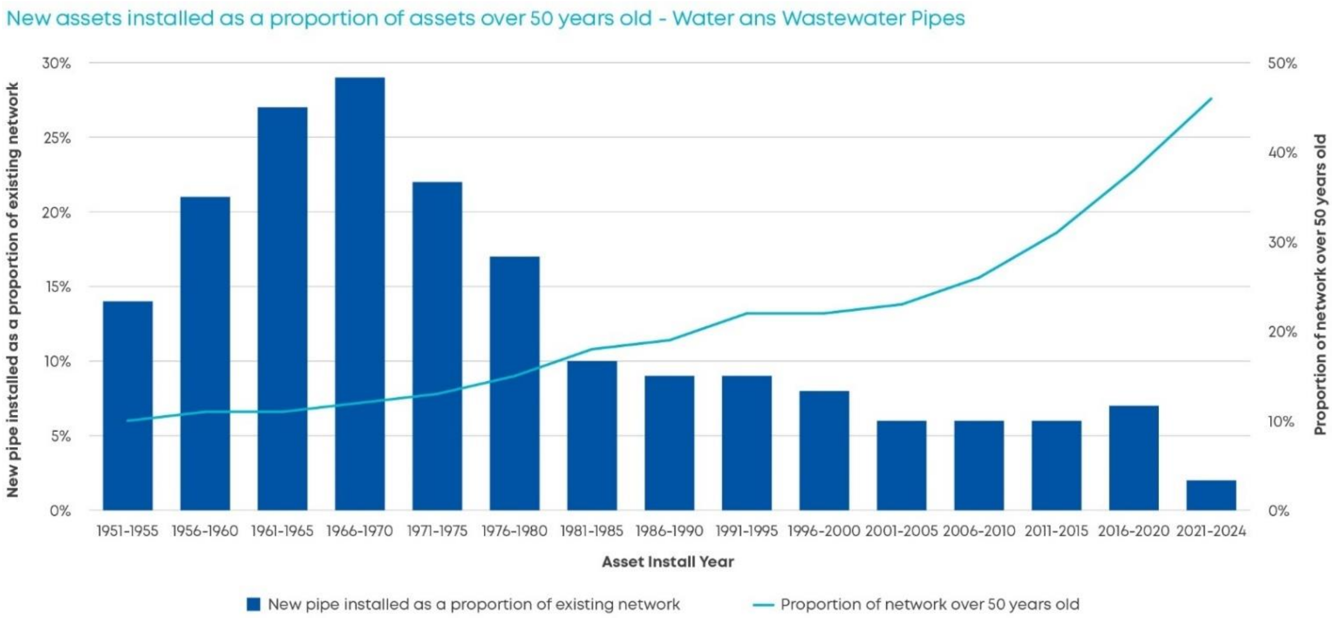
Sydney Water's risk appetite is to proceed cautiously with activities that could impact drinking water quality. Poor raw water quality has been a considerable risk to our operations for many years, with the potential to affect the quality of drinking water and the quantity of water we are able to reliably produce each day.

Figure 3.3: Cumulative extreme events have severely tested the capability of our assets, putting performance at risk



In the current determination period, the combined impact of drought, bushfires and extreme rainfall in catchment areas meant that most of our Water Filtration Plants (WFPs) were required to treat raw water that was well outside normal operational envelopes. While this sequence of weather events unfolded in late 2019 and early 2020, the impacts continue to be felt many years later.

Figure 3.4: Age profile of water and wastewater mains, by length of main



As recently as July 2024, samples of the raw water arriving at the Warragamba Water Filtration Plant continued to have very high ‘true colour’ values (true colour is an indicator of the concentration of dissolved materials in a water sample) as shown in **Figure 3.5**. Most of our filtration facilities were optimised to treat water with a true colour value of less than 10, and higher values means more time and cost is required to achieve compliance with drinking water guidelines. As raw water quality is yet to stabilise and remains vulnerable to further major rainfall events, there is an ongoing and elevated risk of boil water alerts. Given our water filtration assets serve more 5.3 million customers, the consequences of failure are extreme.

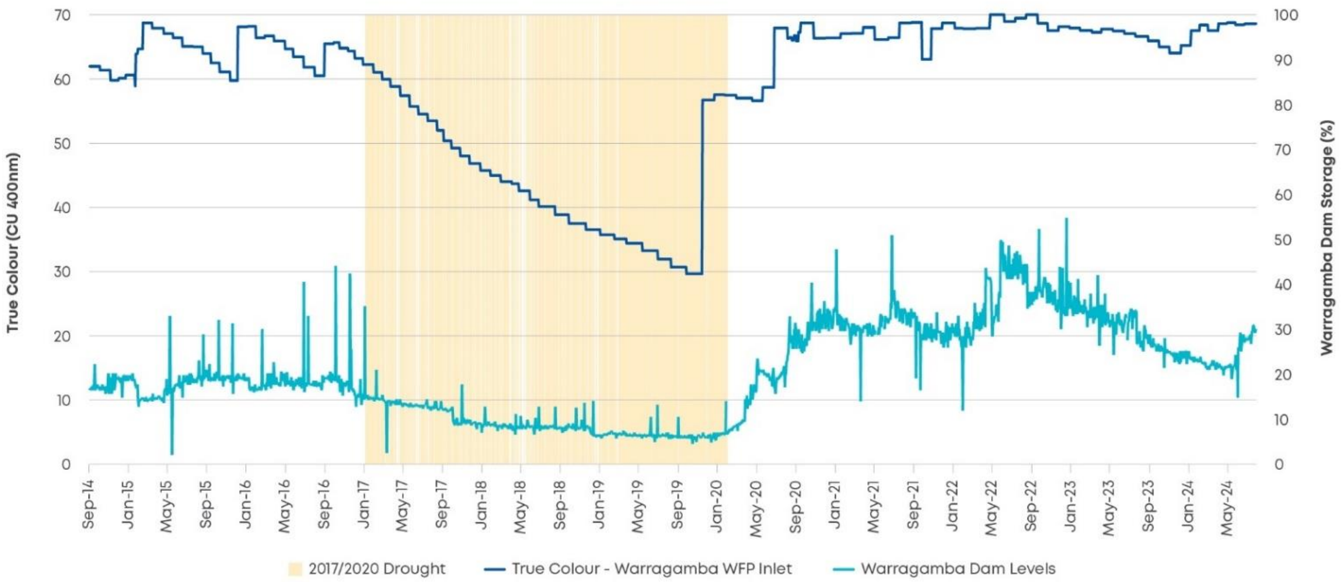
Poor raw water quality has meant that our WFPs continue to experience significant challenges producing the required drinking water quality and quantity. Despite the additional stresses created by poor-quality raw water, asset performance at WFPs was generally stable for most of the current period. However, on two occasions since 2020 customers were asked to reduce their water use as our filtration plants were at significant risk of not being able to filter raw water to drinking water standards at a sufficient rate to maintain normal supply volumes:

- In October 2021, we received 1,300 taste and odour complaints from customers in areas supplied by the Prospect, Orchard Hills and Warragamba WFPs.
- Around 200,000 properties served by the Orchard Hills plant were asked to conserve water in July 2022 following extreme wet weather and flooding.

The cause of both incidents can be traced to the widespread bushfires in the Warragamba Dam catchment in late 2019 and early 2020 and the subsequent decline in raw water quality.

While compliance with drinking water targets has continued to be very good, the ongoing material risks to compliance prompted a decision to initiate a major investment program to improve the level of pre-treatment at our WFPs. More detail on this program is available in Chapter 6.

Figure 3.5: Poor water quality at the inlet of the Warragamba WFP



All drinking water supply systems achieved full compliance with the drinking water quality health and aesthetic parameters in the current price period except the exceedance in 2021–22 in the Orchard Hills system noted above.

The risks to drinking water supply have been managed through existing operational controls and contingency measures, including the prudent use of the Sydney Desalination Plant (SDP) to supplement the network with clean drinking water under Emergency Request Notifications, as well as a range of other operational responses.

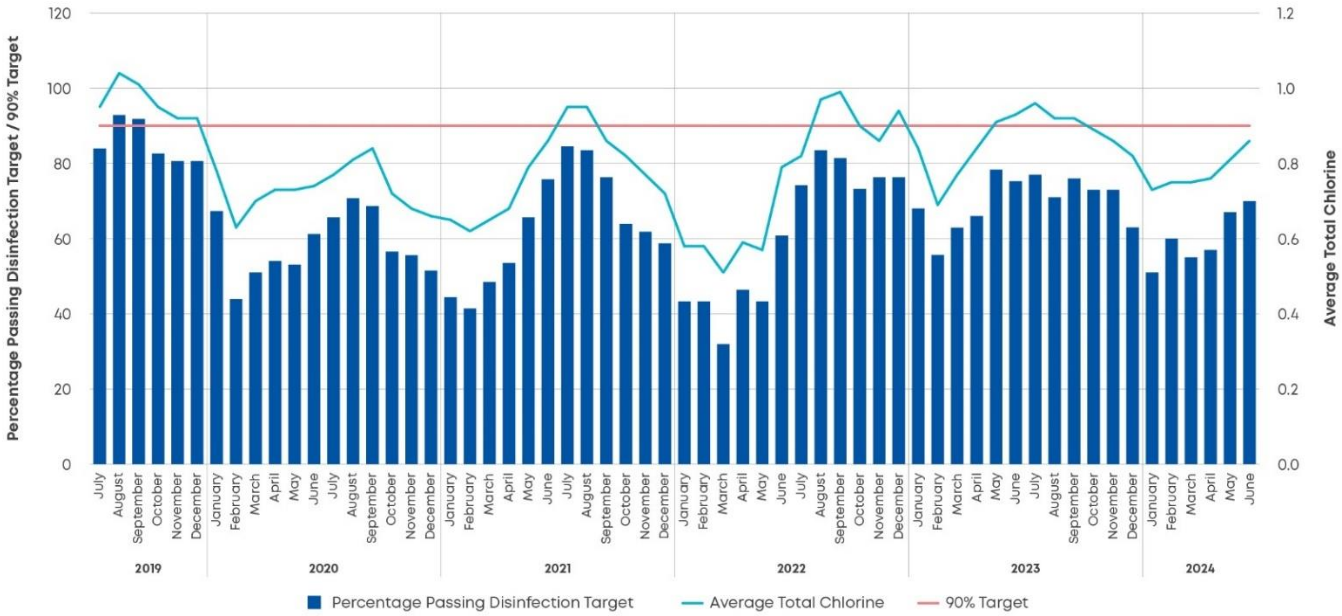
While these measures have allowed us to continue to deliver safe drinking water, there have also been trade-offs. For example, in a situation where incoming water quality is a risk to the quality of treated drinking water, a standard operational risk control would be to aim for a higher level of residual chlorine in our drinking water through extra chlorine dosing.

Higher chlorine dosing can be done as water leaves the relevant filtration plant (known as primary chlorination) and/or at key points across the water delivery system such as storage reservoirs (known as secondary chlorination). However, higher levels of residual chlorine may be unpleasant for some of our customers and may also lead to concentrations of disinfection by-products that are above recommended limits.

To avoid excessive levels of chlorine residuals at customers' properties, we have reduced the rate of secondary chlorination in some delivery systems. However, this has meant that five of our 13 drinking water delivery systems have been performing below our preferred secondary disinfection targets at various times over the past few years (measured over a rolling 13-month performance window) (see **Figure 3.6** for an example).

A planned water quality automation project will improve monitoring and control of disinfection performance in our networks, with the aim of achieving a more reliable level of disinfection control. In addition, projects are planned to replace manual dosing across the network, and install mixers and online chlorine monitoring at our reservoirs.

Figure 3.6: Secondary disinfection performance – Ryde water network system 2019–2024



Water network performance and future risks

The overall asset performance[2] of water pumping stations and reservoirs has declined slightly during the current period. There were 1,750 (9 per cent) assets within our water pumping stations and reservoir asset classes that experienced some form of failure and required extra maintenance and/or qualified for full renewal (like-for-like replacement) to ensure we could continue to deliver services.

Compliance against operating licence requirements for water continuity has improved in the current period (see **Figure 3.7**). However, Sydney Water was within only 1,700 to 2,600 properties of breaching the licence limits twice during the current determination period (2020–21 and 2022–23) after breaching the limit twice in the previous period (2018–19 and 2019–20).

Historically, poor performance and non-compliance with our Operating Licence has coincided with a handful of very complex water main failures that left many thousands of properties without water until repairs could be safely completed. In the absence of these major events, our level of compliance in each year would have been at or around the optimal level specified in the *Operating Licence 2019-2023*. Asset performance of both critical and reticulation water mains (pipes) has improved in the current period; however, we still had a relatively material percentage of underperforming assets:

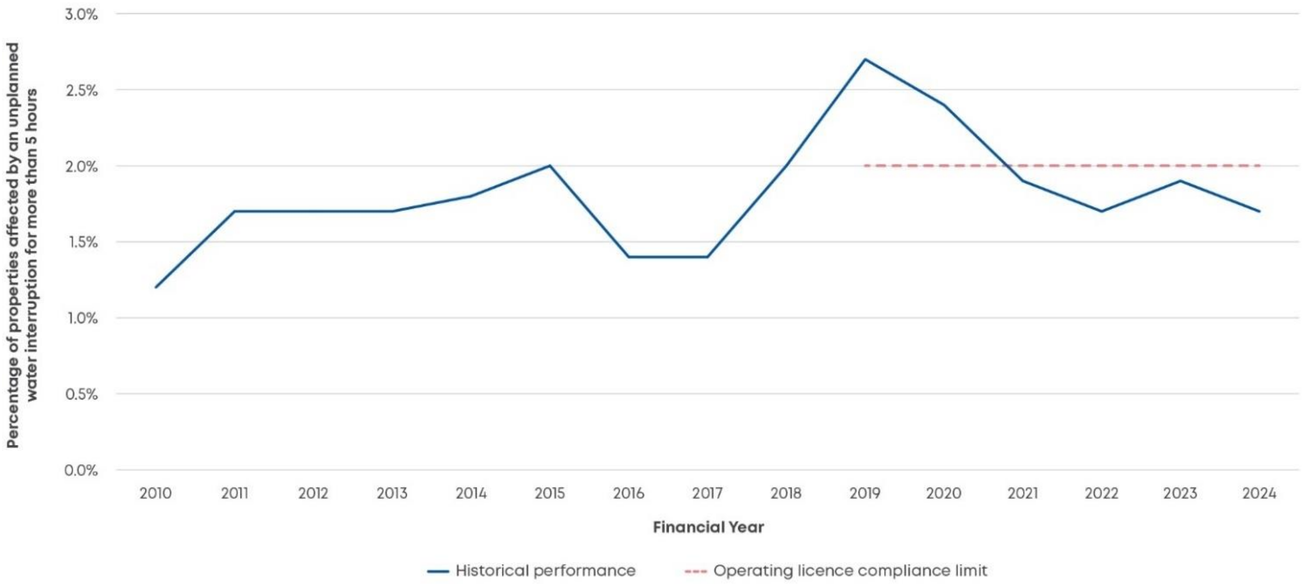
- 665 km (13 per cent) of critical water mains experienced some form of failure that required performance-based renewal and/or maintenance.

[2] Asset performance is a measure of the reliability of our assets to deliver services.

- 3,860 km (22 per cent) of reticulation water mains required extra maintenance and/or qualified for full renewal (like-for-like replacement) to ensure services could continue to be delivered at an acceptable cost.

Benchmarking of water main breaks per 100 km shows that Sydney Water ranks 10th among 15 major water utilities in Australia. For the period between 2013–14 and 2022–23, Sydney Water had 25 water main breaks on average for every 100 km of water main, where the median across all the major water utilities was 17.

Figure 3.7: Properties affected by an unplanned interruption to their water service lasting more than five hours



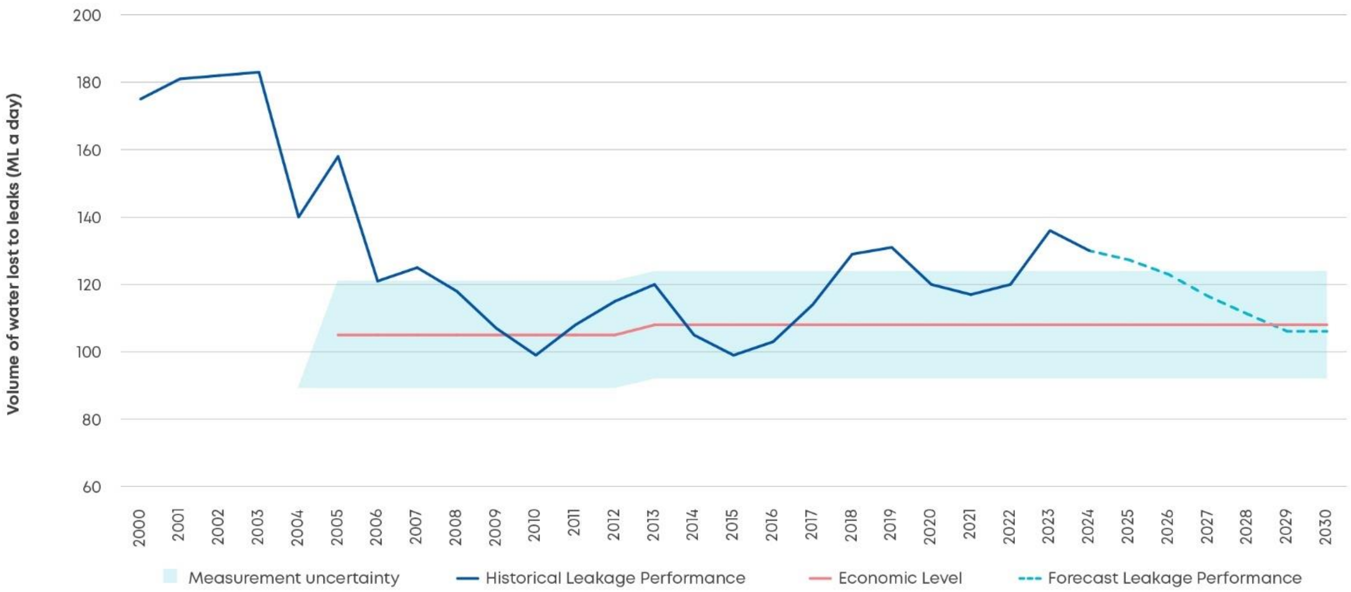
Across the 2020–24 period, we observed an increase in leaks, which now account for the equivalent of around nine per cent of the total volume of drinking water demand. It is not possible to reduce leaks to zero and there will always be a background level of leaks as water slowly seeps from joints and other fittings on 21,000 km of water mains and at each connection to the circa 2.1 million customer properties that we serve. However, we can take action to reduce leaks, including renewing ageing infrastructure and fixing leaks reported to us by customers or identified through other means.

Since 2005, our goal has been to operate the water network to achieve a level of leaks over time that is consistent with the Economic Level of Leakage (ELL), as this provides the best outcome for customer bills. We do not measure the volume of water lost to leaks directly but calculate it as residual unaccounted water use. This means the reported level of leaks does not need to exactly equal the ELL in any given year. Taking these measurement uncertainties into account, the actual level of leaks rose above the ELL during the current determination period and is at its highest level since we started actively targeting leaks in the early 2000s (see **Figure 3.8**).

While many factors influence the level of leaks in any given year, the increase in recent years reflects:

- an increase in the length of time it takes us to fix reported leaks
- the impact of COVID lockdowns which limited our ability to proactively find leaks and also reduced customer-reported instances of visible leaks
- frequent wet weather, which means that leaks that find their way to the surface may be indistinguishable from surface rainwater, and hence may not be reported as quickly as they would be had conditions been drier
- a backlog of leak-related jobs and higher levels of maintenance on other assets (for example, wastewater assets).

Figure 3.8: Water leakage



Customers told us we need to increase our efforts to avoid water waste, evidenced by their support for a leakage ODI. We will need to increase efforts to find and fix leaks across our water network, scale our response in line with the economic level of water conservation, and manage leaks as our assets fail.

We have undertaken evidence-based degradation modelling using historical performance data for our water network infrastructure to understand our exposure to future water continuity and leakage performance issues. We have identified assets that have a high likelihood of failure (see **Table 3.1**) and prioritised investments based on the consequence of failure (see **Chapter 6**), to ensure water quality and reliability outcomes.

Table 3.1: Risks to future performance due to current health of drinking water assets

Infrastructure	High probability of failure	Consequence of failure	Example risks 2020–24
Water pumping stations and reservoirs	**350 (19%)** civil assets **1,200 (12%)** electrical assets **1,200 (18%)** mechanical assets	**Extreme:** exposure of whole drinking water supply delivery system **Critical:** exposure of large numbers of people (>10,000 but not meeting 'Extreme' criterion) to an 'Acute Hazard'	**Prospect clear water tank cover tear** – loss of supply due to reduced storage in the system, coupled with summer demand, as the Prospect tank is critical in balancing water volumes from the Prospect WFP **Potts Hill Reservoir roof tears** – reduced storage
Critical water mains	**17,000 (15%)** valves **6,300 (18%)** hydrants **925 km (17%)** pipes	**Major:** loss of service/product reliability of 8,000 to 40,000 customer days	Several large water outage incidents due to failure of critical water mains; for example, **Lane Cove** in September 2022, **Lewisham** in November 2022, **Mt Colah** in April 2023 and **Guildford** in June 2023
Water reticulation pipes	**7,700 (18%)** valves **50,000 (18%)** hydrants **4,500 km (23%)** pipes	**Moderate:** operating licence non-compliance	Level of leaks above the economic level

Recycled water services

Throughout the current period, all of Sydney Water's 15 recycled water schemes met the recycled water quality requirements of the Australian Guidelines for Water Recycling and scheme monitoring plans. Most of these schemes are unregulated, with costs ring-fenced from this price proposal. At two of our regulated schemes, the volume of recycled water has fallen short of the target levels set by IPART as part of the 2020 determination (see **Table 3.2**).

Table 3.2 Performance against IPART's 2020 determination for water conservation output measures – water recycling

Water recycling	2020–21	2021–22	2022–23	2023–24	2024–25 (forecast)
Increase recycled water use at Rosehill-Camellia plant[3]					
Target (ML/d*)	20	20	20	20	20
Actual (ML/d)	3.4	3.5	4.0	3.8	4.0
Average environmental flows released by St Marys Advanced Water Treatment Plant					
Target (ML/d)	43	43	43	43	43
Actual (ML/d)	12.5	12.3	21.0	15.5	0

* megalitres per day

The Rosehill-Camellia recycled water project is a public–private partnership in which Sydney Water and a private sector partner provide recycled water to seven industrial customers. The project was originally designed to meet an average demand by these seven customers of 11.7 ML per day with expected peak day demand of 21 ML. Following a direction from the NSW Government, Sydney Water provides financial support for the project by paying for the equivalent of 10 ML a day, regardless of the actual level of demand.[4] In practice, demand has been significantly below 10 ML a day, as several of the original customers have since ceased activities on their land and no longer require any recycled water. The gap in revenue between the contracted minimum volume and actual demand is recovered from all drinking water customers.

Sydney Water has been working with the private sector owner of the scheme to explore options for increasing demand without adding to the cost burden on our customers. However, we have limited rights to secure new recycled customers ourselves and the scheme appears unviable without ongoing subsidies from our customers.

The other major recycled water scheme where IPART has asked us to report on the volume of production is the St Marys Advanced Water Treatment Plant in Sydney's west. Originally designed to produce an average of around 43 ML a day (or 15–16 GL a year) to offset releases from upstream drinking water dams, production has been impacted by a range of factors. Despite investments to increase output, such as the installation of improved mixers, recycled water production has been severely impacted during periods of extreme wet weather, resulting in treatment process bypasses and disruptions in operations, as well as delays in the Lower South Creek (Quakers Hill) project significantly reducing inflows.

Ongoing remediation work on Boundary Creek, which we are required to undertake following an order by the Land and Environment Court of NSW[5], has further impacted production as we must restrict discharge from St Marys Advanced Water Treatment Plant. Remediation works will impact production over the coming period as discharge into Boundary Creek will essentially cease altogether from 2024 until November 2026 to enable safe access to the work site.

[3] Recycled water supplied by the asset owner, Conexa, to non-foundation customers is not included.
[4] For further information, refer to Rosehill Camellia Recycled Water Project - Contract Summary.
[5] J.K. Williams Staff Pty Limited v Sydney Water Corporation (No 2) [2021] NSWLEC 72

Wastewater services

Sydney Water holds 26 Environment Protection Licences (EPLs) issued by the NSW EPA for our wastewater systems, two EPLs for WFPs (for release to the environment of backwash water from our filtration processes at our Cascade and North Richmond plants), and one EPL for an advanced water treatment plant. We report annually to the NSW EPA on compliance against each of our EPLs, and this data is publicly available on our website.[6] The level of EPL compliance is considered a strong indicator of environmental performance.

Like water services, we have had performance issues in our wastewater infrastructure over the current period.

While the number of non-compliant dry weather overflows have improved, we are still experiencing issues with returning to 100 per cent compliance. In our 2020 proposal, we noted that overall environmental performance was deteriorating. The majority of EPL non-compliances have historically related to dry weather wastewater network discharges (licence conditions L1.3, L1.4 and L7.4). In this period, the number of non-compliances peaked at 417 in 2020–21, but have since declined as we worked hard to return to compliance. The improved level of performance reflects several factors, with the complex interaction of weather conditions, demand (impacting spare capacity in our infrastructure and our ability to respond to incidents) and changes to maintenance programs and resourcing. It is challenging to attribute improved compliance outcomes to any one factor, and it is likely Sydney Water will need to maintain, and possibly increase, investment to uphold current levels of compliance.

Sydney Water's performance for overflows to waterways, as measured by material harm incidents, has shown consistent improvement in recent years (see **Figure 3.9**). It takes time to realise the benefits of increased investment in maintenance programs. For some systems, it has taken several years to return to a compliant state. Favourable climatic conditions and additional investment in reduction programs have both contributed to the decreasing number of overflows. The most common cause of blockages in small diameter pipes is tree roots, particularly as weather patterns change from wet to dry conditions. Asset performance of wastewater trunk and reticulation mains has improved in the current period due to the significant uplift in focus through the environment improvement program. We have identified 3,200 km (12 per cent) of underperforming wastewater pipe assets that require performance-based renewal and/or maintenance to continue to meet customer outcomes.

Dry weather overflows from wastewater pumping stations remained outside the compliance target (specified in condition L1.4 of each EPL) for most of the current determination except for 2020–21. General asset performance of wastewater pumping stations has declined in the current period. There are 3,500 (9 per cent) underperforming assets within the wastewater pumping stations that require performance-based renewal and/ or maintenance to meet environmental protection outcomes.

In relation to benchmarking wastewater system main chokes per 100 km, Sydney Water ranks last among 15 major water utilities in Australia. For the period between 2013–14 and 2022–23, Sydney Water had 58 wastewater system main chokes on average compared to the median of 23, indicating that we need to significantly improve our performance.

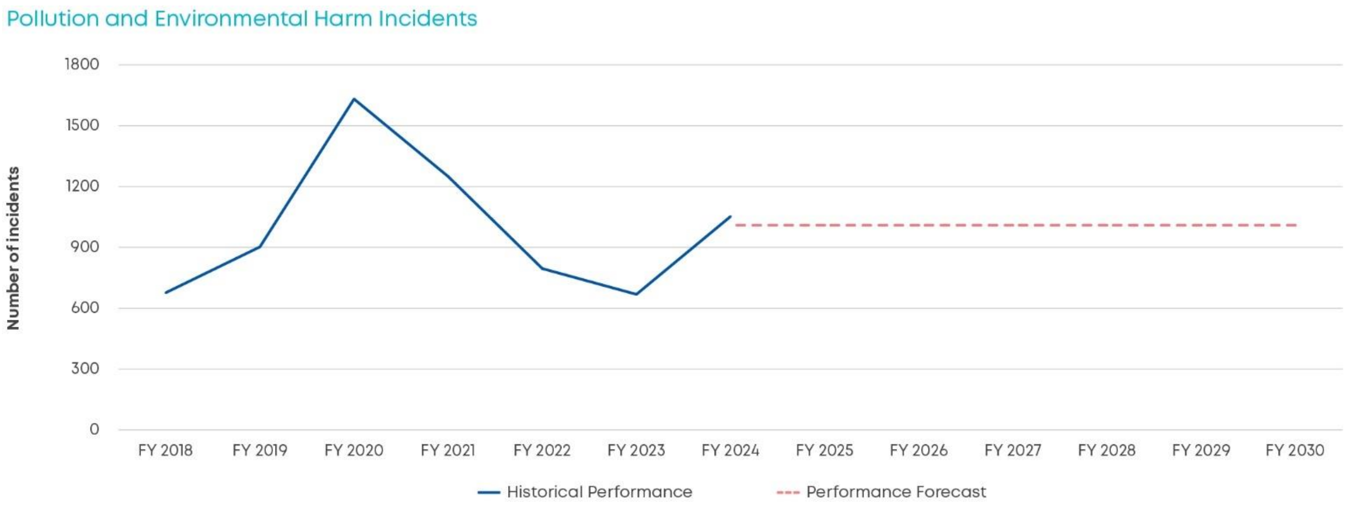
Our wastewater system has 30 WRRFs, of which 14 also produce recycled water. About 85 per cent of wastewater collected by Sydney Water is treated at nine coastal facilities before being released to the ocean.

The performance of our WRRFs has remained outside EPL targets during the current period (see **Figure 3.10** and **Figure 3.11**), although the type of non-compliance differs between facilities. The maintenance programs and step change in capital investment required to bring performance back within limits are driven by several factors. These include:

- an increasing maintenance requirement to support short- and medium-life assets (for example, temporary pumps and screens) installed to meet environmental obligations at a lower lifecycle cost until permanent amplifications are installed to meet growth requirements –many of these assets are deteriorating and approaching the end of their expected lives
- a NSW EPA expectation of 100 per cent compliance and reduction in pollution incidents, requiring higher levels of asset reliability and availability, and maintenance of system performance and capacity
- customers now placing greater importance on how we maintain resilient services to protect the water environment in rivers, lakes and estuaries, and improve the quality of beaches.

[6] https://www.sydneywater.com.au/water-the-environment/how-we-manage-sydneys-water/wastewater-network/epa-reports.html

Figure 3.9: Pollution and environmental harm incidents



During the current period, there were 66 non-compliant treatment plant bypasses (**Figure 3.10**) which is above our desired performance level. There were also 73 load and concentration non-compliances in the current period (**Figure 3.11**), although with an improving trend. Multiple factors cause these non-compliances, including wet weather impacting wastewater quality, growth in the catchments, tighter limits imposed by the NSW EPA, high flows during wet weather and/or asset failures.

We are currently undertaking a number of measures through a 'back to green strategy', including capital upgrades, ongoing process optimisation and improvements, a stage 2 concentration limits review with the NSW EPA, and a wet weather dispensation proposal to address the performance issue. We are working collaboratively with the NSW EPA to implement the regulatory framework for nutrient discharges into the Hawkesbury–Nepean river system.

There are 8,600 (6 per cent) underperforming assets within WRRFs that require performance-based renewal and/or maintenance to meet environmental protection outcomes.

Our analysis of these assets highlights an ongoing risk to compliance over the coming period. To meet our performance targets, our investment objective for this asset group is to understand the life expectancy of the wastewater assets through deterioration modelling and inspection, and to prioritise investment at a level of acceptable risk. We have identified assets that have a high likelihood of failure (**see Table 3.3**) and prioritised investments based on the consequence of failure (see **Chapter 6**) to ensure environmental outcomes.

Figure 3.10: Non-compliant bypasses at our WRRFs (2017–2024)

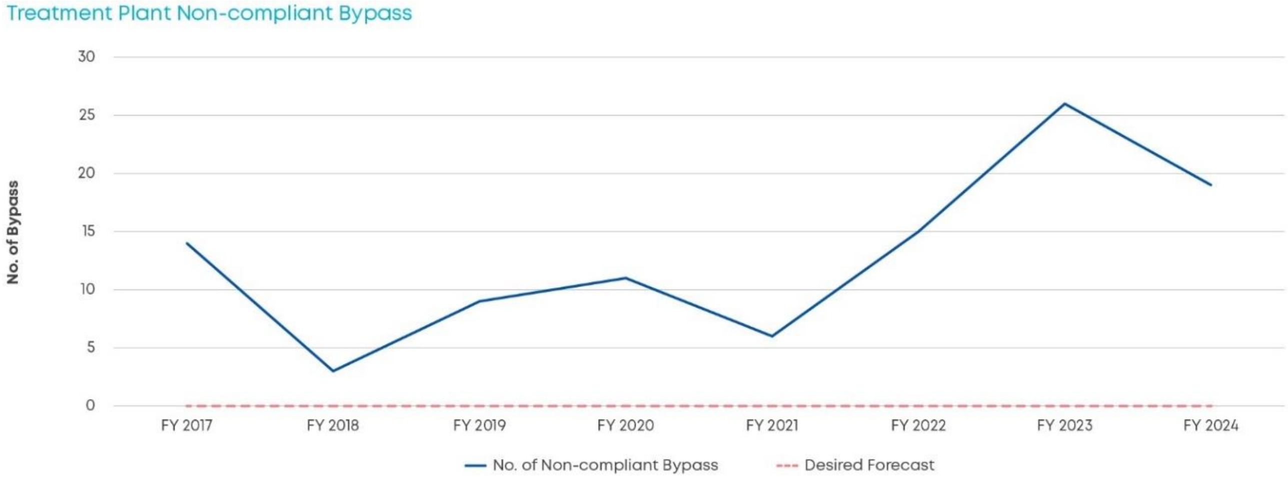


Figure 3.11: Performance of our WRRFs – load and concentration non-compliances since 2015

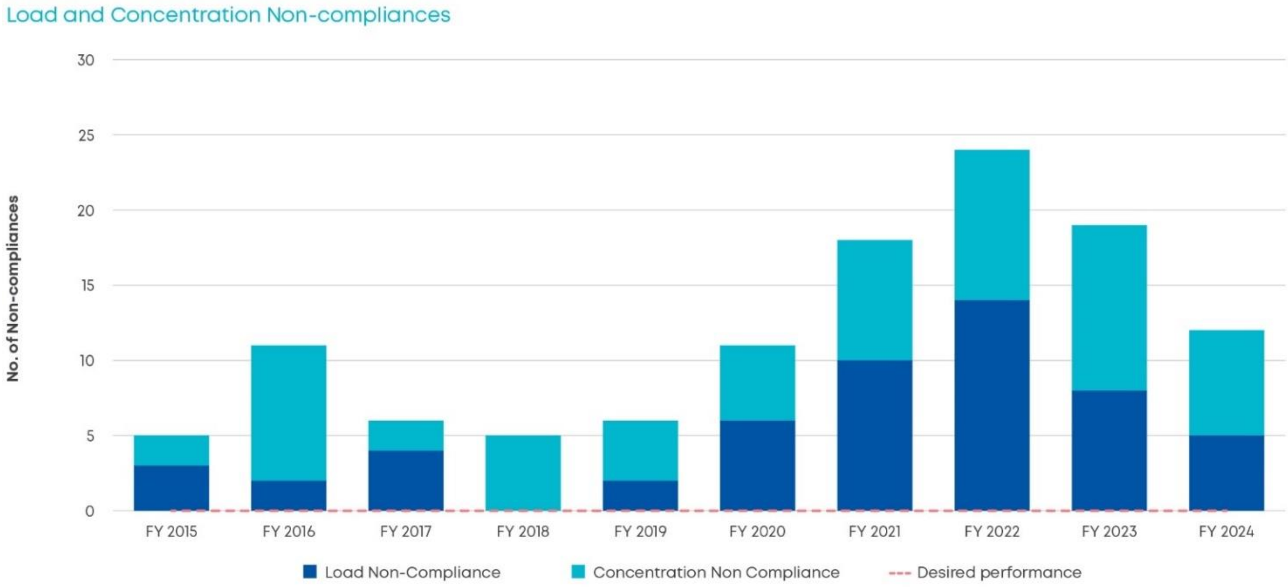


Table 3.3: Risks to future performance due to current asset health of wastewater assets

Infrastructure	High probability of failure	Consequence of failure	Example risks
Wastewater pumping stations	**77 (5%)** civil assets **2,000 (14%)** electrical assets **3,000 (15%)** mechanical assets	**Major:** regulatory sanction (multiple statutory fines, enforceable undertaking)	**Northmead pumping station** – collapse of overflow structure caused harm to Toongabbie Creek and Parramatta River
Wastewater trunk pipes including pressure mains	**140 km (5%)** pipes **125 (4%)** valves	**Major:** reputational harm **Major:** regulatory sanction (multiple statutory fines, enforceable undertaking)	**Clontarf –** 7 significant overflow events in April, May and June 2024 at Clontarf from the Northern Suburbs Ocean Outfall Sewer (NSOOS), resulting in community inquiries, NSW EPA and ministerial interest **Carramar –** dry weather overflow on 14 January 2019; Sydney Water convicted of polluting waterways with a $200,000 fine issued in February 2023 **Naremburn –** dry weather overflow on 27 October 2020; Sydney Water convicted of polluting waterways, with a fine of $365,625 issued in July 2023 plus $500,000 to local authorities to fund environmental projects **Strathfield –** broken rising main from SP0041 on 6 January 2022 **Homebush –** broken rising main on 24 March 2021, $347,100 enforceable undertaking to help fund local environmental improvements. **Shellharbour –** overflow from a broken rising main on 28 July 2020
Wastewater gravity reticulation pipes	**3,700 km (16%)** pipes **2,400 (19%)** vent shafts **26,000 (6%)** maintenance holes	**Moderate:** short-term reversible pollution requires some environmental remediation (1 week) **Moderate:** regulatory sanction (statutory fine, penalty infringement notice)	EPL non-compliances due to breach of specified system limits
Water resource recovery facilities	**620 (12%)** civil assets **8,100 (13%)** electrical assets **9,200 (13%)** mechanical assets	**Major:** medium-term reversible pollution requires substantial environmental remediation (multiple weeks) **Major:** adverse impact to state and local listed heritage or significant harm to registered Aboriginal cultural heritage	**Load and concentration risks**: • 5 plants are 80–100% of year-to-date allowable limit in 2023–24 • 17 plants were 80–100% of year-to-date allowable limit in 2022–23 **Liverpool, Glenfield and Fairfield odour complaints.**

Structural failures in key wastewater network infrastructure, such as our NSOOS, the Southern and Western Suburbs Ocean Outfall Sewer (SWSOOS) and our Bondi system, have led to accumulating risk as continued deterioration increases the likelihood of environmental incidents and the size of operational responses to mitigate them. Of our 23 treatment systems, only 10 are expected to have the system capacity that meet servicing need in the upcoming period.

Growing the customer base by supporting development: Current performance and future risks

NSW Government housing goals

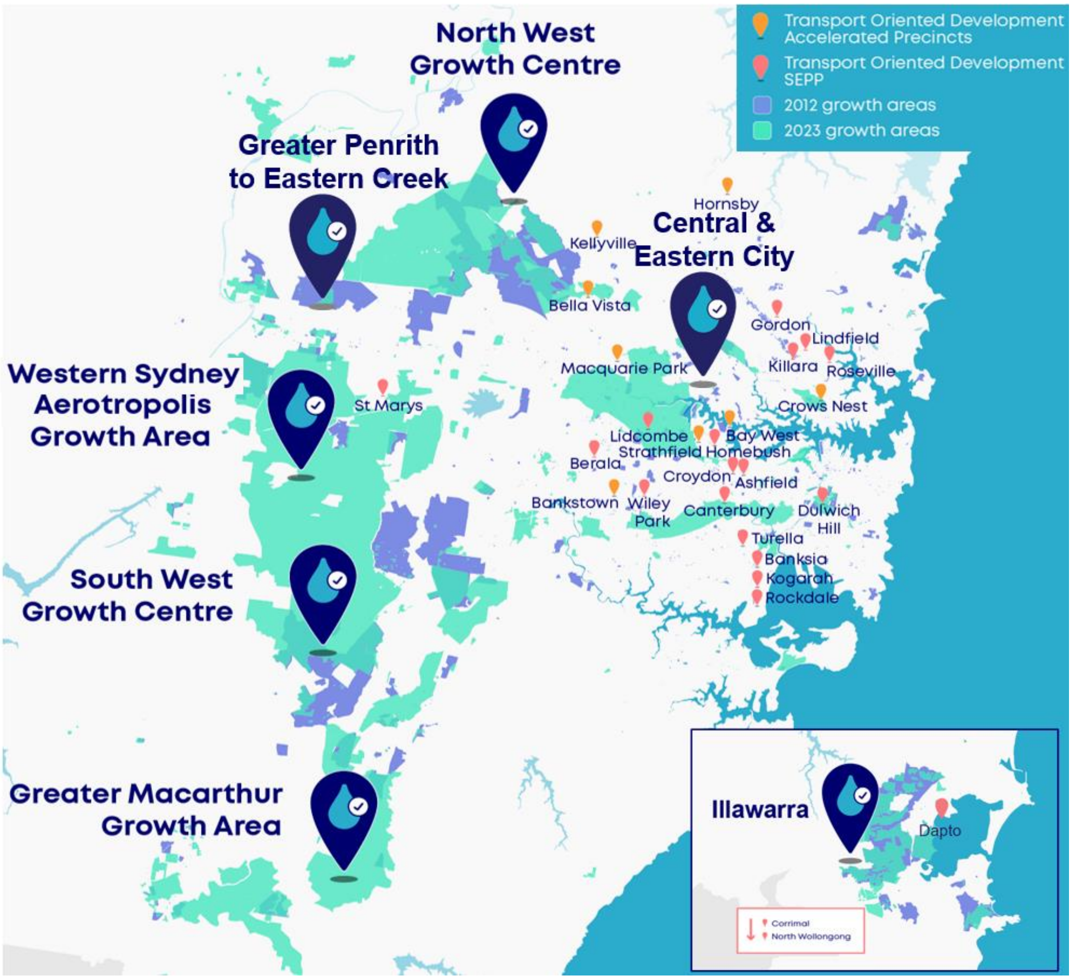
Under the National Housing Accord, the NSW Government has signed up to ambitious targets to create 377,000 homes across NSW by 2029, with longer-term targets still to be announced. Just under 265,000 of the new homes needed by 2029 will be in Sydney's local government areas (LGAs), with a mix of infill and greenfield development.

More than 50,000 new homes would be needed every year to meet the Sydney targets, significantly above Sydney Water's largest number of annual new connections in the past two decades. The geographic scale of new development has grown significantly over the past decade, with several new and expanded major growth precincts across Greater Sydney (see **Figure 3.12**).

Under the government's Transport Oriented Development (TOD) Program announced in late April 2024, around 180,000 new dwellings will be delivered over the next 15 years in infill areas located close to major transport infrastructure or existing town centres. While our existing systems generally have sufficient capacity to serve the TOD sites with only modest levels of investment, the medium- to long-term outlook for housing growth indicates the TOD Program is just the beginning of significant extra demand for our services. Infrastructure in infill areas will, therefore, be under increasing pressure as demand from new residents will exceed the designed capacity of existing assets.

Although the NSW response to the National Housing Accord includes a heightened focus on development in infill areas, growth in greenfield areas, which generally lack existing infrastructure, will continue to be an important part of the mix.

Figure 3.12: Major growth areas and development sites



Growth at this scale and geographic spread has not been seen since the post-war period, with most of the new growth in Western Sydney currently in rural land use, with little to no water or wastewater infrastructure. Sydney Water will need to continue to roll out significant new infrastructure in the outer suburbs of the city, where the remoteness of growth precincts from existing networks significantly increases the cost of investment.

While Sydney Water aligns its growth strategies with these government plans, investment and delivery only proceeds once there is sufficient certainty of a servicing need. Our investment decisions consider a range of 'on-the-ground' intelligence, including demonstrated demand by developers. Doing so minimises the risk of investing earlier than needed and moderates the investment forecast proposed in **Chapter 6**.

Enabling developers to deliver more housing

The end-to-end delivery of new housing and other development is more efficient when there is certainty that essential services such as water and wastewater will be in the ground and available to accept new connections when needed. Critically, new homes and businesses can't be occupied unless these essential services are available.

Uncertainty about the availability of services from Sydney Water could undermine confidence across many critical steps in the development process, including gaining local authority approvals and financing and attracting prospective homeowners or tenants. It also poses the risk that the process either stalls or is abandoned at any one of multiple points. Delays in the availability of essential services can lead to higher costs for many stakeholders, and the deferral or loss of the significant economic benefits that flow from new development, including those made available through the government's substantial investment in new transport and other social and economic infrastructure in recent years.

Conscious that developers make investment decisions based on the guidance we give in our growth servicing plan[7], which has a rolling five-year outlook that is updated annually, we have begun actively monitoring how we are tracking to deliver infrastructure to growth areas. We have included a 'growth servicing metric' in our corporate performance report from this financial year. This new metric provides management with a snapshot of whether our growth investment programs are on track to achieve the required timelines, allowing earlier intervention in areas where delivery is falling behind.

Making it easier to do business

We currently service developers with a 25-year-old platform once considered the best in Australia, but now at its end-of-life, which is negatively impacting developer and staff experiences.

In the next two years, we will roll out a new digital platform that will improve transparency and access to information, streamline processes and better use data to improve productivity. We will be able to reduce the time spent on non-value-adding tasks and manual workarounds to refocus our people on complex cases that can often be the cause of delays and complaints.

We are committed to improving developers' experiences with Sydney Water and are focused on initiatives to improve processing times. We recently completed a pilot program to reduce turnaround times on building plan applications, resulting in an average reduction from 14 weeks to six weeks. Similar initiatives are being investigated for other application types.

We will also increase the functionality of our online Growth Servicing Plan, implementing a new developer dashboard that allows more up-to-date access to servicing information and constraints, and enables developers to share growth intelligence with us.

[7] https://www.sydneywater.com.au/plumbing-building-developing/developing/growth-servicing-plan.html

Investing in new infrastructure to support efficient development

According to the NSW Department of Planning's Common Planning Assumptions, Greater Sydney's population is projected to grow to 6.1 million people by 2035. This growth will require at least 30,000 new homes to be added in each year. Consequently, Sydney Water is required to service several growth precincts by 2030, which is driving an increase in investment required across the next five years. These include key precincts across the Aerotropolis and South West region, Wilton (Greater Macarthur), Calderwood (Illawarra), North West Sydney, Greater Parramatta & Olympic Peninsula (GPOP), and Central & Eastern City.

Servicing growth is by far the biggest driver of infrastructure capex over the next 10 years (see **Chapter 6**). As highlighted in our last determination, historically we have often been able to service growth by building local assets to connect new dwellings to existing networks while using existing treatment plant capacity. The ability to continue to connect to our coastal wastewater system is now diminished, with limited capacity remaining (see **Figure 3.13**).

The geographic spread of growth, particularly into currently unserviced greenfield growth areas, such as the South West Growth Area (SWGA) and the Greater Macarthur Growth Area, has increased dramatically, with the coverage of growth areas forecast to increase by 20 per cent by 2035. In terms of land area, this is the equivalent of a new city the size of Canberra within our area of operations.

We appreciate the scale of investment to service growth and the impact on our customers, and we are implementing multiple measures to ensure we meet the required growth as and when it develops. We are developing servicing strategies and investment approaches to do so in the most economical way, and working with government to support and guide growth across Greater Sydney.

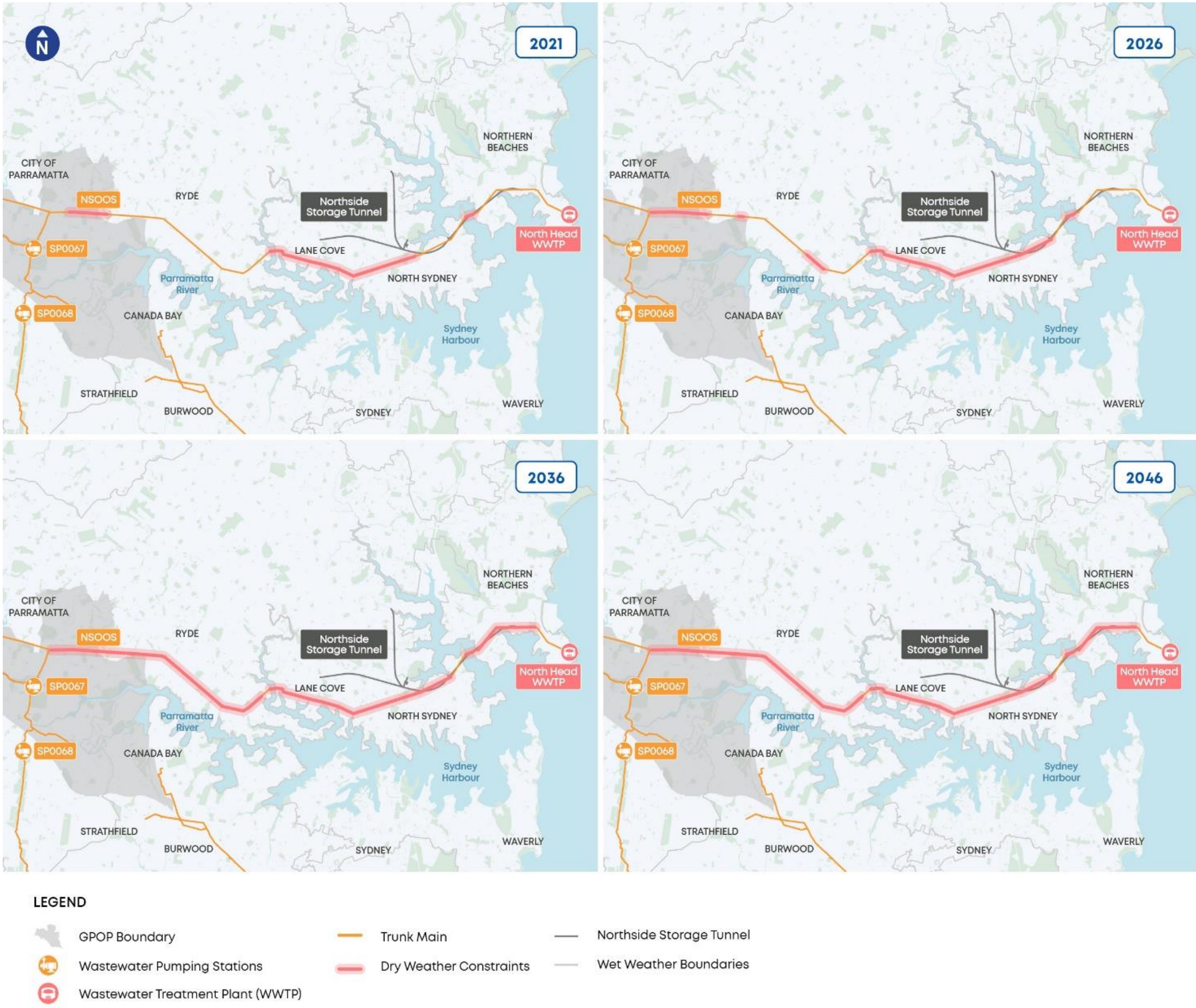
In an ideal world, particularly from customer bills and operational perspectives, infrastructure is commissioned just before new customers arrive and/or existing assets reach capacity. However, history has shown that a just-in-time approach to infrastructure delivery is at risk from delays. We acknowledge that trying to deliver just in time has sometimes meant we have delivered late due to unexpected delays, which can undermine confidence from the development sector. We are taking steps to improve the way we plan and deliver new assets.

Through our LTCOP (see **Chapter 5**), we have assessed different growth servicing scenarios and options, and are working closely with the NSW Government, the Department of Planning, Housing and Infrastructure (DPHI) and other key stakeholders to improve growth sequencing, ensuring best outcomes for potential home buyers with respect to the cost and availability of services.

As we have in the past, we continue to bear the risk of timing and certainty of growth, moderating our investment (see Chapter 6) where we believe it is prudent to do so, to avoid passing risk and cost to our customers.

For the first time, we also face the challenge that a large portion of our growth expenditure and funding allocation is being assessed by IPART outside this price review. In March 2024, the Minister for Water, The Hon. Rose Jackson MLC, with approval from the NSW Premier, engaged IPART to conduct a review to determine Sydney Water's efficient costs and allocation of those costs between developers, taxpayers and others to deliver stormwater drainage services in the Mamre Road Precinct. Although the terms of this review only relate to the first precinct in this growth area, the findings would set the precedent for the remaining growth in this area, which represents over $1.6 billion expenditure and $2.5 billion revenue over the 2025–30 regulatory period. We will not know the outcome of this review before submitting this proposal.

Figure 3.13: An example of reducing capacity and increasing constraints over time: Northern Suburbs Ocean Outfall Sewer (NSOOS) System

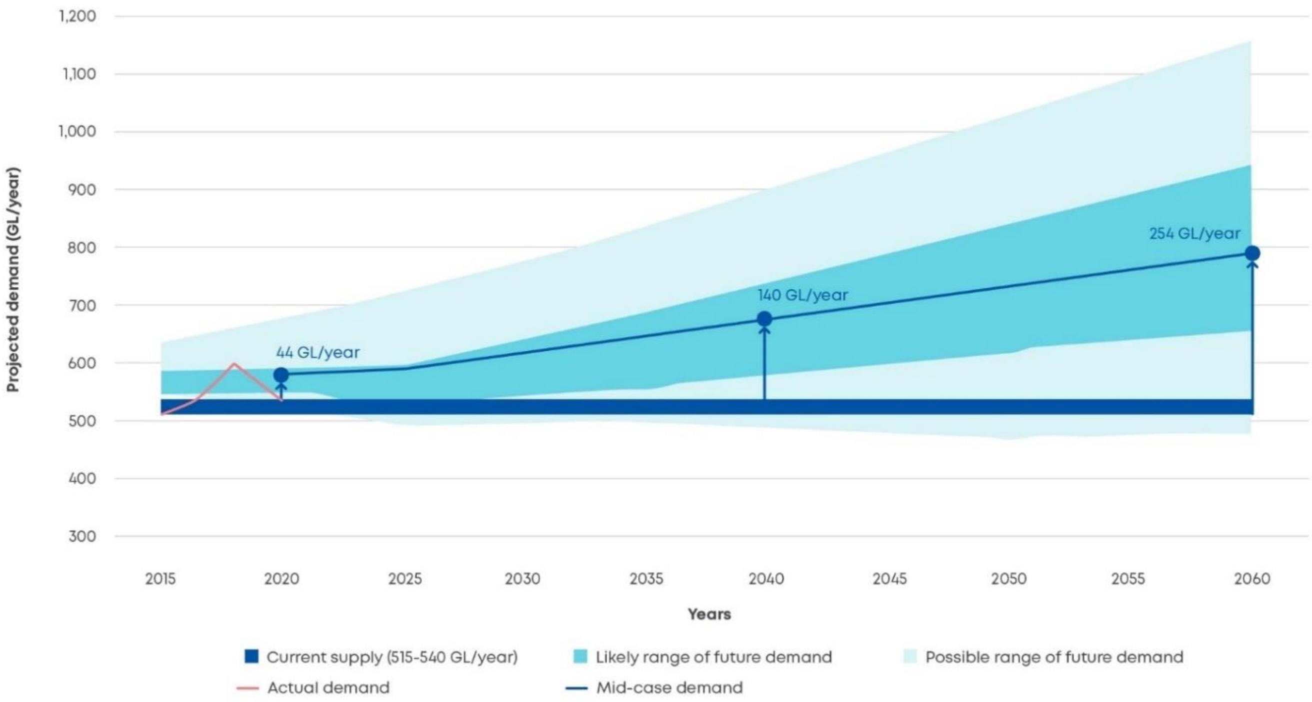


Augmentation of supply to meet future demand

Over the next five to 10 years, continued population growth means there is a need for further investment in new water supply capacity. We need to consider the optimal strategy and timing of augmenting existing systems and disconnecting our coastal wastewater systems, expanding or building new desalination facilities, and using purified recycled water (PRW). As discussed in more detail in Chapter 6, our long-term planning has considered whether other options may provide a better outcome, such as expanding the desalination plant and network, and using PRW that can simultaneously meet drinking water and wastewater treatment growth requirements.

We are now at a critical juncture, requiring both timely and significant renewal and growth investment to support our growing city. Our renewals investment, growth servicing investment, and Resilient and Reliable Water Supply (RRWS) program respond to these challenges and requirements (see **Chapter 6**).

Figure 3.14: Demand vs supply to 2060 (source: Greater Sydney Water Strategy)



Leveraging the reintroduction of infrastructure contributions to improve the delivery of growth infrastructure

The reintroduction of infrastructure contributions from 1 July 2024 will see a share of growth-related costs once again recovered from developers in some areas, helping to reduce the pressure on customer bills over the long term. Infrastructure contributions do not increase the total cost of servicing growth. Instead, costs are shared between developers and the broader customer base on a more equal basis.

Infrastructure contributions were introduced in Sydney in the 1960s at the suggestion of a developer who recognised the uplift in land values would more than outweigh the charge. However, with charges set to zero in late 2008, and having experienced nearly 16 years in which they received services but were not required to pay, the reintroduction of contributions inevitably comes with expectations of tangible and direct benefits for developers.

We are committed to improving developers' journey with Sydney Water, including replacing our 25-year-old workflow platform with a modern and efficient solution.

As the NSW Government takes steps to tackle the current housing crisis, we need to re-calibrate our processes to ensure that assets are in the ground and available for use well before developers are at work on the surface building new homes, shops, offices and factories. This is a significant challenge and will require improved collaboration and information sharing by all participants in the development process, particularly if we are to avoid the following risks, which can arise from investing too early:

- The number and/or density of lots in a growth area may change after our assets have been sized, adding extra demand and requiring assets to be resized and redesigned.
- The layout of the development may change requiring assets to be redesigned and relocated.
- Underused assets may lead to operational issues (for example, odours, problems with taste, reduced effectiveness of disinfection), with additional costs and customer complaints.
- The rate of development may be slow, affecting the timing and pace of cost recovery.
- To protect customers from prices rising 'too soon', IPART may defer cost recovery of growth expenditure. At the other end of the process, the risks around ex-post adjustments can also create an incentive to defer investment decisions until there is a very high degree of certainty about the timing of new developments.

We consider that the reintroduction of infrastructure contributions helps mitigate some of the perceived risks to customer bills from investment in growth infrastructure, potentially justifying a more light-handed approach by IPART to expenditure reviews going forward.

Additional challenges and trends

In addition to the challenges and risks relating to the performance of our existing assets and the requirements to respond to future growth in the number of customers, we also face ongoing and increasing challenges relating to external factors such as extreme weather and climate change.

As already mentioned, during the 2020–24 regulatory period, we were impacted by drought, bushfires, floods, record annual rainfall and intense heatwaves, all within the space of a few years. This is fast becoming the new normal. Climate change is a societal and industry-wide challenge that will require all utilities to adapt to uncertain changes in the length, timing and intensity of climate cycles.[8]

According to AdaptNSW, Australia's average temperature has increased on average by 1.44 (+/- 0.24) degrees Celsius since national records began in 1910. Every decade has been warmer than the previous decade since 1950.

We have also been reminded that unforeseen 'black swan' events can and will occur, with a global multi-year pandemic and heightened geopolitical insecurities and conflicts having far-reaching and sometimes unexpected consequences.

While we do not know exactly how the climate will change, or when the next major disruptive event might occur, we can be certain that we will need to deal with the consequences in the context of an ageing infrastructure base and while serving a much larger population with heightened expectations about the social and environmental impacts of our services. And we must deliver our response to these challenges while having regard to customer affordability, both now and in the long term.

Any one of these challenges would be significant, but the impacts can be multiplied when they occur together. For example, ageing infrastructure may be less resilient to more intense and variable climate cycles, with a rising population adding to the demand for services as well as increasing the number of people at risk from service disruptions.

Figure 3.4 showed some of the extreme events that have occurred in succession in recent years, which have resulted in compounding impacts on service delivery and costs, including the following:

- The severe drought of January 2017 to February 2020 included extended periods with little to no rain across the drinking water catchments, contributing to the fastest rate of decline in dam levels recorded since European settlement, as well as widespread drying of the catchment areas. Water supply levels dropped to 42 per cent, the second-lowest level on record, doing so at the fastest rate of decline on record.
- In line with its operating rules at the time, the SDP was restarted in mid-2019 to assist in slowing the decline in dam levels, helping to meet 15 per cent of Sydney's daily water needs via a rainfall-independent supply (RFIS). Customers were asked to conserve water and water restrictions were introduced to slow the decline in dam levels.
- A series of extensive and intense bushfires in late 2019, fuelled by the dry conditions, burnt out large areas of our drinking water catchments, including over 320,000 hectares in just the Warragamba Dam catchment area, and threatened some of our key water infrastructure. The fires left large areas of burnt vegetation, bare soil and massive quantities of ash and other fire debris strewn across the catchments.
- In February 2020, the drought was essentially ended by a very large four-day rain event that ultimately caused dam levels to rise by around 40 percentage points. The massive influx of water washed ash and other nutrient-rich materials into the dams, degrading water quality to such an extent that the bulk water being supplied to our WFPs was well outside the design limits of those facilities.
- An East Coast low a few months later saw even further inflows to the dams, and wind-related storm damage to several critical assets across the network, including the floating roof of Potts Hill Reservoir, which supplies around 1 million customers.
- Despite the end of the drought, the risks to water supply prompted a decision to keep the SDP operating as an emergency response measure. The water from the SDP provided an alternate source of water for customers, easing the pressure on our upstream water filtration facilities and giving those plants more time to treat water to an acceptable standard.

[8] A recent study estimates the economic cost from climate change impacts on water to be US$312 billion between 2022 and 2050 – over 21 per cent of Australia's 2022 gross domestic product: GHD (2022) Aquanomics: The economics of water risk and future resiliency - GHD

- The impact of these events on the quality of water in our dams was unprecedented. Six months after the initial drought-breaking rains, around 80 per cent of the water in Warragamba Dam still had never-before-seen concentrations of organic matter that were well outside the operating limits of our downstream water treatment plants.
- There have been further large rainfall events in recent years and record annual rainfall in many locations across Greater Sydney. Raw water quality in the dams remains well below our historical experience and exceeds the design capacity of some of our water filtration facilities.

Our experience over the 2020–24 period shows the compounding consequences that can occur from multiple and/or successive but otherwise unrelated events, which may become more frequent with climate change.

Being prepared for climate change

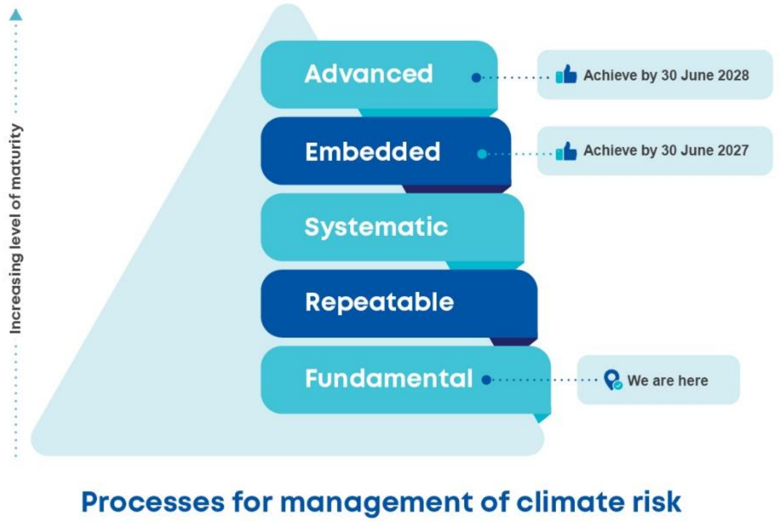
We are acutely aware of the potential impacts of climate change on our ability to provide reliable services to our customers.

Our long-term planning reflects the growing importance of responding to climate change impacts on our network and the communities we service. We are embedding this awareness across our business and actively consider climate risks in our decision making. The new Operating Licence 2024-2028 has enhanced obligations regarding climate change to ensure we continue this work and can be held to account for our performance through regular and transparent reporting and independent audits.

A significant new obligation in the Operating Licence 2024-2028 is a requirement for us to have in place an ongoing climate risk assessment and management process that is consistent with the NSW Government's *Climate Risk Ready NSW Guide*. In addition, IPART has set a challenging target for us to improve the maturity of our Risk Management Framework and achieve a self-assessment rating of 'advanced' by the end of the licence term (see **Figure 3.15**). This ambitious target reflects IPART's expectations that our operations are likely to be more affected by climate change than many other businesses, and that failure to deliver our services can have catastrophic impacts for customers and consumers.[9]

We also know that climate change is likely to add to customer and stakeholder expectations for new or different services. For example, more frequent and intense heatwaves are likely to increase demand for green and blue infrastructure, such as healthy and clean waterways that offer opportunities for active and passive recreation, and more extensive tree canopy to support cool and green neighbourhoods. We have already been given additional responsibilities for stormwater management in Western Sydney, which requires significant investment to achieve these sorts of beneficial outcomes for customers and communities.

Figure 3.15: Sydney Water's maturity level under the NSW Government's *Climate Risk Ready NSW Guide* and target levels defined in our Operating Licence



[9] IPART (2024) Sydney Water Operating Licence Review 2023-24 – Report to the Minister, p 44.

Drought, floods and bushfires are a common feature of the Australian environment, and we will always respond to ensure that our customers continue to receive a high-quality service. However, we are in a situation where we will need to be more readily prepared for greater climate and weather variation and uncertainty. The rapidly changing probability of events taking place means the estimation of future risks may be unreliable as the past may no longer be a good indicator of the future.[10]

Climate change means the frequency and intensity of these sort of events will place unprecedented stress on our systems, impacting the way we need to design and operate our infrastructure. For example, the sequence of events outlined earlier in this chapter has meant that the SDP, originally conceived as a drought-response plant triggered only by low dam levels, has instead run often over the 2020–24 period as a de facto flood-response measure. It has often had changed output at short notice as conditions change, helping to manage the risks of poor water quality and avoiding more costly measures such as water restrictions or boil water alerts. Similarly, the intensity of the 2017–20 drought challenged previous assumptions regarding our ability to implement the sort of drought-response measures needed to prevent the city running out of water.

Internal analysis has identified that Sydney Water faces a 50 per cent increase in climate hazards over the next 30 years (see **Table 3.4** for examples of potential impacts). Conservative estimates indicate that by 2050, we could be required to spend around $50 million a year to recover from more frequent and severe weather events. Taking preventative steps to improve climate resilience can reduce costs significantly, especially if we are able to design new infrastructure with a view to cost-effectively addressing future climate risks. This trend increases the complexity of our asset planning and renewal processes.

Table 3.4: Potential impacts of climate hazards

Potential loss of 30 GL of surface water supply, rising to 80 GL lost by 2050	Warmer temperatures promoting increased rates of pipe corrosion and generation of odours
More intense droughts with a potential 10 per cent reduction in inflows for a 1:100,000-year event, and less time to implement response measures	Extreme storms and excess inflows to wastewater systems due to a 20–30 per cent increase in rainfall intensity
Increased customer demand for water of up to 3 per cent a year on average	Higher sea levels and storms that threaten low-lying assets
Risk of more frequent, more intense and longer duration bushfires	Increased pipe failures due to increased variability in soil moisture and stability
Warmer water temperatures enabling growth of algae and pathogens	Disruptions to electricity supplies and other critical inputs

[10] For example, in its May 2024 climate update, the Bureau of Meterology observed that recent global sea surface temperatures had never been seen before, and this may reduce the reliability of inferences made about potential future conditons using existing forecast models.

We must be resilient in the face of unpredictable events

Our ability to respond to the myriad challenges discussed so far is even further constrained by unforeseeable and unavoidable black swan events such as pandemics, cybersecurity threats and material price escalation due to global supply chain constraints and geopolitical tensions. Our systems, assets and people continue to focus on providing resilience and continuity for any event. However, the 2020–24 period has shown that the impacts of unforeseen events can sometimes also lead to unexpected consequences.

COVID-19, for instance, has led to reduced resource availability and increased the costs of delivering new infrastructure by an amount that is far greater than economy-wide inflation. More recently, the cost of funding investment increased due to rapid rises in government bond rates. While these costs appear to be levelling, they are unlikely to return to previous historic lows. Other challenges we have had to consider and manage due to the COVID-19 pandemic include:

- workforce impacts to capital program deliverability and delays to maintenance due to the need to reschedule work plans to minimise the risk of infection and deliver programs with higher rates of sick leave
- disruption of supply chains, limiting the availability of resources and pushing up costs (for example, increased chemical costs for drinking and wastewater treatment, and to replace drinking and wastewater network mains), which is still being felt
- changes in demand patterns geographically and across the day in our drinking and wastewater networks due to remote working and lockdowns, breaking long-term patterns of both load and daily variations in volumes that may have been hardwired into the design of facilities during past upgrades
- reduced demand compared to forecast due to lower population growth.

The COVID-19 pandemic added to the complexity of our operating environment and disrupted normal operations, particularly as people worked from home more often and used our services in a different location compared to pre-COVID times. For example, several WRRFs were operating at close to their design capacity immediately before COVID, including Rouse Hill, West Camden, West Hornsby and Winmalee. The change in wastewater flows in different parts of the city due to COVID-induced changes in population distribution caused each of these plants to subsequently exceed their design capacity. Similarly, our facilities at Bombo, Liverpool and Glenfield also began to exceed their design capacity following COVID-19, even though there had been adequate spare capacity previously.

The additional volume of wastewater led to a variety of performance issues, with impacts varying across sites, depending on the type of technology in use at each plant and existing constraints (for example, capacity for nitrogen removal versus other substances).

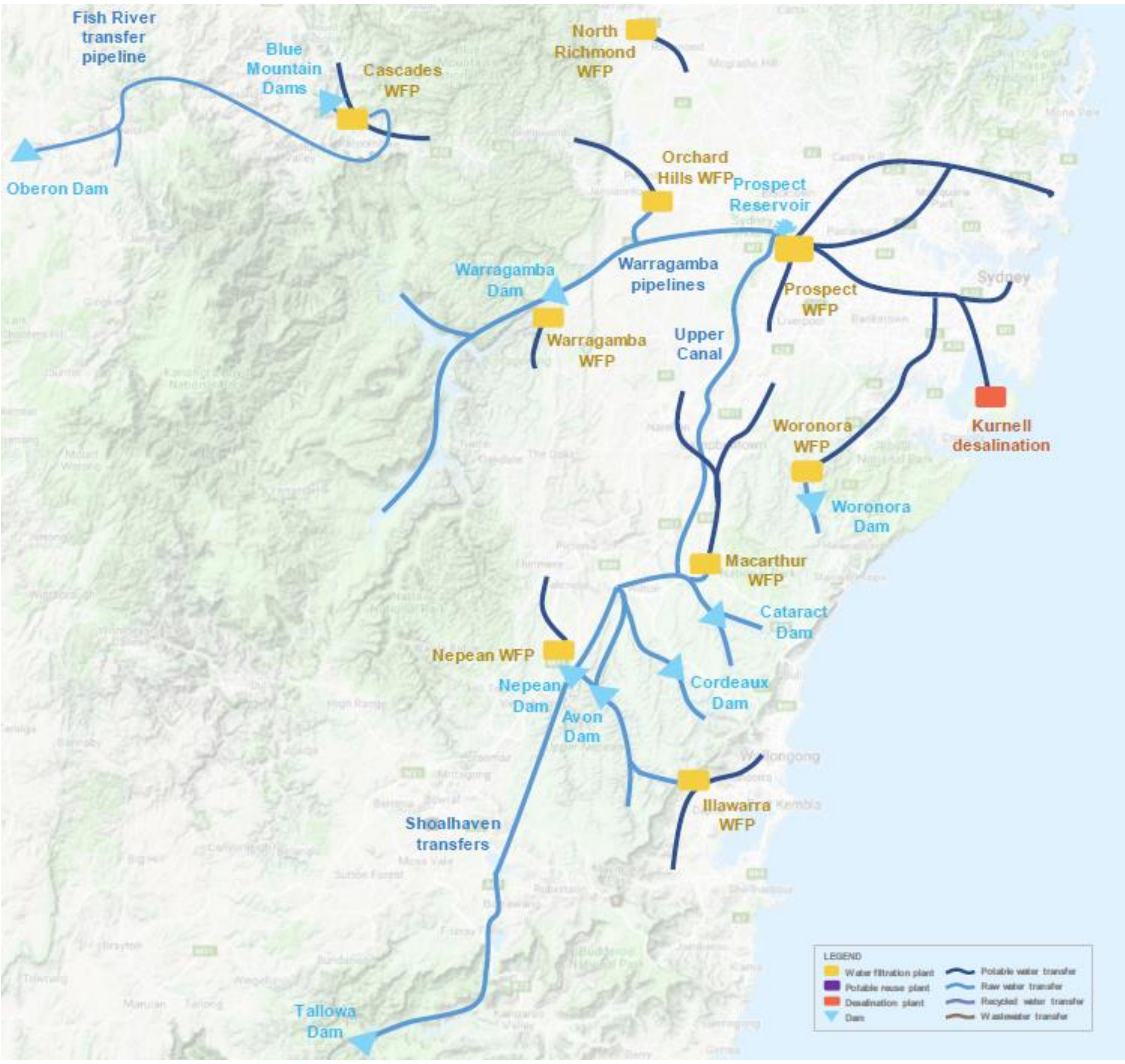
Bondi was the only plant to experience a reduction in inflows, with a decrease of around 20 ML a day as fewer people worked from the Sydney CBD.

It is likely that some of these shifts have become permanent, with a significant percentage of people still working from home for a large portion of the week despite the end of lockdowns.

The 2020–24 period also highlighted our reliance not only on rainfall-dependent surface water, but also the configuration of our water treatment and distribution systems, which feature a heavy reliance on centralised treatment (see Figure 3-16). More than 80 per cent of Sydney's drinking water needs are supplied via a single water treatment facility. While our system has been designed with some level of storage across the network, complex issues that take weeks or months to resolve would likely require the use of measures such as water conservation orders, water restrictions or boil water alerts.

Isolated water systems face local threats that create substantial financial and customer risk exposure. Without improving resilience through increased connection and networking of assets, each isolated system will be increasingly difficult to manage. If unlikely or unexpected threats occur more regularly, the cost of managing the system will be much higher than for a system with greater resilience.

Figure 3.16: Major water supply infrastructure serving Greater Sydney



As noted earlier, just over 85 per cent of our wastewater flows from west to east are discharged to the ocean via nine WRRFs, with more than 70 per cent of all wastewater treated at just three plants. As such, the wastewater network is subject to the same kind of resilience constraints as the water system, particularly in the face of a growing population in Western Sydney.

Making the most of new technologies

Digital technology enables an integrated view of our system, allowing us to connect data at an enterprise level to optimise strategic investment decisions and improve operational and maintenance outcomes. Increased use of data and digital technology, such as the Internet of Things (IoT), will help improve efficiency in planning, delivery and operations to realise our customer outcomes and enhance the customer experience.

Technology, however, brings both opportunities and threats. The same data that can help realise benefits is also more difficult to secure and is exposed to the increased risk of cyberattacks on critical infrastructure. Keeping Sydney's water safe, therefore, will require careful planning and investment in better technology and security in an ever-changing global threat landscape. For example, our objective in investing in compliance with the *Security of Critical Infrastructure Act 2018* (Cth) will help strengthen cybersecurity for our customers.

Chapter 4: Planning process

Key message

Our planning and governance processes are iterative, incorporating customer insights at all stages in the process. Our goal is to ensure that our proposed expenditures are prudent andefficient to sustainably deliver the outcomes our customers value into the long term.

Summary

- Our customers have told us about what matters to them, and we have a clear set of regulatory obligations that we must comply with. However, a sustainable plan to deliver services must also consider current and future risks, including the possibility that customer or regulatory requirements may change.
- Over time, we have developed an integrated approach to enterprise planning, long-term planning, and asset management that considers this complex set of inputs.
- These plans identify the near-, medium- and long-term objectives that enable an efficient long-term servicing pathway to deliver the outcomes our customers value. We have identified the key choices and decision points, how we will respond to challenges, and the impact our choices will have on our customers.
- To ensure we deliver these plans efficiently and effectively, we have robust expenditure planning, cost management processes, and a cost-efficiency strategy.
- Further to these overarching organisational processes, infrastructure growth, renewal, compliance and digital investment have gone through additional program-specific assessment processes to identify the prudent and efficient level of proposed expenditure.
- We have stress tested with our Board our proposed expenditure over 2025–30 and 2030–35 through an iterative 12-month review and challenge process. This price proposal reflects a sustainable long-term plan that balances service performance, cost and affordability, and asset and service risk.
- Our proposed expenditure over the next decade is the result of these planning processes and strategies. To support the delivery of this expenditure, we will leverage our experience and increased efficiency in procuring and delivering over the current period.

Key reference materials

APPENDICES

4 Asset management

READING ROOM

Strategic Investment Plans
Asset Management Framework
Strategic Asset Management Plan
Risk Management Framework
Risk Management Policy
Infrastructure Strategies (CONFIDENTIAL)
Cost Estimation Guideline
Cost Efficiency Strategy
Greater Sydney Water Strategy

Guided by our 3Cs focus principles

CUSTOMER OUTCOMES

Insights from our engagement with customers are embedded throughout every stage of our planning and expenditure forecasting. We have rigorously reviewed our plan to ensure it delivers the outcomes our customers told us they value and meets our compliance requirements, at the most affordable price.

BALANCE RISK AND LONG-TERM PERFORMANCE

Our asset management systems are aligned with industry best practice, prioritising investment by considering current service and asset performance, cost and affordability, and long-term service and asset risks.

EQUITABLE AND EFFICIENT COST RECOVERY

To minimise the impact of our proposed expenditure on customers, we are proposing to accept some financial risks, but at a much greater magnitude than we have in previous price determinations.

Our reprioritisation of investment in the current period demonstrates the efficiency of our planning and investment governance frameworks, including our ability to switch expenditure to adapt to changes in our operating environment while still delivering the outcomes our customers value.

Overview of planning and asset management

Providing reliable, sustainable and affordable services to our customers is a critical goal of our operations and supports the delivery of our vision to create a better life with world-class water services.

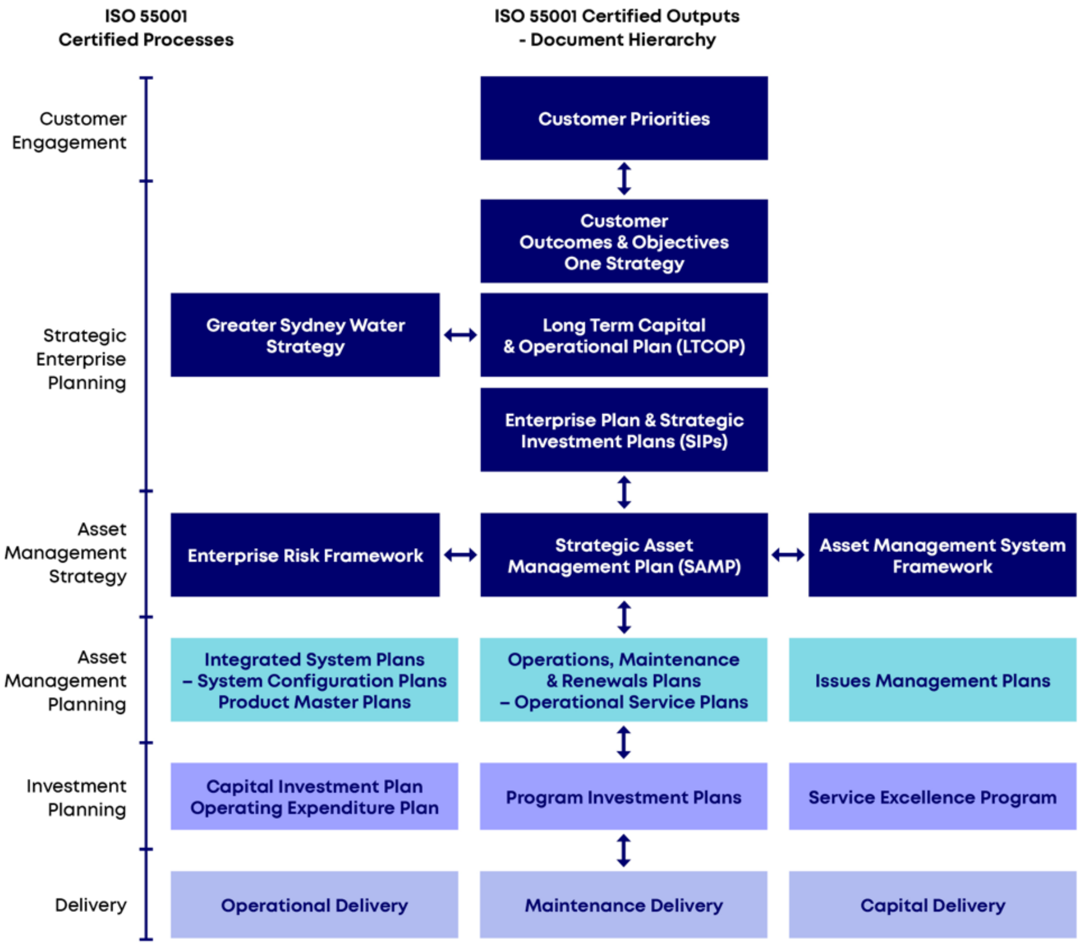
Shocks, stresses and future uncertainties challenge our ability to achieve this, and we need to understand and assess performance, risk and cost in a structured and consistent way to do so. An integrated systems-based planning and asset management approach provides a clear line of sight from current performance and risk through to delivery of customer priorities, outcomes and objectives.

The Greater Sydney Water Strategy (GSWS) describes our vision and ambition around the role Sydney Water will play in delivering the outcomes that customers, communities and stakeholders have told us are their priorities. These outcomes, combined with our current and future performance, and operating and service requirements, translates into our Enterprise Plan, LTCOP and Strategic Investment Plans.

Our asset management systems provide the framework for the development of our growth servicing plans, infrastructure strategies and issue management plans, which in turn inform our capital and operational investment plans. Ultimately, our capital and operational programs must meet current and forecast service and asset performance, and deliver our customer outcomes.

Risk, performance and cost are managed through almost every management decision and process at Sydney Water, underpinning our price proposal. This chapter supports elements of two guiding principles of IPART's 3Cs framework related to 'balance risk and long-term performance' and 'commitment to improve value'.

Figure 4.1 Our planning process



Customer alignment

Guided by the findings of Our Water, Our Voice, we have evolved our strategy to ensure we address our customers' priorities, as outlined in Chapter 2. This informs our strategic enterprise planning, including for our long-term planning, Statement of Corporate Intent (SCI) and this price proposal.

Insights confirm key aspects of this long-term adaptive plan, such as acceptability of PRW, the primacy of safe and reliable services, and keeping bills as affordable as possible. In turn, this provides clear guidance on the outcomes we must achieve in the near and medium term. A summary of how customer outcomes informed our proposed key business investment decisions is shown in Chapter 2, and we reflect this in our Strategic Investment Plans.

Our investment planning aims to deliver against the outcomes and targets of these Strategic Investment Plans, establishing clear links between what customers have told us and the expenditure we propose, as detailed in **Chapters 5, 6** and **7**. Over the next five years, we are prepared to respond to evolving operating conditions and customer insights, and will adapt our investments to deliver our services in alignment with what our customers value. Our issues management and other planning processes prepare us for making these decisions in the period.

Table 4.1: How we aligned our investment planning processes with our customers value

Customer outcomes	How our investment planning aligns with customers
Customer experience	We aim to deliver a positive customer experience and keep our services affordable. Aligned with our customers' expectations, we will continue engaging with all stakeholders, ensuring they have access to timely and accurate information. Continuing engagement with our customers and communities will enable us to reflect their evolving expectations through the investment decisions we end up making during the next regulatory period. Our long-term strategy to deliver our water and wastewater services through least-cost servicing solutions also requires us to build understanding of sustainable water supply options, such as PRW and water conservation among our customers now. Minimising affordability challenges for our customers will require us to invest in a range of billing and payment support programs.
Water quality and reliability	Our customers identified water quality and reliability as a top priority throughout our engagement. Our investment plan aims to optimise continuity and efficiency of our water supply, targeting actions that mitigate the most pressing water quality risks. Before the climatic extremes experienced in 2018–20 and the ongoing water quality issues since, the prudency of such investments was less certain. Water conservation and water supply security featured as other priorities in which customers expressed a willingness to pay to minimise risk. Our investment plan maintains our expenditure in enhanced water conservation and leakage management to minimise the long-term costs of ensuring a resilient water supply (outside drought) and to improve our ability to respond to drought when it does occur. While a significant portion of our proposed investment delivers growth, feedback from customers has also guided how we propose to service that growth. For example, key investments in recycled water improve rainfall independence and resilience across our system.
Environmental protection	Customers expect that Sydney Water minimises environmental harm through improving performance at our WRRFs. Our engagement program confirmed customers' approval of an approach that progressively brings underperforming WRRFs to compliance. We plan to invest so that all WRRFs become compliant by the end of the upcoming period. During engagement, customers recognised the role of Sydney Water in reducing carbon emissions, expressing a willingness to pay above increases in base bills. Our investment plan targets new solar, hydro, cogeneration and co-digestion facilities, where efficient to do so. We also aim to achieve net zero carbon emissions by 2030 and will look to offset our emissions where we are unable to directly and efficiently do so.

Strategic enterprise planning

Our strategic enterprise planning approach delivers on our plan through integrated planning and budgeting processes across multiple horizons – the year ahead (1 year), in the near term (five years), the medium term (10 years) and the long term (30 years) – to provide value for our customers. Our enterprise planning approach and this price proposal are interconnected and follow one integrated process. Each stage provides insight and is used to inform the next level of the plan. Each of these steps considers customer insights that we've received through our engagement journey with Our Water, Our Voice.

Our LTCOP presents our position on 10 key choices, reflecting the least-regrets pathways that address major issues in the longer-term interests of our customers. In this context, while the LTCOP is essential to informing the capital budgeting process and our price proposal, it is not the source of these. The key choices clearly impact the 2026–30 period forecast with even more influence on the indicative forecast to 2035. Regardless, the adaptive pathways approach retains flexibility so that directions can be refined or changed with new information and analysis. Over time, the LTCOP analysis will increasingly also inform business-as-usual investment; for example, where asset renewals take account of future needs and risks.

Our strategic investment plans set out our outcome objectives, performance measures and investments aligned to customer priorities and preferences from our customer engagement. In turn, these feed into our enterprise planning and budgeting process. This links with our Strategic Asset Management Plan, which outlines the asset management objectives, Asset Management Framework for balanced investment decision making and asset management planning processes, along with other plans for our business. These include digital transformation, workforce and products. These strategic directions come together to inform our required capital and operating expenditure over the next five and 10 years.

Our Enterprise Plan is submitted to Treasury as the SCI Business Plan. Providing a 10-year forward outlook, it is the basis of our regulatory price submissions to IPART and sets the year-ahead budgets and goals for delivering on our plan. The annual budgeting process forecasts rolling 10-year total opex and capex requirements. This is completed as part of the SCI submitted each year to meet NSW Treasury obligations. Our customer outcomes, measures and targets from our strategy are central to our enterprise plans and budgets.

These planning phases are shown in **Figure 4.2** below.

Figure 4.2: Our strategic enterprise planning process

Our enterprise risk management approach

Effective risk management plays an integral role in our decision-making and strategic planning. It helps us be reliable, resilient and sustainable, so we can adapt to future challenges while achieving our strategic goals.

We are committed to managing risks in a way that protects our customers and communities, the environment, our employees and partners, our assets and our operations. Our approach is defined by our Risk Management Framework and Risk Management Policy, which outlines the roles and responsibilities of all staff in managing risk. This framework is aligned with ISO 31000: *Risk Management*.

As guided by this framework, our Board sets our risk appetite statements, translating key objectives – including customer, community and environmental priorities – into areas where we manage risk and areas where higher-level risk is acceptable. To manage this risk appetite, a set of risk tolerance metrics are regularly reported through our corporate performance and State of the Assets reports. We review these risks on an annual basis, or on identification of any emerging strategic risks. Recommendations are made by our Board's Audit and Risk Committee for the Board to consider updating our strategic risk profile.

Integrating risk management into business processes informs planning, strategy and performance improvements across all organisational levels. Our Executive Team and the Board's Audit and Risk Committee review enterprise risks quarterly. Operational, portfolio, program and project risks are managed in alignment with our risk appetite and guidance from decisions about enterprise risks made by relevant steering committees, program control groups and project control groups.

Growth risk management

We have an obligation to support development by providing essential water, wastewater and stormwater services to new customers[11]. Doing so facilitates the growing population of Greater Sydney. We aim to achieve this through prudent and efficient timing of our investments. Failure to invest at the right level risks:

- service obligations to new customers
- inadequate services or inappropriate levels of risk to existing customers
- poorer environmental outcomes and delayed reversion to environmental compliance
- an inability to support development in a timely manner that is consistent with the government's growth policy and objectives.

Expenditure linked to servicing growth in new customer numbers has more than doubled since 2020. For 2025–35, it represents 62 per cent of our proposed capex. Due to the implications of this for customer bills, we undertake several steps to minimise the risk to our customers.

Excluding potential investment for uncertain growth forecasts

While Sydney Water growth planning aligns with government policies, our infrastructure delivery only proceeds with the NSW Government's land releases, with the option for developers to accelerate infrastructure. Differences between forecasts in these policies and stronger indicators of servicing need creates risks whether the investment may actually go ahead during the regulatory period.

In 2020, we proposed to take on the risk of less certain growth investments by excluding them from our expenditure forecasts. This does not mean we do not proceed with those investments if the need becomes clear, but it avoids customers paying for the investments where timing is uncertain. Since 2020, however, higher growth compared to our forecasts has required us to invest more than our adjusted proposal due to the following:

- Changes in government mandates: land release and zoning prioritisation changes can occur at short notice, sometimes requiring investment to service areas not covered in the initial pricing proposal. Growth in the Greater Penrith to the Eastern Creek area is an example of this over the current period.

[11] IPART (2024), Sydney Water Operating Licence, 2024-2028.

- Changes to NSW planning policy: this can enable accelerated growth in areas not previously forecast in the pricing period. Tier 1 Transport-Oriented Development has resulted in accelerated infill development across key precincts since 2020.

This could result in delayed servicing, higher lifetime costs of servicing developments (by having to implement interim arrangements before bulk infrastructure is constructed), increased risk to water quality and environmental compliance for existing systems, and financing risk as we funded development upfront and are only seeking its recovery in the upcoming regulatory period.

Despite these risks, it is still a prudent approach to growth investment management, and our expenditure proposal in chapters 6 and 7 adopt a similar approach. In doing so, we have:

- refined our planning methodology for growth (including multiple growth scenarios in our planning exercises)
- undertaken a more detailed assessment of the criticality of investment to key compliance requirements
- improved our level of confidence in growth forecasts, timing, cost estimates and servicing strategies.

To minimise our expenditure proposal, we use demonstrated demand forecast for the near term and the DPHI Sydney housing supply forecasts for the long term, we also use P50[12] forecasts despite external macroeconomic conditions affecting the stability of input costs, exclude costs relating to growth areas that are not official government growth areas, and assume social and regulatory acceptance of adaptive pathway outcomes (in particular, PRW and river release) that avoid costly augmentation of our wastewater networks to service growth in Western Sydney.

Sydney Water planning prepares for alternate growth scenarios

As noted above, Sydney Water plans for high-growth forecasts but refines detailed planning and delivery projects against higher-confidence forecasts. Key elements of our growth planning process that address this include the following:

- Growth servicing investment plans – these are strategic assessments of the existing network capacity to cater for current and projected future servicing needs to determine strategic solutions that will meet performance criteria while servicing growth.
- System plans – these facilitate optimal short-term investment decisions in the context of longer-term strategy. A detailed five-year investment plan is developed in consideration of longer-term potential futures, to address current and future drivers such as capacity constraints, growth, renewals, reliability and compliance, as well as long-term strategic drivers.
- Optioneering plans – these identify and recommend the most effective servicing options. This stage ensures prudent and efficient investment through conducting a thorough evaluation of potential options, including risk assessments, stakeholder engagement, and cost-benefit analyses.

By regularly updating and implementing these plans, we aim to respond efficiently as the composition of the growth that evolves during the period and into the future, regardless of whether the expenditure is included in this proposal. We will continue to consider our best available information to minimise the risk of imprudent investment. Our growth investments follow the same governance processes set out in this chapter to ensure they are:

- incurred at the right time and at the right level of cost
- prioritised appropriately with regard to competing growth demands and other infrastructure drivers across the capital program.

[12] P50 value has a 50% probability that it will be exceeded and a 50% probability it will be lower.

Asset management

Underpinning our budgeting process is an asset management framework that ensures prudent and efficient expenditure across the lifecycle of assets required to deliver the water and wastewater services customers want and need.

This asset management framework delivers on Sydney Water's vision and values, and the long-term outcomes expected by our customers and stakeholders.

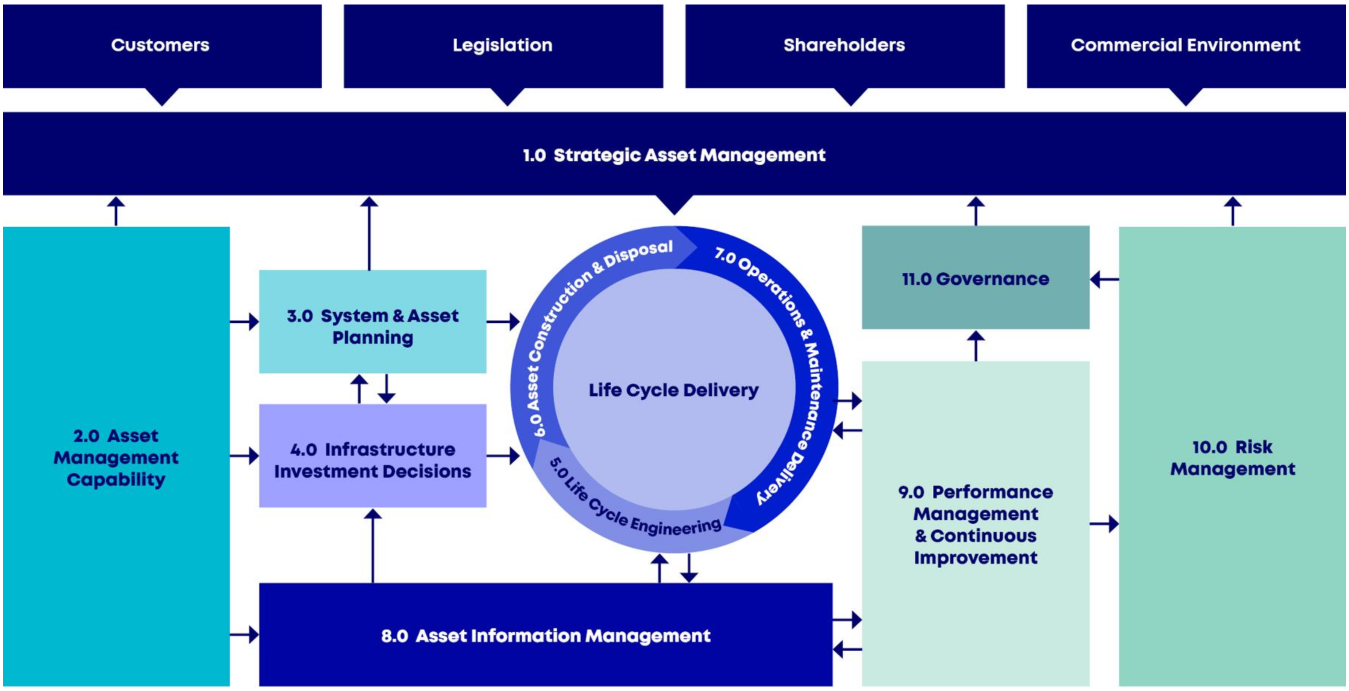
Our asset management framework is aligned to ISO55001:2024 (Asset Management System Requirements) and includes policies, strategies, plans, information management, decision-making processes, and capital and operational delivery. It provides several important functions:

- It provides a clear line of sight so that Sydney Water employees and contractors understand how they contribute to the delivery of our objectives. The line of sight translates our organisational objectives into asset management policy, strategy and objectives, which cascade down into more detailed plans, programs and delivery activities.
- It ensures that our senior management decisions, strategies and plans consider the bottom-up, fact-based realities (that is, asset capabilities, performance, opportunities and constraints) through our Performance, Cost and Risk (PCaR) Framework, and our decision-making governance processes.
- It provides our delivery staff with direct visibility of the purpose of the work they undertake – so they understand why an intervention is needed, not just when and how to do it. This helps with identifying and prioritising risks and encouraging innovation through identifying better ways of achieving objectives.

Our asset management framework and the line of sight are shown in **Figure 4.3** below and discussed further in the following subsections. Further detail on each can be found in the key documents shown in *Appendix 4: Asset management*.

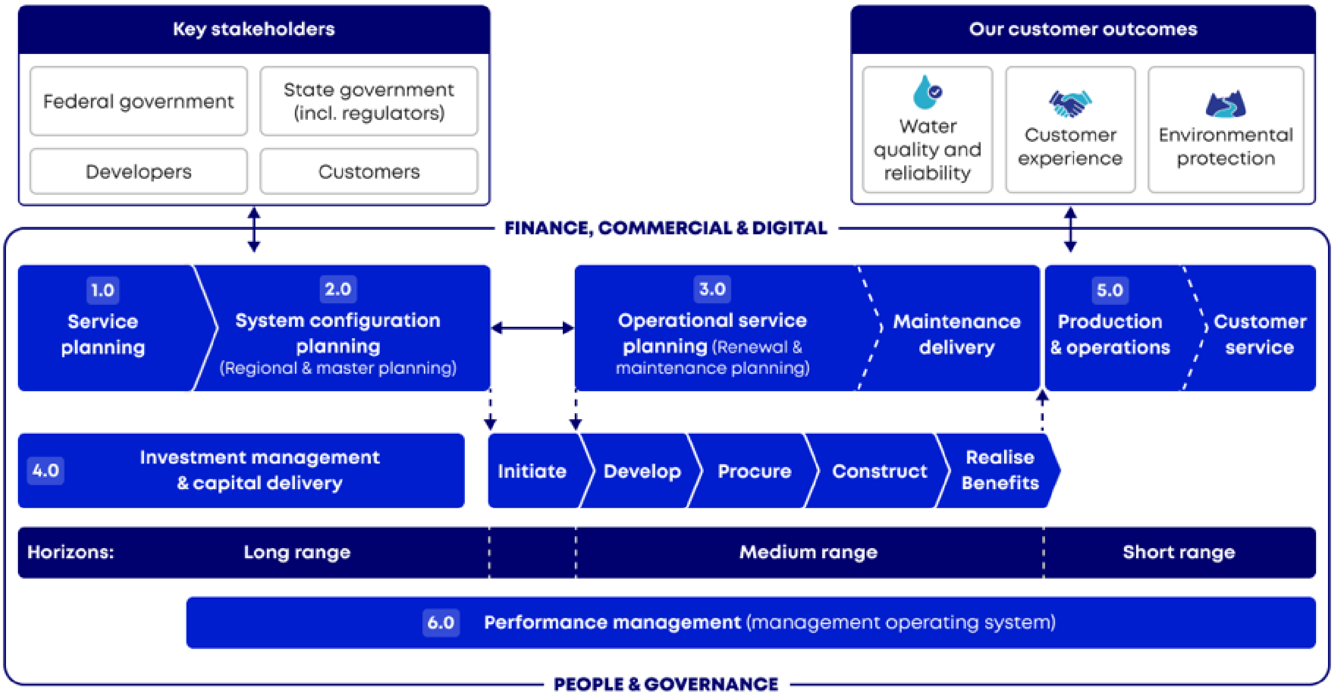
Our strategy informs our overarching Strategic Asset Management Plan which sets our asset management objectives and provides the tools for prudent and efficient asset management at Sydney Water.

Figure 4.3: Our asset management framework



Our asset management framework and Strategic Asset Management Plan set our asset management objectives and performance measures, and how we need to manage and invest in our asset base to balance cost, risk and performance. These come together with our customer outcomes, through our product and asset value chain (**Figure 4.4**) to inform our required capex and opex over the next five and 10 years.

Figure 4.4: Product and asset value chain



Service planning – engage with customers and stakeholders to continuously understand their preferences and requirements. We will strive to operate in accordance with our legislative requirements and to meet service standards, in line with community expectations.

System configuration planning – plan the configuration of the infrastructure to meet current and future performance requirements, addressing:

- direct service performance requirements (for example, as outlined in licences) and broader service requirements
- uncertainty including about future requirements (for example, security and environmental requirements and urban amenity), changing regulations, market conditions and climatic conditions
- technology obsolescence – particularly in long-term water cycle management infrastructure.

Operational service planning – maintain efficient delivery of service performance requirements as set out in the operating and environment protection licences by addressing:

- the impacts of ageing infrastructure
- the development of 'smart' operating technologies
- the overarching stakeholder objectives, including improved operational system reliability and resilience.

For maintenance delivery, we will focus on efficient planning and delivery of work, ensuring service performance is delivered as effectively and efficiently as possible, in line with planning function objectives.

- **Investment management** and capital delivery – ensure that new infrastructure and system configuration is delivered on schedule, meets agreed specifications and is within budget.

- **Production, operations and customer service** – drive operational efficiency and safely deliver service and product outcomes in the immediate term through delivery of planned operations and maintenance works, and respond to incident or emergency events and disruptions in an effective and efficient manner.
- **Performance management** – improve the decision-making process to manage services, products, systems, assets and works delivery, and improve availability, reliability and resilience to achieve customer outcomes. The performance management process begins when an asset is in the design stage and continues through its entire lifecycle to measure, monitor and improve its reliability, availability, maintainability and safety.

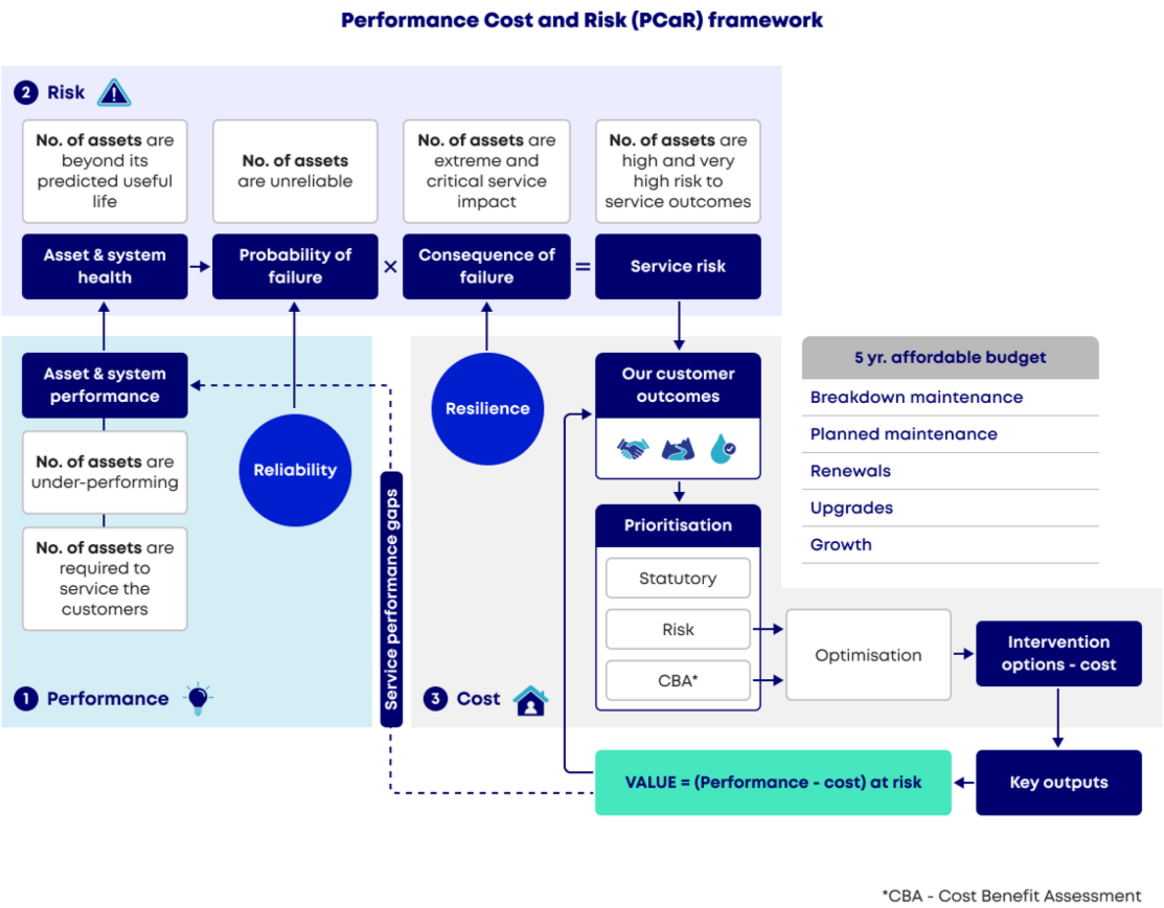
Performance, cost and risk trade-off in investment decision making (PCaR Framework)

To prioritise and optimise the future investment needed to achieve reliable customer outcomes, our PCaR Framework enables systemic decision making, considering current and historical performance, probability of failure, and consequence of failure. This framework sets out a process for underpinning expenditure decisions, setting the infrastructure strategy to deliver the required business outcomes.

We will continue to take a PCaR-based approach to operating our infrastructure, from responding to a call reporting a fault to prioritising the repair; from determining maintenance requirements to defining assets requiring investment. Our proposed optimum level of investment (see chapters 6 and 7) is built on our current performance and risk, explored in Chapter 3, and on identifying and investigating alternatives, wherever possible, through a rigorous planning process to ensure the overall least-cost solution to the customer. In addition, this process has involved:

- determining what is required to meet our statutory obligations
- engaging with stakeholders to determine outputs valued by them
- deciding on the options and risks involved in meeting the above.

Figure 4.5 PCaR framework



Our asset management framework is discussed in detail in *Appendix 4: Asset management*.

Expenditure planning

Our expenditure forecast for this price proposal has been prepared in accordance with our LTCOP, Enterprise Plan, Asset Management Framework, service and system plans, and expenditure planning and delivery processes.

Our expenditure requirements and timing are underpinned by our customer engagement journey to produce an efficient and prudent level of expenditure across the 10 years. Customer outcomes, measures and targets are pivotal in planning and validating our expenditure. Insights from customer engagement ensure that project initiatives are closely aligned with customer priorities and expectations (see **Chapter 2**).

Sydney Water goes through a robust annual process of developing our capital and operating budgets. We assess the rigour of the underlying forecasts and assumptions, and develop and test various expenditure scenarios with senior management and our Board to inform our price proposal.

Operating expenditure planning

We have an annual planning and budgeting process to determine total opex based on a rolling 10-year budgeting approach. This is done as part of the annual SCI submitted each year to NSW Treasury. The planning and budgeting approach is conducted from each October until April the following year. We derived our estimates for the period 2024–25 to 2034–35 between October 2023 and April 2024.

Key elements of the budgeting process for the SCI include the following:

- We use consistent overarching assumptions and consider corporate objectives. These include labour costs, weather assumptions, growth projections and regulatory requirements.
- Driven by planned activities, our budgets are developed to deliver on operational plans, including asset condition and maintenance plans, service delivery plans, capital investment plans and risk assessments.

We challenge budgets for their efficiency and consistency at two separate points:

1. We use the WSAA value chain to assess our efficiency against other water utilities.
2. We review the consolidated budgets to ensure we deliver on our plan, balancing against our risk framework. This review process occurs with the Executive and Board.

After approval by the Executive Team, the Board considers and approves forecasts, which are finally endorsed by the shareholders and their representative, NSW Treasury. This process also provides the opex forecasts for our price proposal for IPART covering the 2024–25 and 2034–35 regulatory periods.All unregulated revenue and costs are ring-fenced from our regulated business. Some items are treated differently for the purposes of regulatory accounting. This ensures our prices and revenue targets are based on the cost of supplying the regulated products and services.

Total regulated operating costs are derived for water, wastewater, stormwater and regulated (s16A[13]) recycled water services. Our cost model assigns the directly attributable costs to the designated service. This method aligns to the reporting needs of IPART's Annual Information Return.

As not all costs are directly attributable, we have an approach for allocating the shared or common costs. Costs that cannot be directly attributed to a service, or are shared among more than one service, are defined as pooled business support and corporate costs, and separately tracked in the model. They are mainly planning, administration, financial management, digital, human resources and property costs.

For the first time, our planning for 2025–35 also includes a base-trend-step process for building up the operating forecast, ensuring we start from an efficient base, removed non-recurrent expenditure, and add back only prudent and efficient step changes in opex. This process is described in Chapter 7 Operating expenditure.

[13] s16A of the IPART Act refers to a direction by the Government to IPART to include the efficient cost of Sydney Water complying with specified requirements in its Determination.

Our cost model

In July 2021, we introduced BxP, a SAP-based enterprise resource planning platform, to deliver an integrated, enterprise-wide view of our main business processes. BxP replaced our then core financial management and procurement system, bringing in new purchasing functions, supply chain portfolio and project management.

With the implementation of BxP based on a SAP S/4HANA system, we also replaced our regulatory cost model (RCM) with a new cost model. Similar to the previous RCM, the cost model aims to derive our total regulatory opex and allocate these costs into our water, wastewater, stormwater and recycled water services, enabling greater cost transparency.

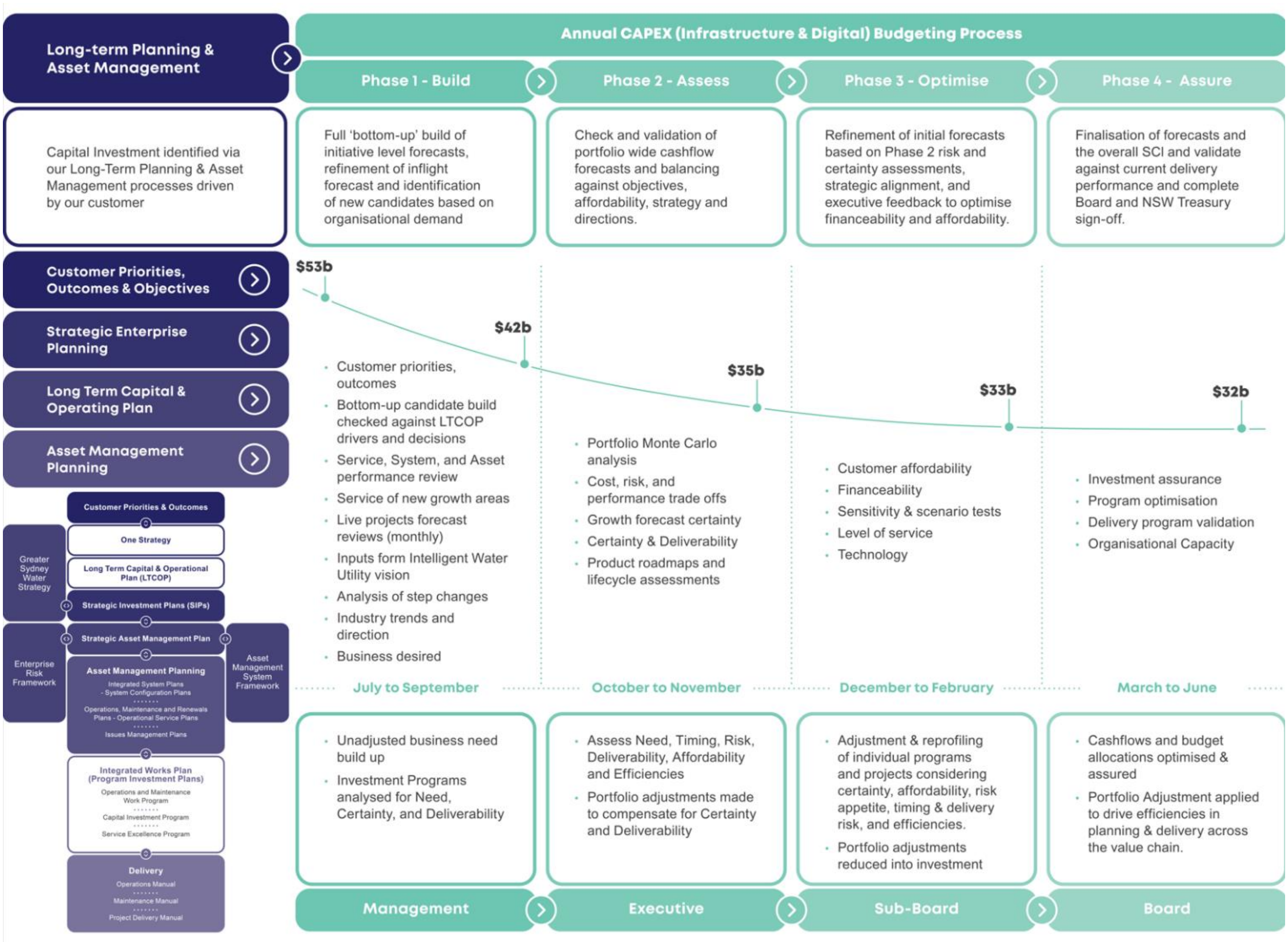
Over the last few years, we have been testing, reviewing and refining our cost model to ensure it produces cost estimates that are sensible, robust and consistent over time. For the first time, we have used estimates from our cost model for this price proposal and in the 2023–24 actuals.

We note that there may be some slight differences with estimates produced by the RCM. In particular, our current cost model allocates a greater proportion of corporate costs directly to our water, wastewater, stormwater and regulated (s16A) recycled water services.

Capital investment planning

Over the course of a year, our expenditure development process goes through four phases: build, assess, optimise and assure. This involves multiple workshops, testing investment and risk scenarios with Executives and Sydney Water's Board to determine the acceptable levels of service and risk appetite in consideration of customer cost impact and meeting customer outcomes.

Figure 4.6 Annual capital budgeting process ($24–25)



Our initial bottom-up build identified over $53 billion worth of infrastructure and digital capital investment need within the next 10 years. Of this, around 60 per cent was for growth servicing, 35 per cent for renewal and compliance investment, and 5 per cent for digital capex.

Through this process of assessing, optimising and assuring a prudent and efficient budget, we have constantly sought to align our proposed investment with our customer priorities, LTCOP, Enterprise Plan, strategic investment plans and asset management plans, and model the cost impact on our customers. Additionally, during each phase, a portfolio and investment program Monte Carlo analysis was undertaken, assessing the probability of achieving the forecast outcomes. This provided greater certainty of our P50 forecast across the portfolio and informed how we further optimised our forecasts.

Further to these overarching portfolio processes, our growth servicing, renewal, compliance and digital programs have gone through more specific assessment processes. Our growth servicing program has undergone an assessment to inform confidence in the proposed investment (such as whether investment is tied to government priority initiatives, if precincts have been rezoned, what stage projects are currently at, and whether investment is critical for existing non-compliance). Among other adjustments, we have also moderated the growth program by including expenditure to meet baseline growth forecasts. Our renewal and compliance programs undergo an assessment in line with our PCaR Framework and baseline review, trend, and step changes. Our digital programs are assessed against detailed product roadmaps, lifecycle assessments and interdependencies across programs to ensure alignment with the strategic direction of our organisation.

Ultimately, through this process our 10-year total capital budgets were set at $32 billion, balancing service and asset risk, fulfilling growth and new obligations, and sustaining capital for reliable water and wastewater services. This is around 40 per cent or $20 billion lower than our initial identified need.

Expenditure management

Capital investment management

How we develop projects: Project stages

Sydney Water has a mature and established project lifecycle process outlined in **Figure 4.7**.

At the commencement of the project lifecycle, a decision will be made to proceed through planning and development at the 'Needs confirmation' stage. This decision allocates funding to progress to optioneering based on the articulation and justification that an investment need exists and is aligned to strategy or business need. At this point, there is no commitment of delivery funding and estimates of final cost are usually in an indicative range.

Following the initiation stage, projects move into the design and development phase, involving complete option analysis, comparing benefits to service needs and other economic costs. The options analysis phase will provide comparisons across the shortlisted options and economic and financial evaluation of the preferred option to support the decision to proceed to delivery business case.

The decision to invest and commit to delivery is made at the end of the planning and development stage. The investment Delivery Approval Business Case (DABC) further quantifies that the investment will deliver the required benefits and outcomes against the need identified, and that it can be delivered against the defined time, quality and cost parameters. A procurement and delivery strategy is also developed for approval.

Figure 4.7: Capital project lifecycle

	SP&LA / ETS	System Planning and Land Acquisition (SP&LA) / Infrastructure Delivery / Engineering & Technical Support (ETS)					Customer Experience & Operations
Stage	Initiation	Planning and Development		Procurement		Deliver and initial Operations	Benefits Realisation
	Initiation and needs confirmation	Options analysis	Investment decision	Readiness for market	Contract award	Readiness for Service	Project completion and benefits realisation
Purpose	Demonstration that the need is aligned to strategy and service need	Analysis of a range of options to meet the service need, maximise the benefits and at optimal cost and identified a preferred option	Proven the preferred option best meets the service need and maximised benefits at optimal cost	Confirms suitable procurement and delivery strategies are selected and project is ready to proceed to tender	Preferred supplier nominated post commercial and contract negotiations	The delivery team and receiving team are prepared for handover. Asset acceptance criteria are met.	How well have the benefits outlined in the business case been realised and what lessons can be learnt. Project closure.
Deliverables and activities	• Project set up • Project objectives and scope • Current phase funding request estimate • High level final project estimate • Basis of estimate • Cost Plan & Schedule • Benefits Management Plan • Categorisation assessment • Initiation or Needs Approval Business Case	• Strategic design • Options report • Current phase funding request estimate • Final project cost estimate • Estimators report • Cost Plan & Schedule • Risk Register • Consult asset owner and operators • Risk workshop • Health & Safety In Design (HSIDI and Constructability workshop • Design scoping workshop • Procurement strategy • Economic assessment • Environmental Planning Pathway • Communications Strategy	• Concept design • Preferred options report • Current delivery phase request estimate • Final project cost estimate • Estimators report • Cost Plan & Schedule • Risk Register • Consult asset owners and operators • Risk workshop • HSID & Constructability Workshop • Procurement and packaging workshop • Procurement strategy • Environmental Assessment • Community Consultation	• Detailed design • Detailed design scoping workshop • Cost Plan & Schedule • Risk Register • Confirm Asset Acceptance criteria • Acquire property and adjust utilities • Risk Workshop • HSID & Constructability Workshop • Tender documents	• Assess tender proposals • Tender documents • Cost Plan & Schedule • Risk Register • Review Environmental Management Plan • Review Safety Management Plan • Risk workshop • HSID & constructability workshop • Tender documents	• Manage asset acceptance • Cost Plan & Schedule • Risks Register • TOC estimate • Contractor management	• Project financial closeout • Asset handover • Lessons learnt log • Post completion review • Benefits Management Plan • Benefits realisation • Manage asset acceptance • Final Cost Plan & Schedule • Final Risk Register
Key Objectives	**Confirm (via NABC)** • Justifiable need for the investment • No insurmountable barriers to delivery • When is investment is required • Scope and budget for next phase	**Confirm (via OABC)** • Preferred option and rationale • Reconfirm need • Scope, budget and delivery of next phase • Total project cost and proposed schedule	**Confirm (via DABC)** • Procurement and packaging strategy • Project viability and rationale for chosen option • Cost of project is efficient and defendable • Scope and budget for delivery	**Confirm** • Project viability • Cost estimate • Relevant approvals in place • Project design and documents are suitable for supply chain engagement	**Confirm** • Project viability • Proposed contract aligns with Performance Management Baseline (scope, cost, schedule, risk) • Project design and methodology meets SW and external standards • Contract aligns with SW terms and conditions	**Confirm** • Project will deliver agreed objectives • Readiness for service /operation • Asset acceptance criteria are met • Lessons learn are captured • Financial data captured	**Confirm** • Project benefits were validated • Contingency usage analysed and closed in SAP • All changes logged with approvals • Project close-out report • Archive all project documentation
Controls	Monthly Performance Reporting - Risk & Contingency - Schedule - Benefits - Change. | Quarterly or half yearly health checks (depending on project complexity). | Project deep dives as required						
Estimate Accuracy	L: -50%, H: +100%	± 30%	± 10%	± 10%	L: -5%, H: +10%	L: -5%, H: +10%	± 2.5%

Sydney Water investment gates

How we govern projects: Investment governance and assurance process

A robust governance and assurance process is in place to support the efficient planning and delivery of our capital investments. The corporate governance framework, in conjunction with NSW Government requirements, ensures that decisions on investments follow rigorous approval and reporting protocols. **Figure 4.8** maps the assurance gateways with the various stages of project investment.

Investment proposals are submitted for consideration as business cases, which are assessed at specific project gateways.

Figure 4.8: Sydney Water investment assurance gates by project phase

[1] Assurance process for projects >$100m (INSW) and >$20m (ICT - DCS) will be tiered, this then provide the external assurance pathway required.

[2] ICT projects; As a SOC Gates 0 and 1 do not apply to Sydney Water. In the rare occurrence of a project being assessed as Tier 3, required gates for a SOC are 2,3 and 6, however, for Tier 3 projects, Gate 2 is a Project Sponsor commissioned review, which is an independent milestone review or health check on the project.

[3] This is the full gates for higher value/complex projects. Lower complexity projects to not employ full gates and follow a simplified structure of SF→NABC→DABC, examples of this are complexity renewals.

We have a robust, transparent and scalable assurance model in place to deliver on Sydney Water's significant capital investments and ensure the programs will deliver on their target benefits. The Scalable Assurance Framework prescribes different levels of assurance and deliverables based on the size and complexity of the project. The project categorisation covers four levels, from high value/complexity/risk (Level 1) to low value/complexity/risk (Level 4).

Figure 4.9: Scalable Assurance Framework

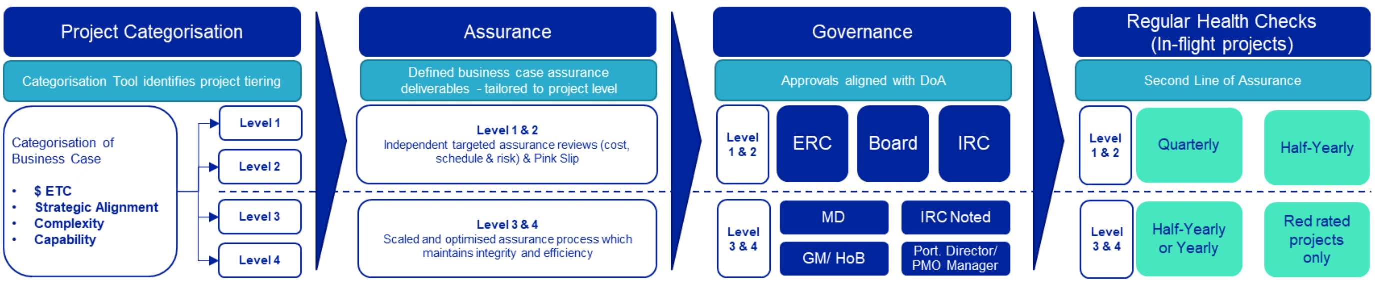
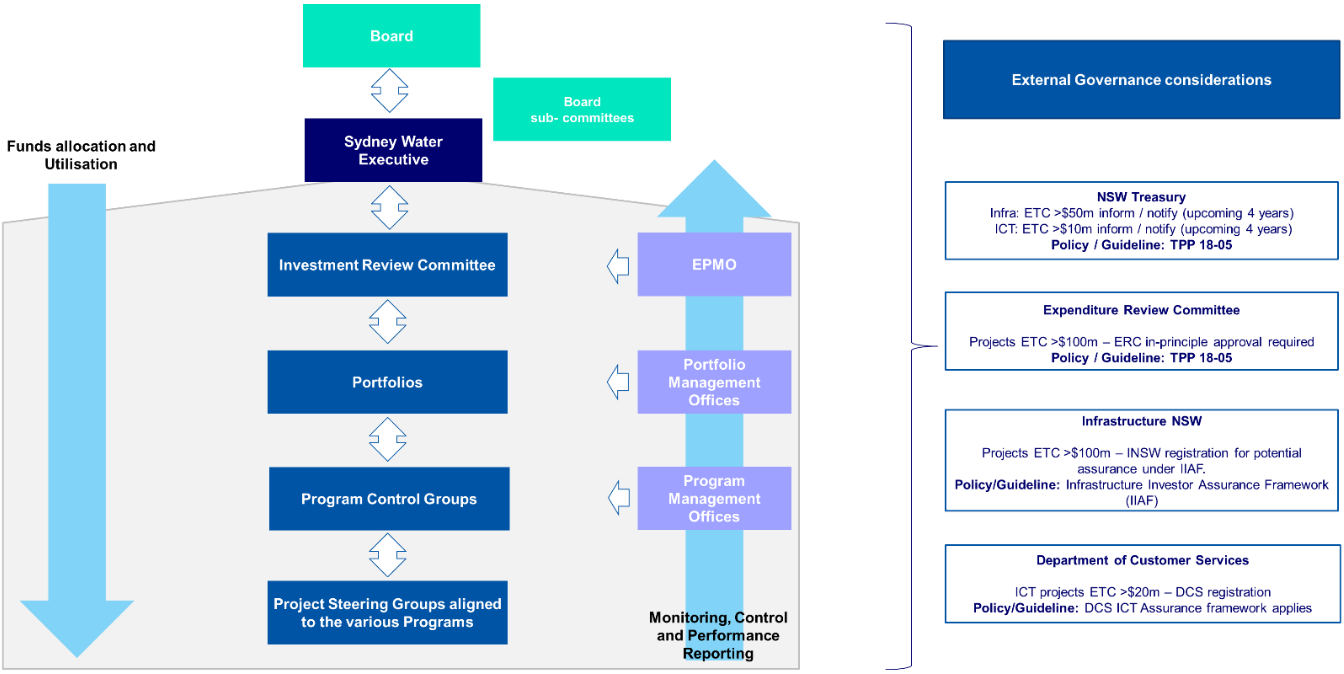


Figure 4.9 is an overview of the key investment forums and governance arrangements that provide oversight of investment program performance and support for key investment decisions. Governance and investment decisions are also subject to the business rules documented in the *Delegation of Authority* manual.

Figure 4.10: Sydney Water investment governance forums



** ETC is Estimated total cost of the project as defined by the Major Projects Policy – TPP 18-05; ETC is total capital spend and recurrent spend of the project/program over the period of time defined in the project/program business case.

Operating expenditure management

Following our annual enterprise planning and budgeting process, we set our opex budget for the year ahead across all our different business groups. We then track and manage performance against this budget throughout the year, through:

- **Executive and Board oversight:** We report and monitor financial performance, along with other measures of non-financial performance, each month through our corporate performance report. These reports, which are presented to our Executive and Board, track financial performance measures such as revenue, bulk water purchases and our core opex against budget, as well as non-financial performance including customer measures.
- **Management dashboards:** All business group managers are provided with their budget and have access to the dashboard to individually track their expenditure performance against budget.
- **Cost management:** We have processes in place to ensure our cost base is efficient. Examples include salary and wages benchmarking, energy plan (forward purchasing), chemicals management plan and initiatives to drive efficiencies (for more detail, see our **Cost Efficiency Strategy**).

How we develop and manage costs

Cost estimates are a key planning output to inform investment plans, manage risks and make strategic investment decisions. Our capital forecast relies on a robust, progressive and iterative process that develops appropriate cost estimates throughout the project lifecycle. Over the last two years, despite market cost escalation pressure, the majority (nearly 70 per cent) of capital infrastructure projects were delivered within +/- 20 per cent of the original approved P50 budget estimate from the Delivery Approval Business Case (DABC) stage. See *Appendix 6.3: Cost estimating and forecasting accuracy*.

This process and cost estimating planning tools incorporates various factors, including operating and maintenance costs, recent out-turn costs, and risk factors, to generate robust capital cost estimates. Sydney Water has a Cost Management Plan and an Estimating Guideline to define project costs, align scope and costs, establish contingency allowances, identify issues, capture data for benchmarking, and peer review requirements and validation of estimates.

Cost Estimation Process

The Estimating Guideline outlines a comprehensive cost estimating process that ensures accurate and reliable cost projections throughout a project's lifecycle. It guides estimators to capture the project scope, integrate cost estimates with schedule development, and complete Quantitative Cost Risk Assessments to inform costs and contingencies. The process includes applying appropriate cost escalation and preparing a Basis of Estimate (BoE) to document the preparation and assumptions of the estimate. Cost estimates are regularly updated based on design development at each stage and include direct and indirect costs, escalation allowances, provisions and contingencies, master services framework fees, and Sydney Water costs. Estimators use various methods to develop estimates, breaking projects into small elements, extending quantities and rates, summing elemental costs, and applying additional costs for a complete estimate. The guideline also emphasises the integration of cost and schedule development, thorough documentation of the BoE, and the iterative development of a packaging strategy in collaboration with project managers, controllers, estimators, and schedulers. This strategy ensures efficient cost estimation and effective project delivery.

Cost Estimation Governance

Cost estimates have their own governance process, separate from the overall program/project development and delivery governance, due to their direct impact on capital forecasts, regulatory price reviews, and customer prices. Each cost estimate undergoes a review process to check accuracy and appropriateness for a project's particular stage. **Cost Estimation Tools**

Cost estimation is crucial for making the right strategic and investment decisions at the right time. Planning cost estimation tools use the best available rates and assumptions, benchmarked where possible, to rapidly develop capital cost estimates for various servicing options, factoring in operating and maintenance costs as part of a lifecycle cost analysis. These tools are used for options comparison during early stages of planning. A more detailed risk-based cost estimate (RBCE) is undertaken when projects get further into the business case development process. We continually review these tools as part of our commitment to improvement.

How we enable efficient costs

Cost efficiency

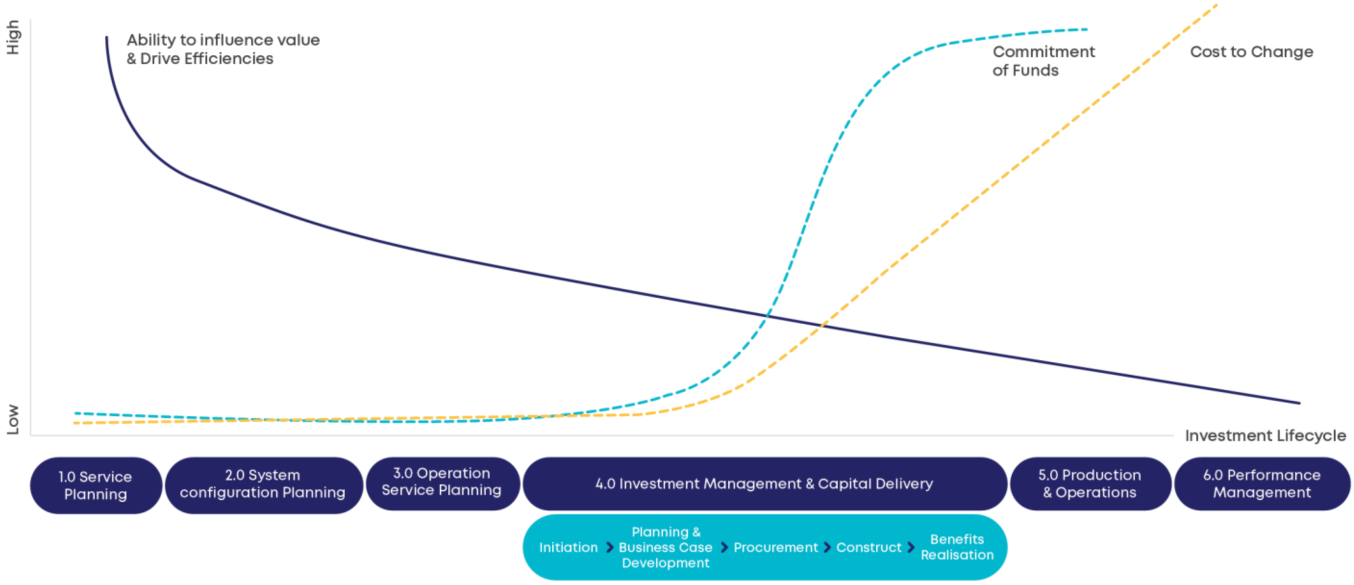
Our *Cost Efficiency Strategy* outlines the process we are taking to ensure that our customers receive essential water, wastewater and stormwater services at the most efficient long-term cost. As explored throughout this proposal, this involves a range of processes, such as:

- undertaking detailed system and regional planning, which sets the most efficient servicing pathway, allowing for future uncertainty by identifying adaptive options
- conducting governance reviews, which ensure prudency and efficiency of proposed investments
- ensuring good practice procurement and delivery approaches
- investing in our workforce to support collaboration, and in digital to enable our business and achieve continuous improvements through technological solutions
- taking on risk around significant investments, so customers do not ‘pre-pay’ for costs that are uncertain.

Seeking efficiency at every step – from strategic planning through to project delivery

It is an accepted concept that the ability to influence the efficiency of a servicing strategy or investment is much greater in the early planning stages than in delivery or once construction has started. As the investment moves from planning into option selection, design, procurement and then construction, the ability to meaningfully influence the project cost declines quickly and the cost of applying change increases. This relationship is illustrated in **Figure 4.11**, which includes the six key phases in our asset value chain process.

Figure 4.11: Illustrative cost – influence curve through the asset value chain

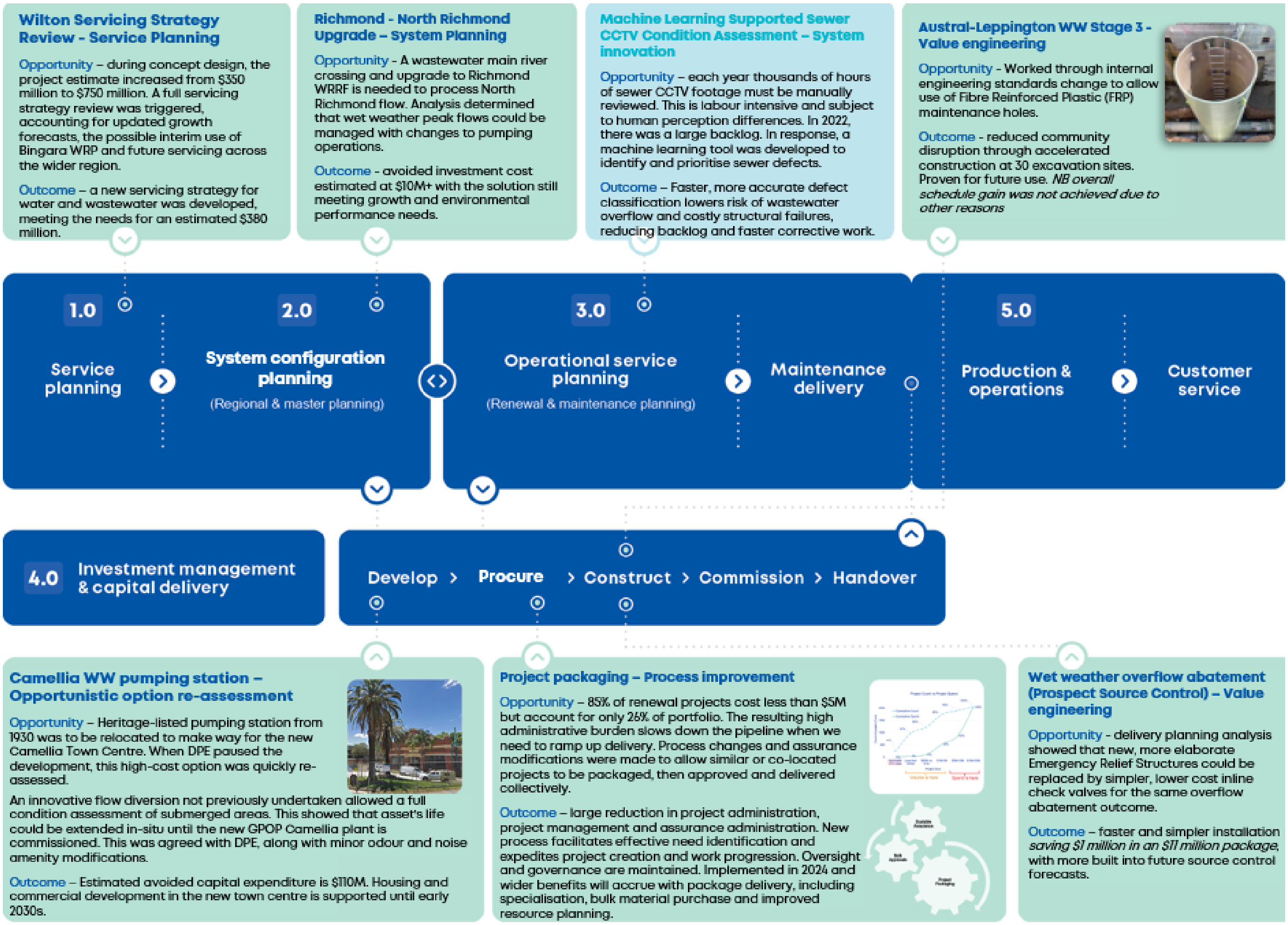


In infrastructure investment, this concept is especially important. Choosing the right long-term servicing pathway, integrating different service needs, and optimising across a system can yield efficiency savings many times greater than what can realistically be achieved in design, procurement and delivery (although these later steps are still important). It is also true that savings identified during planning are less visible, as they rely on recording the difference between a baseline 'before planning' estimate and an 'after optimised planning' one. While the benefits of robust early planning are very important for customers, they are only realised over the longer term, and not necessarily apparent in final out-turn costs of projects.

In **Figure 4.12**, real-life project and process improvement case studies mapped to the relevant part of the value chain demonstrate:

1. how our processes seek efficiency improvements at every stage
2. that significant savings can be achieved in service planning (step 1.0) and system planning (step 2.0), while savings later are of a lesser magnitude.

Figure 4.12: Examples of efficiencies achieved across the value chain



We have identified several efficiency initiatives across the asset value chain to support the realisation of our capital and operational expenditure efficient factors (see **Chapter 6** and **Chapter 7**).

Capex and opex interactions

Our approach to planning and investment governance explored in Chapter 4 considers the long-term costs, risks and service impacts of different investment solutions. Key interactions between opex and capex considered through this process include:

- the operating cost impacts of building new infrastructure or digital assets
- forecasting activity levels to achieve specific service outcomes (issue management planning)
- asset renewals and maintenance choices.

The most material capex–opex interaction is where large new assets or facilities require capex for construction and then incur ongoing operating costs that depend on their type, operation and size. For example, new water or wastewater treatment facilities will lead to additional energy, chemical, operations and maintenance, facilities management and IT costs. For large facilities, this can be significant. As noted in Chapter 7, in the interests of customers, Sydney Water absorbed much of these increases over the past three regulatory periods (2008–20). Increases in operating costs relating to growth capex is explored in more detail in our opex program investment plan. In addition to aligning the forecasts in this way, all material project option assessments take account of the total lifecycle costs of alternate options (as well as other variables). For example, the option analysis for the GPOP Integrated Water Strategic Business Case[14] considers different capital options, the corresponding operating costs, potential developer charges and potential recycled water revenue.

[14] Central River City Water Cycle Management Project, Strategic Business Case, April 2022.

As part of planning for the management of specific service issues, we bring together complementary forecasts (capex and opex) for activities that target a particular outcome. The issues addressed often cut across different asset classes and operational activities. Issue management plans are a way of ensuring the right balance of activity and investment is planned to manage the outcome, taking account of external uncontrollable factors such as weather. An example of the Leakage Management Plan is shown in **Figure 4.13**.

Figure 4.13: Issue Management Plan as an example of capex-opex integration

Leakage Management Plan:

Aligned capex and opex activities managed together to target specific outcomes

Customer Outcome:

Water quality and reliability

Provide safe, clean, reliable drinking water every day

Customers want us to do our bit in saving water

The **Leakage Management Plan** is an integrated capex-opex plan targeting leakage reduction. It aims to reduce how many leaks occur, the flowrate of a leak and how long a leak runs for, by implementing activities as per the four pillars of leakage control*. These are listed below in order of cost effectiveness:

- **Speed and Quality of Repairs** - fast and effective reactive response via a field resourcing uplift to maintain a much smaller backlog of lower priority leakage jobs *(2024 LMP activity category: Fix customer reported leaks)*
- **Active Leakage Detection** – finding and fixing less obvious leaks using acoustic sensors, data analysis and detection dogs. *(2024 LMP activity category: Find and repair leaks proactively)*
- **Pressure Management –** reducing pressure to reduce leakage where this can be balanced with service requirements and other needs (eg firefighting). *(2024 LMP activity category: Avoid leaks)*
- **Asset Management (renewals) –** ongoing work to address end of service life, poorly performing assets. *(2024 LMP activity category: Avoid leaks)*

The plan also includes supporting activities such as an uplift in data analytics, research, and innovation. For example, we will target leakage via installation of District Metering (capex) and resourcing of the analytics work (opex). *(2024 LMP activity category: Monitor our network)*

All Issue Management Plans seek to manage service aspects in an integrated way, but all expenditure still goes through the requisite governance and approval processes.

*International Water Association Water Loss Task Force

Leak detection dogs:

- In FY24 assessed 341km of pipe, finding 156 leaks
- Particularly effective for hard-to-find leaks
- Also do reactive work.

We forecast the levels of asset maintenance and renewals required to meet a particular service need and risk profile, with the approach to this being different for different asset classes. Importantly, asset renewals and asset maintenance are not always interchangeable, and it is not simply a case of calculating the lowest cost combination of these to find an 'optimum' investment profile. There is a relatively limited opportunity to perfectly 'optimise' the balance of activity, especially given that a range of uncertain factors such as weather, and demand changes, can impact asset performance and health.

For any asset class, there are a range of considerations when forecasting renewal and maintenance volumes:

- *The extent to which a 'maintenance' activity addresses the same problem as an 'asset renewal'*. For some asset classes, a management strategy can find the right balance of these but for others, there is very limited or no opportunity to choose between the two alternatives. For example, underground water pipes cannot be readily maintained in the way an oil change would extend the life of a car engine.
- *The value of the asset and the consequence of its failure.* For low-value, high-volume assets with low consequence of failure – such as small-diameter water or wastewater pipes – a 'plan to repair' strategy can be the most efficient. For such lower-value assets, management strategies are often applied via decision frameworks, which provide a guide for identifying when a renewal may be required (for example, after a certain number of failures). For larger facility assets that are more service critical (for example, pumps), a more managed asset strategy that combines regular servicing (for example, oil changes and replacing seals) will be more efficient.

In summary, the most efficient asset strategy is very specific to the asset class. Rather than leading to optimised forecasts that are 'set and forget', they identify triggers of the need for analysis of the right response. Such triggers are set in decision frameworks. For example:

- In wastewater networks, a choke and overflow will require response and clean-up (opex) and it may trigger a CCTV survey (opex), which will lead to the need for root cutting (opex) or relining (capex).
- In water networks, a review is triggered after three breaks in a two-year period in an individual section of pipe (as this may indicate its condition). A net present value (NPV) calculation is undertaken to decide whether we should continue to repair the section (opex) or replace it (capex). This also takes account of a range of contextual criteria, such as the level of disruption caused by constant repairs, and the criticality of customers or environmental factors. Therefore, a renewal will proceed in some cases even if the NPV is slightly negative.

In general, it is not efficient to continually defer renewals through increased maintenance, especially where assets are failing on a repeat basis, causing operational and community disruption. Delays in asset renewals or compliance upgrades can also lead to short-term higher opex to manage risk or performance, but it might be appropriate if a large augmentation is imminent to increase treatment or pumping capacity to service growth demand. Where such situations are known, we seek to consider these in forecasts.

Opex and capex considerations for digital expenditure

The following key considerations in the relationship between capex and opex are made when designing and planning the digital portfolio:

- We take the total cost of ownership when we invest in technology, including the cost to build, operate and maintain. Like civil infrastructure, we must continue to sustain and maintain our digital solutions post construction, so they continue to operate and deliver the intended benefits and business capabilities. For example, all software comes with an annual licence cost, regular patches, upgrades and security controls, and the cost of supporting and managing incidents.
- The market is transitioning to cloud-based solutions, which impacts our accounting treatment, shifting us towards opex and away from capex. It provides an opportunity to minimise total long-term capex, while maintaining or improving flexibility, scalability and resilience of digital services. Our processes consider how we are required to financially treat on-premise builds compared to cloud solutions, and the impact on customer.
- Notably, digital assets have a relatively short depreciation life – typically five years for physical hardware and 10 years for software – meaning the impact to customer bills of using capex or opex is minimal. On-premise hardware and software are generally treated as an asset and depreciated, while cloud services are subscription based, so they are treated as opex. Overall, the impact is marginal and, with new efficiency schemes, will incentivise the best total expenditure solution for our customers.

How we procure and deliver efficiently

Procurement

Sydney Water's procurement strategies and governance are designed to ensure efficient expenditure across major projects, regional delivery and the internal workforce through a cohesive approach.

Procurement strategies for major projects focus on ensuring efficient expenditure by conducting a thorough review of pipeline packaging, aligning contractual risk provisions with current market conditions, and fostering collaborative procurement processes. Workshops are held to identify synergies and adjust project packaging based on tactical and strategic considerations. Additionally, the development of the *Major Projects Procurement Manual* and new procurement templates provide stakeholders with consistent, standardised guidance, aligning with NSW Government and Sydney Water Procurement Guidelines to streamline processes, minimise tendering costs, and enhance market perception.

For Regional Delivery Partners, procurement of goods and services is driven by a shared purchasing approach that was developed in 2020. Our shared purchasing methodology helps manage subcontractors and suppliers of goods and services to the Regional Delivery Partners. This approach involves using pre-agreed panels of suppliers for nominated goods and services, and ensuring that all subcontractors used are pre-qualified to Sydney Water's standards. As a result, we get the benefit of economies of scale and standardisation, and reduced risk to deliver projects.

This strategy is documented in the *Shared Purchasing Handbook*, which ensures alignment with Sydney Water and NSW Government standards. To foster collaboration, a monthly Shared Purchasing Commercial Forum has been established between Sydney Water and our Regional Delivery Partners. Additionally, reporting tools such as the Shared Purchasing Supplier Dashboard help assess supplier performance. A Shared Purchasing Directory has been implemented and provides a central source of truth on prequalified and nominated supplier panels. These initiatives collectively support a more streamlined and efficient procurement process, contributing to better capital delivery and maintenance outcomes across the region.

In addition to the procurement processes, we have focused on strengthening our internal workforce and governance to support efficient expenditure. During a period of peak demand from 2021 to 2024, we increased our workforce, driven by a strategic talent acquisition and retention plan. This plan included insourcing recruitment services to ensure a more efficient and strategic approach to hiring. The detailed headcount plan developed for 2023–33 underpins the recruitment and onboarding strategies, ensuring that the workforce is appropriately scaled to meet delivery and commercial risk requirements. This internal strategy supports consistent and transparent procurement practices across all delivery vehicles, reinforcing overall procurement efficiency.

Delivery

Sydney Water has implemented a gated delivery framework designed to manage risk throughout all phases of the delivery lifecycle. Supported by an investment governance and assurance process, this framework ensures that each stage of project investment is thoroughly evaluated and approved. Expenditure planning section in Chapter 4 discusses how the Sydney Water investment assurance gates are aligned with the different project phases, providing structured checkpoints that help mitigate risks and ensure effective management of investments from inception to completion.

Sydney Water has two main capital delivery streams:

- **Major Projects stream** – focuses on delivery of significant capital investment from project development to procurement, delivery, commissioning and operational handover
- **Regional Delivery stream** – our long-term partnership model (a 10-year plan introduced in 2020) with private industry ensures resource availability to deliver our maintenance and minor capital programs despite the strong demand for infrastructure resources in Australia.

This dual-stream approach allows Sydney Water to concentrate internal resources on complex, high-profile infrastructure projects while leveraging a dedicated regional consortium to handle renewal and minor capital investments. It supports the significant infrastructure increase needed to meet Greater Sydney's growth.

Management

The Major Projects stream explores design standardisation and integrates modern methods of construction (MMC) with industry practices. Efforts include leveraging MMC intelligence to reduce duplication and enhance efficiencies through standardised designs, advanced digital systems, and innovative construction methodologies. This approach is supported by the digital twin initiative and technical and operational functions. Additionally, MMC principles have been incorporated into the Upper South Creek (USC) Networks tender documentation, reflecting a commitment to optimise project delivery processes.

The Regional Delivery stream is managed by fostering long-term partnerships that enhance economies of scale and scope, incorporating maintenance and capital design to promote better whole-of-life decision-making. The following suite of tools and procedures helps Sydney Water to efficiently manage the delivery of its Reginal Delivery Partners (RDP) program:

- supplier performance dashboard
- Partnering 4 Success operating model
- annual integrated works program
- co-location with Sydney Water maintenance teams
- commercial model design

- KPI performance management
- NEC contracts.

Collectively, these elements drive effective collaboration and performance across regional delivery operations.

Governance

All our major projects, making up approximately 65 per cent ($20 billion) of our $31 billion infrastructure capital forecast, go through external assurance by Infrastructure NSW (INSW) and are approved by the NSW Cabinet Expenditure Review Committee. Our internal senior executive governance process (Investment Review Committee) covers over 90 per cent (projects valued at more than $10 million) of the portfolio value through business case assurance processes.

The governance process for Regional Delivery Partners is implemented at multiple levels. These include regional-level coordination and performance meetings, monthly regional performance meetings, bi-monthly steering committee meetings, and six-monthly all-region Regional Delivery Partners forum. These forums provide an opportunity to drive improved performance outcomes. Additionally, an independent audit regime supports the program to verify costs are incurred in accordance with the contract.

This structured approach ensures effective management of the Regional Delivery Partners at an enterprise level by involving all relevant stakeholders, defining roles and responsibilities, and outlining strategies for supplier relationships.

Chapter 5: Long-term plan

Key message

Our Long Term Capital and Operational Plan (LTCOP) was developed to respond to government requirements in the NSW State Infrastructure Strategy and the Greater Sydney Water Strategy. The LTCOP identifies our key infrastructure and operational plans to 2050 to deliver our customers' outcomes. Our proposed investment of over the next 10 years is our first step in delivering it.

Summary

- We have developed our LTCOP, which captures the key infrastructure and operational decisions to 2050 to deliver our customer outcomes. In it, we consider future challenges and opportunities to create long-term value.
- We understand our customers' priorities, and balance risk, cost and service levels to meet our customer outcomes.
- Different servicing pathways were considered, guided by our customers, which reflected different levels of service, decision points and outcomes as our operating environment evolves.
- Our customers' recommendations and advice informed appropriate trade-offs for each investment decision.
- The LTCOP was developed to respond to government requirements in the NSW State Infrastructure Strategy and GSWS. It was shaped by earlier customer engagement insights and updated to align with the outcomes of Our Water, Our Voice.
- We have weighed up customer service benefits and risks to ensure we balance the needs of the economy, public health and the environment with costs to service.
- We've found the most efficient path to deliver the infrastructure and services needed for long-term customer value. Investing now to start our journey on this new approach will create a thriving, sustainable Greater Sydney, with resilient services, integrated infrastructure, maximised community value, and circularity throughout our operations.
- Our long-term plan identifies several key decisions over the next decade that will determine how we ensure reliable drinking water for all customers, deliver safe water to protect public health, and upgrade wastewater services to protect waterways and the environment. While the outcomes of these decisions could alter investment levels or servicing directions, our investments in this price proposal are 'no regrets' decisions that do not close off options or pathways.
- The LTCOP will be updated based on new information and assumptions and changing external conditions. Our adaptive approach considers different scenarios, triggers and consequences of investment decisions, ensuring we manage risk and are flexible to evolving conditions.

Key reference materials

APPENDICES

5 Key long term planning choices and alignment with our 10-year plan

READING ROOM

Climate change adaptation plans
LTCOP
Greater Sydney Water Strategy

Guided by our 3Cs focus principles

CUSTOMER OUTCOMES

Our LTCOP delivers on our customer outcomes for safe, affordable, reliable and resilient water and wastewater services.

BALANCE RISK AND LONG-TERM PERFORMANCE

Informed by customer engagement, the LTCOP has been optimised through the Performance, Cost and Risk (PCaR) Framework.

EQUITABLE AND EFFICIENT COST RECOVERY

We have optimised our LTCOP to assist with efficient costs.

A long-term adaptive plan drives customer value

We have developed a long-term plan to ensure our customers' long-term interests are met. We used the customer insights we have gained and translated into actionable outcomes we will deliver, and the context of the external challenges our operating environment will continue to face. With many of our assets approaching capacity and/or nearing their end-of-life, we need to recognise the impact of our decisions in balancing customers' immediate needs today, with the service requirements of our future customers. Due to the long life of these investments and the associated timeframe for recovering costs, getting these decisions right will ensure our future customers will be paying for services that meet their needs.

Having an adaptable long-term plan ensures that we remain focused on our future customers' needs while solving today's challenges. It allows us to consider a more integrated and resilient system that can respond and adapt to ongoing challenges. It also allows us to be more sustainable in our use of infrastructure and resources, such that we consider different options for meeting our customers' needs, and look to resolve several issues with single investments to deliver best-value outcomes for our customers.

Including the voice of our customers in our long-term plan

In 2020, the NSW Government, with support from Sydney Water, published the GSWS, which outlines a strategic, coordinated approach to managing Greater Sydney's water systems to enable a thriving, sustainable and resilient city.

To support this shared vision, Sydney Water developed the LTCOP, released in June 2023. This plan, the requirement of a ministerial direction, and also a condition of our operating licence, outlines how we will enhance water supply and management in Greater Sydney over the coming decades. The LTCOP is central to achieving a liveable and sustainable city and meeting our customers' needs and expectations.

In developing the LTCOP, we aligned long-term assumptions with customer insights from earlier engagements, including the 2021 Water for the Future program. This helped shape future water supply options in line with the GSWS, ensuring they reflect customer preferences. We also delivered a World-Class Water Services Customer Engagement Program, holding five customer forums in September 2021, facilitated by RPS for Sydney Water. These forums offered key insights into customer values and expectations. The LTCOP was further informed by our corporate strategy, shaped by customer priorities identified for the 2020 price proposal

During the development of the LTCOP, we continued to engage with customers through the Our Water, Our Voice customer engagement program. In phases 1, 4, 5 and 6, we tested assumptions and used customer feedback to refine the long-term plan, ensuring the proposed servicing outcomes meet our customers' priorities.

By laying out a range of service-level options and associated bill impacts, customers were able to inform Sydney Water of their preferred PCaR profiles and we aligned these recommendations to the key decisions framing our long-term investment profile. Most customers who participated in the Phase 5 panel sessions indicated an openness to cost increases and a willingness to pay more than they currently do if it minimised risks to water supply, environment and networks, and achieved at least a moderate level of performance. This culminated in the majority selecting a 'medium cost, medium performance, low risk triangle' as their preferred setting for Sydney Water.

Through engagement, it became clear that customers are focused on the future and benefiting their communities, while mindful of affordability. They expect Sydney Water to maintain current service levels for future generations and prioritise low-risk services. Most customers urged us to address challenges like population growth and climate change now, rather than delaying action, as this could worsen issues. In some areas, they supported increased investment for a higher level of service. This feedback shaped our long-term expenditure profile, ensuring the LTCOP aligns with the GSWS and keeps customer priorities central to our planning.

In consideration of our customers' longer-term priorities and immediate needs, we have shaped our LTCOP and key investment decisions around their preferred risk, cost and levels of service. In doing so, we have weighed up the benefits and risks to customers of each long-term decision to balance the needs of the economy, public health and the environment with costs to service. For each investment decision, appropriate trade-offs have been applied that are consistent with our customers' recommendations and advice (see *Appendix 5: Key long-term planning choices and alignment with our 10-year plan*).

Given what we have heard from our customers regarding their immediate priorities and expectations (see **Chapter 1**), and the future challenges we are likely to encounter (see **Chapter 3**), a generational change in how we deliver water, wastewater, stormwater and recycled water services is required to meet Greater Sydney's future needs in a way that is resilient, sustainable and affordable.

Key long-term choices to deliver our customer outcomes

Several key choices were identified, guided by earlier customer engagement insights and retested through Our Water, Our Voice, that could significantly influence levels of service to customers, risks or benefits to the economy, public health and the environment, and costs to service. The key decisions framing our long-term investment pathway to support the delivery of our customer outcomes are summarised in **Table 5.1**. Our regulators and key stakeholders (NSW Health, NSW EPA and DCCEEW) were engaged and support these decisions. Each recommended option and action primarily influences the overall approach and timing of investment decisions to address a long-term servicing need rather than an immediate change in the current level of service. Further detail, including how our choices were guided by our customers' priorities and preferences, can be found in *Appendix 5: Key long-term planning choices and alignment with our 10-year plan*.

Table 5.1: Key planning choices considered under the LTCOP to support the delivery of our customer outcomes

Choice	Recommended option and action
Enable the government's growth ambitions (~30-40 per cent of capital expenditure to 2050)	
1. How we enable and respond to growth (water and wastewater)	Work with Department of Planning, Housing and Infrastructure (DPHI) and other key stakeholders to improve growth sequencing. Implement Infrastructure Contributions that reflect the true cost to service growth.
Deliver safe water for new and existing customers to protect public health (~5 per cent of capital expenditure to 2050)	
2. Timing of upgrade to manage very poor raw water quality	All Water Filtration Plants (WFPs) resilient to poor raw water quality by 2030 on a prioritised basis. Upgrade WFPs to service new customers reliably.
3. Timing to meet future Australian Drinking Water Guideline (ADWG) requirements	Address new disinfection byproduct requirements when required to do so.
Deliver new water supply for new and existing customers to provide reliable drinking water every day (10~40 per cent of capital expenditure to 2050)	
4. Triggers to build water supply	Build new supplies that enable supply resilience though diversification, while also ensuring we have time to progressively augment with new supplies to minimise likelihood of severe restrictions.
5. Water supply available during deep drought ("enduring supply")	Deliver enduring supply to satisfy minimum restricted demand over time
6. Approach to water system nodal resilience	Combination of investments to minimise single points of failure, additional rainfall independent supply, interconnect systems, digital investment and enhance emergency response.
Deliver upgrades to our wastewater services for both new and existing customers to protect our waterways and environment (~5-10 per cent of capital expenditure to 2050)	
7. Timing and approach to compliance with current wastewater treatment plant licence requirements	Work with the NSW Environment Protection Authority (EPA) to review selected Environmental Protection Licence (EPL) clauses
8. Timing and extent of increased level of wastewater treatment at inland plants	Await further information on future requirements, but in the meantime, increase recycling in all forms where economic and investigate greater use of nutrient offsets[1].

9. Timing and extent of increased level of wastewater treatment at deep ocean outfall (DOOF) plants	Proactively invest in solutions to remove flow and loads from coastal systems via recycled water and Purified Recycled Water (PRW) in line with economic assessment
10. Extent of wet weather overflow reduction	Linear extrapolation of current wet weather overflow abatement program, which is focused on source control (an estimated additional 26 per cent volume reduction between 2024 and 2050).

Building our long-term adaptive plan

Our LTCOP sets clear direction for a more resilient, integrated water system and organisational objectives. However, we recognise that our environment, assets, and customer needs will evolve unpredictably. To manage this uncertainty, we must take five steps:

1. Test our assumptions to ensure the plan is robust to reasonably foreseeable change scenarios: our LTCOP has considered alternative servicing pathways with different levels of service we can provide as our operating environment evolves. Our plan has also been stress tested with a range of potential future change scenarios.
2. Identify any events or triggers that may force us to change or reverse previous choices: our plan identifies the key decisions and triggers that may change the timing of our investments or their purpose. Key examples are coastal wastewater discharge performance requirements and community acceptance of PRW[15] (highlighted in Figure 5.2)
3. Identify a least-regrets pathway: our approach is to make incremental and staged investments, giving us flexibility to respond in new ways should conditions change. This ensures all investment decisions we make have no regrets attached, particularly as we consider the longer-term affordability needs of our customers.
4. Review the plan at regular intervals to account for new information: to ensure we remain adaptable to new conditions and continue to manage risks, we will monitor, investigate and make appropriate decisions based on new information to continually shape our future servicing pathway. Decisions about whether or how to change direction will depend on our customers' priorities, available solutions, ability to address multiple outcomes, and key design trade-offs and opportunities available at the time.

Our key assumptions

In developing our long-term plan, we determined the following assumptions, which have been important for shaping investment in this price proposal.

Table 5.2: Key assumptions used as the basis for forward planning in this proposal

Assumption	Description
Warragamba Dam operating level	The dam's full-service level will not be increased for water supply or decreased for flood mitigation
Mamre Road and Aerotropolis stormwater servicing	Deliver integrated stormwater servicing at Mamre Road and Aerotropolis precincts
Population	Based on DPHI's 2021 Main Population Projection released in 2022
Dwellings	Projection is currently based on DPHI's Sydney Housing Supply Forecast (SHSF) 2022. However, a sensitivity analysis has been conducted as part of the review to incorporate the most recent release of SHSF 2023.

[15] For more detail, refer to Sydney Water (2023) Long Term Capital and Operational Plan, pp 64–73.

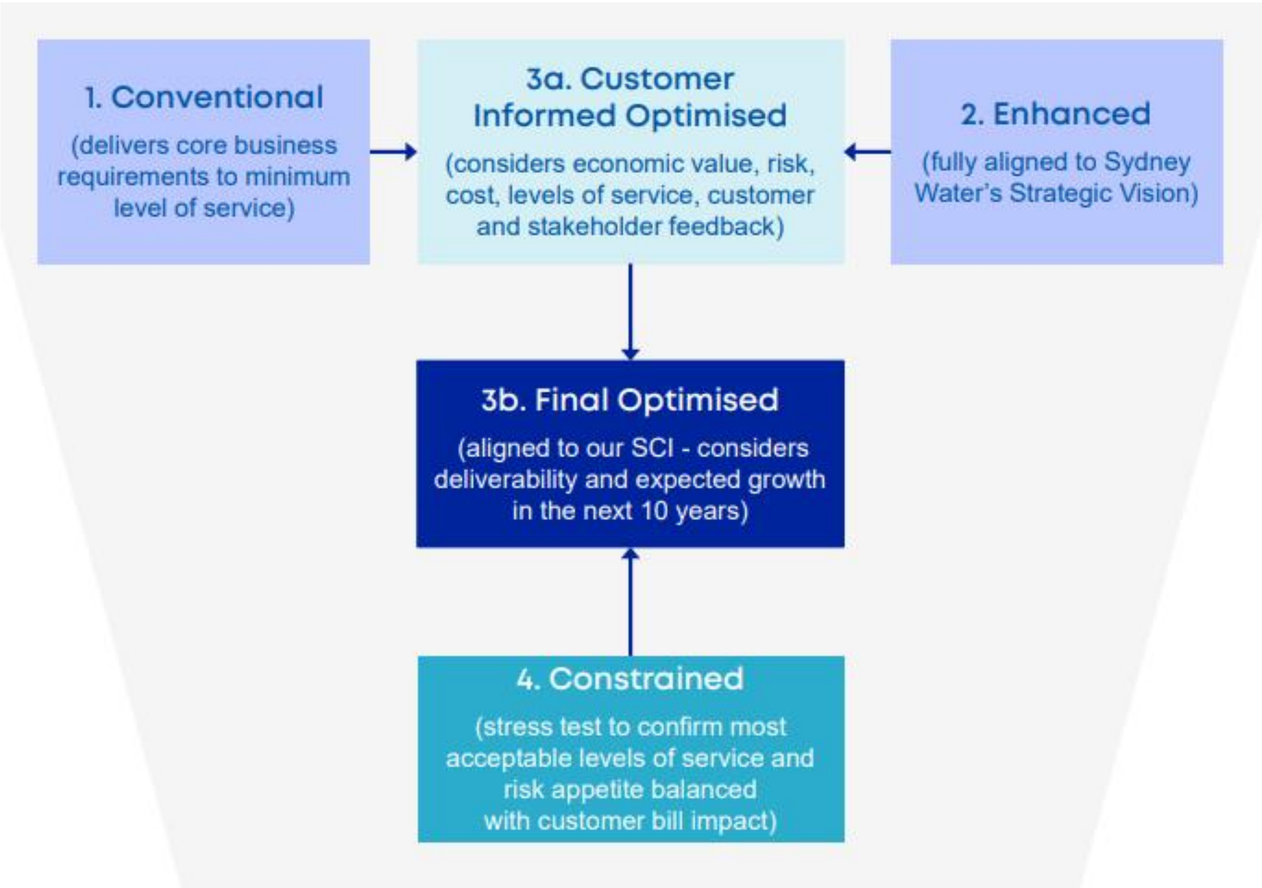
Demand	The drinking water demand projection is based on Demand Projections (released April, 2024), which uses SHSF 2022 as an input for projecting customer numbers. For more details, please see Chapter 10
Wastewater coastal discharge performance	Primary treatment acceptable (current licence conditions are maintained)
Government and community support for PRW as a water supply option	Government and customer support is provided and will be maintained
System configuration	System configuration remains broadly centralised
Climate change impacts on our services	Projections based on Representative Concentration Pathway 4.5 scenario, NSW and Australian Regional Climate Modelling (NARCliM) 1.5

Determining our optimised pathway

In response to our changing operating context, Sydney Water has considered three servicing pathways. These range from a conventional approach to an enhanced servicing approach that would deliver improved customer and stakeholder outcomes (see **Figure 5.1**). These pathways have a common set of assumptions for key triggers, but unique assumptions regarding approaches, demonstrating their different impacts on services outcomes and the profile of investment to 2050. The process we followed to determine the optimal investment pathway and the outcome of the assessment, including corresponding service levels and cost, is documented in our LTCOP.

The three pathways provide indicative investment profiles that help to inform decision-making. However, none of these pathways is likely to be the ultimate outcome, which will be determined by timing, the nature of needs, consideration of key design opportunities and the context at that time.

Figure 5.1: Servicing pathways identified as part of our LTCOP



Scenario and sensitivity planning

The LTCOP has been tested to ensure it is responsive to change and strengthens Sydney Water's capability to adapt should circumstances change relative to our assumptions. These assumptions have been assessed for robustness to deviations through several sensitivity and stress tests. We have tested the performance of the plan and the impact on our planned investments against the following variations:

- demand for drinking water
- changes to growth in connections and new services
- alternative distribution of growth
- climate change impact on long-term average surface water availability (yield)
- non-average weather conditions – design droughts – and the median time to minimum water storage levels
- maintenance and renewals expenditure (no change in the first 10 years)
- unplanned changes to wastewater and drinking water standards
- changes to the Warragamba Dam full supply level.

Our analysis confirmed that a change in servicing approach is required should circumstances change. For example, modelling of our design drought highlighted that our current system is at risk of depleting to 15 per cent full supply level in less than four and a half years once dam levels reach 90 per cent and continue to fall in drought. This is less than the expected time to build a new water supply source. To manage this risk, we have updated our drought response plan to outline the asset-level responses and their triggers for implementation in response to any future severe drought.

While these outcomes do not impact the planned investment in our LTCOP, they demonstrate the robustness of the plan, ensuring a measured approach is applied to near-term investment, such that our largest servicing risks (drought and wastewater capacity) are managed while no-regrets investments are made. For further information regarding these scenarios and their implications for our long-term plan, including plan performance and planned investment, please refer to our LTCOP.

Our key investment areas to deliver our customer outcomes

In support of our changing city and customer priorities, our LTCOP identifies eight key capex drivers (see **Table 5.2**). In parallel, we will invest in enabling more effective and efficient operations. These outcomes and investments reflect our customers' long-term interests as they provide the appropriate balance to deliver a medium-cost, medium-performance, low-risk profile to 2050 and ensure that we are proactive with our investments to address known and predictable challenges (see **Chapter 2**).

In developing our LTCOP, we have identified a $86 billion capex need to 2050 (from a range of between $83 billion and $95 billion, based on alternative pathways). Deviations from our proposed path in response to changing assumptions or planning context, as well as changes to key input prices and productivity improvements, will result in changes to our planned investment costs. We also included alternate levels of service as part of our assessment. If levels of service were further enhanced, expenditure could increase to $120 billion to 2050 (this would need to be supported by customer willingness to pay or regulatory requirements).

Our LTCOP accounts for additional investment in climate change adaptation to prepare and respond to future weather events as well as additional base digital investments to help us realise efficiencies across our expenditure profile and operations. These include integrating asset management with smart sensors, digitising educational resources, installing digital meters and automating operational reporting.

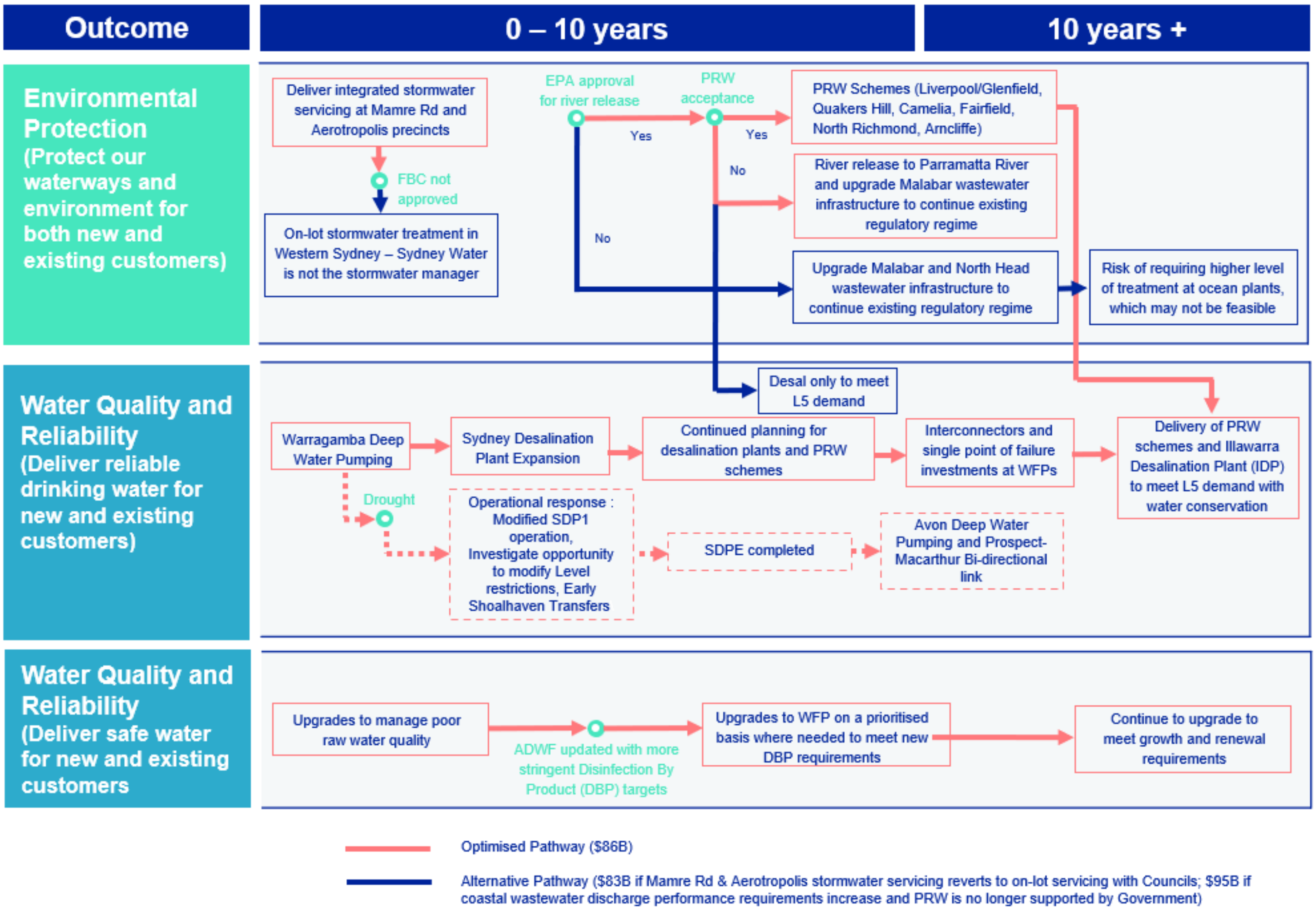
Table 5.3 Key drivers of capital expenditure

	Key strategic driver	IPART driver
1	**Enable the government's growth ambitions** through expanding infrastructure capacity to support the delivery of Sydney's regional growth plan	Growth
2	**Renew our assets** to meet customer service expectations today and in response to the external trends shaping our future	Renewal of existing infrastructure
3	**Build a resilient and reliable water supply (RRWS)** through investing in rainfall-independent supply (RFIS), eliminating single points of failure across our assets, interconnecting our systems and managing cyber security threats	Growth
4	**Expand our stormwater services** to contribute to improved waterway health through more integrated servicing of recycled water across Western Sydney	Growth
5	**Digitally enhance our physical assets** to lay the foundations of our asset management system and support data-driven decision-making for improved customer outcomes	Improvements
6	**Protect public health** to ensure the wellbeing of our customers and community through the products and services we offer	Renewal of existing infrastructure
7	**Protect and enhance the environment** by improving the way we manage our wastewater and stormwater systems to prevent pollution and protect against failure	Renewal of existing infrastructure
8	**Enhance our climate change response** through delivering against our environmental and social obligations and identifying new sources of value that deliver a positive benefit to the economy	Improvements

Our core investment pathway

As part of our adaptive planning method introduced earlier, our core investment pathway is supported by understanding of cost, risk and service impacts in the event we deviate from the LTCOP and follow different servicing pathways. The alternative pathways outlined in Figure 5-4 could reduce Sydney Water's capex to $83 billion (if Mamre Road and Aerotropolis stormwater servicing reverts to on-lot servicing with councils) or increase to $95 billion (if coastal wastewater discharge performance requirements increase and PRW is not accepted by the community). Our core investment pathway is shown in **Figure 5.2**, demonstrating our proposed key investments and the critical enablers, such as approval of business cases or ongoing government support for PRW, that will ensure we can follow our recommended path.

Figure 5.2: Our core investment pathway to deliver our customer outcomes



The profile of investment

Our long-term plan has informed our immediate expenditure forecast

Through developing our long-term plan and optimal investment pathway, we have identified key decisions we are required to make and documented assumptions (**Table 5.2**) we are taking forward in the next five to 10 years that our expenditure forecasts show will minimise costs to customers in the long term. They include the following:

- Where we can, we smooth immediate investments over the first 10 years and defer other investments beyond then while managing long-term risk to the security and reliability of our services at the lowest cost. This ensures the profile of investment from 2036 is deliverable and doesn't contribute to greater customer bill shock. It also ensures that over time we reduce emerging impacts by reacting quickly with our investment and increasing our operational response effort. This reduces the risk that costs to customers will increase further in the future.
- We will invest in water conservation activities and enhance the effectiveness of these services to our customers to reduce future water supply investment and build resilience to a changing climate and growing population. By spending around $575 million by 2050 in a diverse water efficiency program, we have estimated avoided costs of up to $1.8 billion over the next 25 years through deferring the need for additional augmentation and supply costs. Our sustained water conservation efforts will increase our water supply capacity, lowering the risk of higher-level water restrictions across Greater Sydney over the next 10 years. This will also extend the length of time we will be at this lower-level risk of restrictions.
- Integrated planning to resolve several servicing issues with single investments will ensure best value outcomes for customers. For example, investments in PRW schemes are primarily driven by avoiding wastewater costs associated with growth, but PRW also diversifies our water sources, improving resilience. We have estimated that pursuing PRW schemes, compared to increasing the capacity of our coastal wastewater systems, will produce a total avoided cost of up to $2 billion over the next 25 years.

Capital expenditure

Our long-term investment need is estimated at around $86 billion. Looking ahead to 2035–50, renewing our ageing asset base becomes even more critical, accounting for most of our projected investments in that time period.

Operating expenditure

By 2050, we expect our operating costs to have risen by 64 per cent and our annual opex to be about $1 billion more in real terms than it is today. A key driver of this increase is a more than doubling of our wastewater system operating costs. This is necessary to manage an increasingly complex wastewater system. Additionally, corporate costs, the cost of purchasing water from WaterNSW and additional costs relating to RFIS, will remain core components of our opex investment. This increase in operating costs will be offset by an innovative business culture that will allow us to identify and create efficiencies across our operations, with the average operating cost per customer expected to remain stable over time.

Our long-term plan will continue to evolve

We will continue to work with customers and our stakeholders to revise our long-term plan to reflect the latest needs, address the latest issues, and plan for the most appropriate solutions (see **Table 5.4**). As such, we have committed to reviewing progress and trends each year, comparing them to what was assumed in the LTCOP, with a more in-depth review and refresh of the plan occurring at least once every five years.[16]

As our LTCOP was submitted to government in June 2023, we have only made minor updates as our proposed long-term servicing direction and the key risks associated with our major investment decisions have not materially changed since then. The updates include the addition of new scenarios, including growth scenarios to show alignment with the government's growth direction, alignment of the 10-year expenditure forecasts with this price path proposal, and to address key recommendations by Aqua Consultants, which conducted an independent review of the LTCOP. We have also updated our narrative to align with the latest customer insights received from Our Water, Our Voice.

Table 5.4: Key stakeholders we will continue to engage with in the revision of our long-term plan

Stakeholder	Form	Content	Timing
Customers	Public communication (engagement forums and deliberative panels)	Empowering customers to determine the key outcomes our plan must deliver, including expectations around cost, risk and performance in service delivery Acknowledge their changing needs and preferences, and provide opportunities for customers to challenge our long-term delivery strategy	3–4 years
Shareholder and Portfolio Ministers	Briefing sessions through Managing Director Targeted presentations	Ownership of the part they play in minimising costs for customers (such as recognising the cost of delivering growth ambitions) and acknowledgement of the scale of expenditure we are forecasting	Every six months
Bulk water suppliers	GSWS Working Group Ongoing dialogue between regulation, planning and operational teams (1:1 meetings)	Recognition of the part bulk water suppliers play in minimising costs for customers and to shift to a more integrated future network	Every three months
Regulators	Water Sector Leadership Group meetings Group communication 1:1 meetings (Monthly dialogue via email)	Collaboration to identify where changing health or environmental standards demonstrate small customer benefits, and acknowledgement of the scale of expenditure we require to meet new and existing standards	Every three months
Customer and Community Reference Group	Group communication (bi-monthly meetings in person)	Acknowledgement of the projected cost and customer bill impacts, and that we will optimise them through effective adaptive planning	Every 6–12 months

[16] Our latest update to LTCOP occurred on 27 September 2024. The main feature of this update was further scenario planning and alignment of the forecast expenditure with this price path proposal. This analysis built on the assumptions made in the first iteration of the plan and was tested with customers during Our Water, Our Voice.

Chapter 6: Capital expenditure

Key message

Our proposed $32 billion capital plan is the minimum level of investment we need to meet Greater Sydney's growth and continue to deliver essential services to our customers over the next 10 years. We have moderated our capital expenditure from nearly $53 billion to $32 billion to efficiently balance cost, risk and performance.

Summary

- Over the past four years, macro environment challenges have impacted the need, timing and delivery of our capital plan. We responded by adapting and reprioritising our capital program to manage these emerging challenges, while still delivering our capital expenditure (capex) for 2020–24 within 10 per cent (+$548 million) of the original determination.
- We applied the performance, cost, and risk framework to trade off and optimise the proposed capital expenditure, reducing it from $53 billion to $32 billion. This adjustment was achieved through a thorough process of assessment, optimisation, and assurance, ensuring our investment aligns with customer priorities and strategic plans.
- Our proposed capex for 2025–30 is $16,562 million, which is 84 per cent ($7,593 million) higher than our expenditure for 2020–25 ($8,969 million). The location, size and scale of growth servicing required right across Greater Sydney is driving most of this increase.
- Our proposed $16,562 million capex is required to deliver essential water, wastewater and stormwater services.
- $9,475 million (57 per cent) is required to service growth across Greater Sydney. Our plan still uses the remaining capacity of existing systems where possible. However, with our coastal wastewater systems now reaching capacity, combined with the scale of growth servicing required, we need to build critical and extensive new water and wastewater infrastructure, while also addressing water security risk and building greater water resilience across Greater Sydney.
- $6,279 million (38 per cent) is required for the renewal of existing assets to ensure we sustain the required level of service and asset performance. We also need to increase investment to manage raw water quality risks to provide safe and clean drinking water.
- $699 million (4 per cent) is required to address new compliance obligations and deliver customer-supported improvement programs.
- Despite the challenges we have faced over the last four years, we have been able to increase our delivery capacity and capability. Our level of capital works delivered has doubled since 2020, with over $2,200 million of capital works delivered in 2024.
- We have a robust capital pipeline, with 35 major projects in development or delivery, totalling over $19 billion across the 10 years. These projects have extensive development and assurance requirements that support an prudent and efficient capital program.

Key reference materials

APPENDICES

6.1 Cost estimating and forecasting accuracy
6.2 Infrastructure growth
6.3 Infrastructure renewals

READING ROOM

Benchmarking

Guided by our 3Cs focus principles

CUSTOMER OUTCOMES

Our capital program of growth projects and a sustained renewal capital investment program deliver our customers' priorities. The capital program ensures our customers can access safe, clean drinking water and reliable wastewater, stormwater and recycled water services as the city grows. It also means that we can meet our customers' service expectations now and in the future.

BALANCE RISK AND LONG-TERM PERFORMANCE

We have accepted the risk that certain investments will not be needed in the next five years, excluding $2 from our proposed expenditure, ensuring customers do not fund less certain investments in advance. We have balanced the need to service growth and meet operational service requirements in the immediate term, while transitioning to a resilient and integrated water management system in the most cost-effective way in the long term.

EQUITABLE AND EFFICIENT COST RECOVERY

We have thoroughly assessed and heavily moderated our capital plan. Our capital plan is the minimum sustainable level of investment required to deliver essential services to our customers, in line with their priorities, while balancing performance and risk. We have removed all non-essential investments from our plan and reduced or deferred investments where we have deemed it prudent and efficient to do so. We have applied further efficiency factors to ensure we continue to drive an efficient process and continual improvement across the entire capital program.

Current determination period: 2020–25

The forecast capex for the current 2020–25 period is $8,969 million. During 2020–24, we spent $6,272 million, or 6 per cent above IPART's capex allowance for the same period. This has been driven by a 31 per cent increase in spending on growth capex compared to IPART's allowance.

Table 6.1: Actual capex versus IPART determination by driver ($24–25, $millions)

IPART driver[17]	2020–21	2021–22	2022–23	2023–24	2020–24 total	2024–25	2020–25 total
Renewals	$621	$619	$793	$814	$2,847	$1,017	$3,864
Growth	$316	$563	$646	$1,248	$2,772	$1,400	$4,172
Improvements	$67	$71	$88	$8	$234	$13	$247
Compliance	$66	$73	$140	$140	$419	$266	$685
Total capex	$1,070	$1,326	$1,667	$2,209	$6,272	$2,697	$8,969
IPART Determination	$1,745	$1,489	$1,403	$1,287	$5,923		
Variance by year ($)	-$675	-$163	$265	$922	$349		
Variance by year (%)	-39%	-11%	19%	72%	6%		

Note: Includes actual and allowed capex relating to Rouse Hill stormwater drainage charge, separated out in IPART's 'Capex' and 'Determination' tabs in the AIR/SIR.

Context to our original forecast 2020–24

The capex forecast for the current period was developed in late 2019 in changing climatic, economic and social circumstances:

- Greater Sydney was in a longstanding drought and was being impacted by a series of bushfires.
- New connection growth was high, with one of the highest-ever number of annual new connections in 2018–19, but the timing and extent of growth in and around the new Aerotropolis region was still uncertain.
- Low interest rates had been in place for many years, meaning (among other things) that increased expenditure had less of an impact on customer bills.

Cognisant of the impact on customer bills, we moderated our forecast, including:

- making a 'risk share' adjustment of around -$720 million or -30 per cent on the growth expenditure forecast, to reflect some uncertainty in underlying dwelling forecasts, meaning that customers would not pay in advance for growth investment that was less certain at that time
- making an efficiency adjustment of around -$600 million or -19.5 per cent on most infrastructure renewal programs.

The $5,923 million provision was still 48 per cent higher than the previous 2016–20 determination, reflecting an increased need in asset renewals as well as higher growth forecasts, which increasingly require service expansion into greenfield areas.

To be able to deliver the increase in capex, two new delivery structures were successfully implemented:

- **Regional Delivery Partners** – to focus on asset renewals and maintenance across our existing asset base and to deliver smaller growth projects

[17] This table has capex apportioned between IPART drivers. In each of the following sections, we discuss programs in their primary driver, resulting in some differences in reported totals.

- **Major Projects group** – to focus on managing larger major infrastructure projects (typically >$100 million), including bespoke procurement and delivery models.

Conditions changed before the period even began.

Between submitting the proposal to IPART and receiving the Final Determination, conditions changed quite dramatically. The drought broke in February 2020, quickly followed by extended and extreme periods of wet weather. The COVID-19 pandemic began just after the start of 2020 and the new period began in full lockdown with a prolonged impact on our delivery pipeline. The implementation of new delivery arrangements was disrupted as process changes had to be managed through new remote working arrangements and limited site access to operational facilities.

The project pipeline is now flowing, and capital work is being delivered efficiently and at an increasing rate.

Since 2020, we have continually improved the delivery of our capital portfolio to provide our customers with essential water, wastewater and stormwater services. Over the last four years, **our level of investment has risen by 106 per cent** from $1,070 million in 2020–21 to $2,209 million in 2023–24. While there have been some above-inflation increases in construction and engineering costs, we are also delivering a greater number of projects, and more major and complex projects over the same period.

In the same period, the **number of projects** valued at greater than $1 million that we have in delivery in any one year has increased from 120 to 276 projects, an **increase of around 130 per cent**. When measured across nearly 820 projects**,** we have increased the efficiency of our planning and delivery processes and **reduced the time taken across project gateway milestones by 20–30 per cent**.

Also, on average, approximately **70 per cent of the infrastructure portfolio's projects out-turn costs were in the range of +/-20 per cent of their P50 estimate** at the Delivery Approval Business Case (DABC) stage. This has been achieved during a period of volatile and escalating construction costs, where Sydney Water has had to actively manage the risk–return of higher costs, and despite the external headwinds the construction industry has faced with tight labour and market conditions.

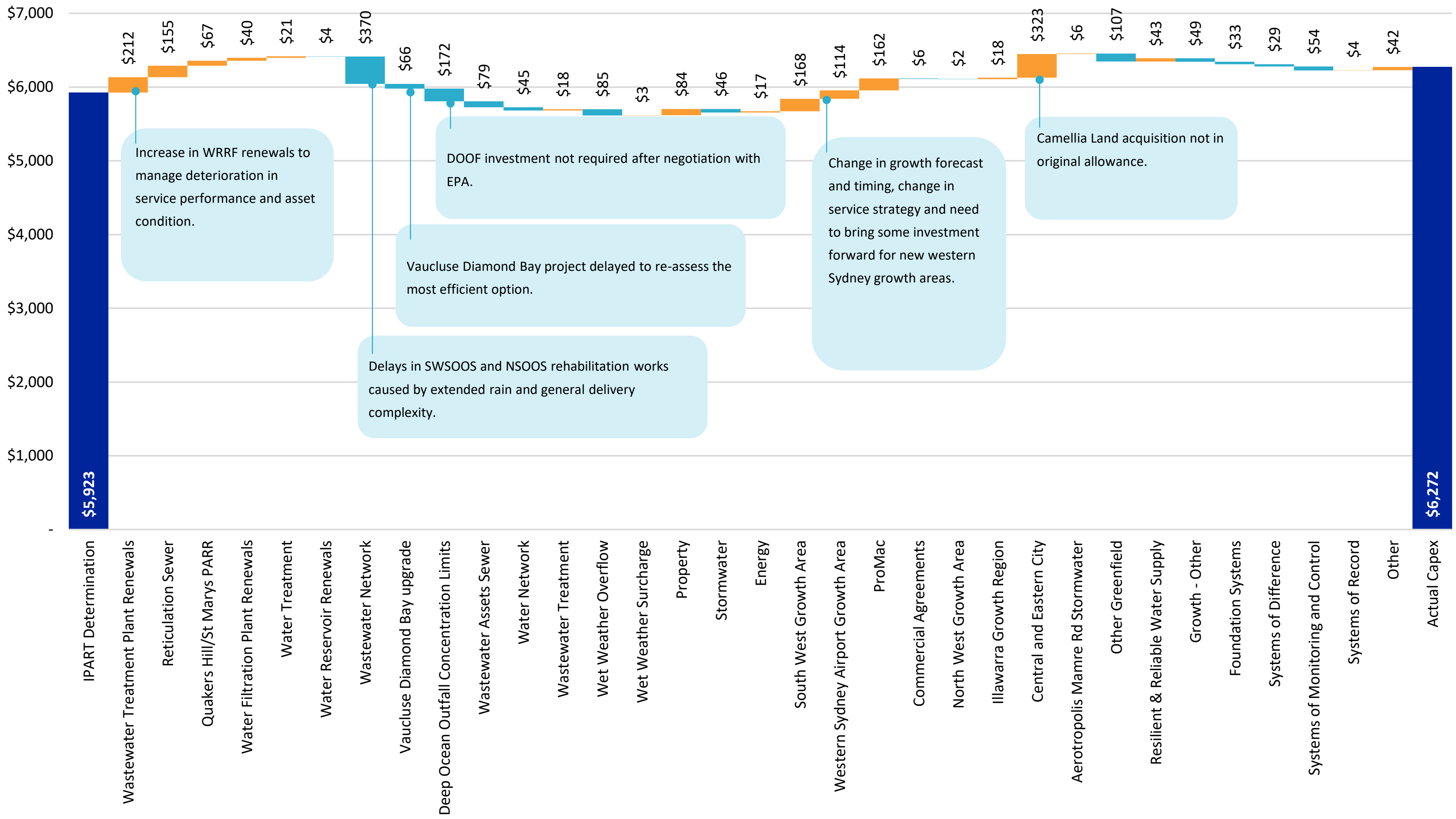
Notwithstanding the numerous challenges, over the four years, our total level of capex was within 6 per cent of IPART's determination in 2020.

Variation against IPART's allowance has occurred in each year of the period as we have experienced a range of external factors that affected initial program requirements, timing and the cost of delivering the assets.[18] These changes are managed via our internal governance processes (see **Chapter 4**), adapting to the circumstances at the time to ensure that each investment decision is appropriate.

The capex for 2020–24 compared to IPART's determination allowance is shown in **Figure 6.1** and the drivers and implications of these changes for our infrastructure and digital capital programs are covered in the next two sections.

[18] While market indices indicate that overall construction costs have broadly increased in line with economy-wide inflation (meaning little change in real dollars), some individual construction materials we are more reliant on, and some unique circumstances not captured by these indices, have resulted in a significantly higher impact on our costs (see Oxford Economics Report, attached).

Figure 6.1: Out-turn capex for 2020–24 compared to IPART determination ($24–25, $millions)



Infrastructure capital expenditure 2020–25

Growth

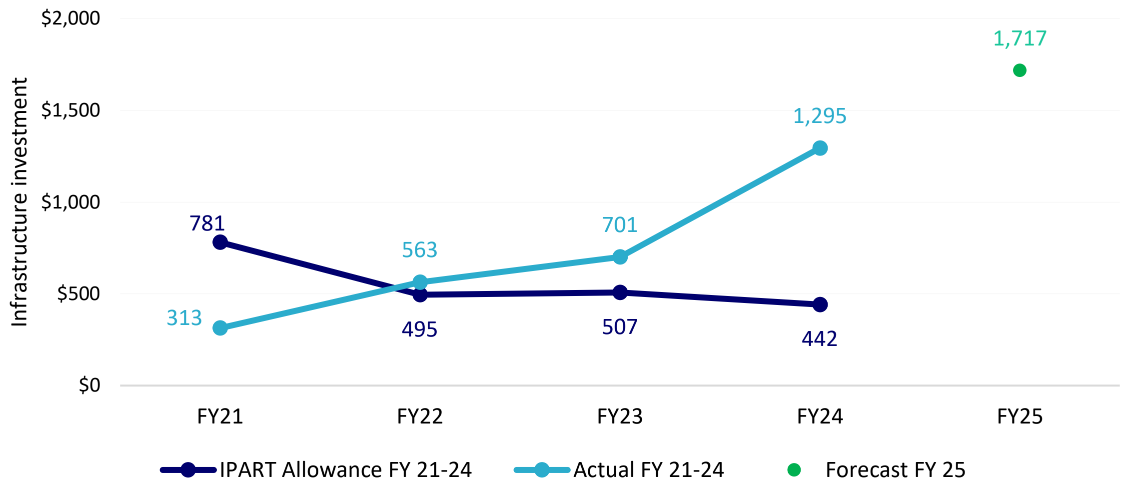
Our 2019 growth proposal excluded around $720 million (30 per cent) in investment, which we proposed to take 'at risk' for the current regulatory period.[19]

This approach ensures that Sydney Water only recovers costs from customers for uncertain investment that ends up being required (and only in the next regulatory period) rather than customers 'pre-paying' for it in current prices.

Since 2020, a significant amount of this excluded capex has eventuated, resulting in around a $648 million, 29 per cent increase in spending over IPART's allowance for the period.[20]

Overall, the infrastructure growth driver represents the largest variance between the IPART allowance and actual spending across the 2020–24 period.

Figure 6.2: Infrastructure growth ($24-25, $millions)



At the end of the four years, total infrastructure growth capex was $2,873 million, compared to the IPART determination allowance of $2,225 million. This is primarily driven by accelerated growth across the South West Growth Area (SWGA) and Western Sydney Aerotropolis Growth Area (WSAGA) and a significant land acquisition in Central and Eastern City that was not in our original forecast.

Growth capex has been driven by changes in the number and locations of required services. Key changes included:

- accelerated growth in the Austral–Leppington, Kemps Creek and Rossmore catchments, and in Lowes Creek, triggering higher spending to service the SWGA on time
- accelerated growth (beyond forecasts) resulting in a need to change servicing strategies in certain areas (for example, in Illawarra), with some growth that was projected to take 15 years to develop instead taking three years. COVID saw demand for these areas increase rapidly and we had to accelerate delivery
- bringing forward delivery of WSAGA infrastructure in advance of planned Transport for NSW road expansions to minimise medium-term costs, and centralising treatment facilities as our re-scoped treatment strategy
- accruing $300 million for land acquisition to support the development of a new WRRF within the Greater Parramatta and Olympic Peninsula (GPOP) region
- reprioritising investment in the Greater Penrith to Eastern Creek (GPEC) and Greater Macarthur (GMAC) Growth Area because of changing growth servicing requirements and a prudent decision to reassess detailed designs before making investments in long-term infrastructure.

[19] Sydney Water (2019), *Price Proposal 2020–24, Attachment 9: Capital expenditure*, pp 86–100.

[20] Comparison is for 2020–24. The original determination was for a four-year period.

Despite many unforeseen external circumstances, Sydney Water successfully adapted to significant changes in government policies and population forecasts between 2020 to 2024. We serviced 131,000 new connections upon receiving a Request to Service, a substantial achievement.

Sydney Water is currently advancing the construction of major infrastructure to meet growth expectations. Major projects completed within the period or currently in delivery include West Camden Treatment Amplification, Upper South Creek (USC) Advanced Water Recycling Centre (AWRC), Richmond System Wastewater Upgrade, the Northwest Treatment Hub growth program, the Prospect-Macarthur (ProMac) water network, and Austral–Leppington Wastewater servicing.

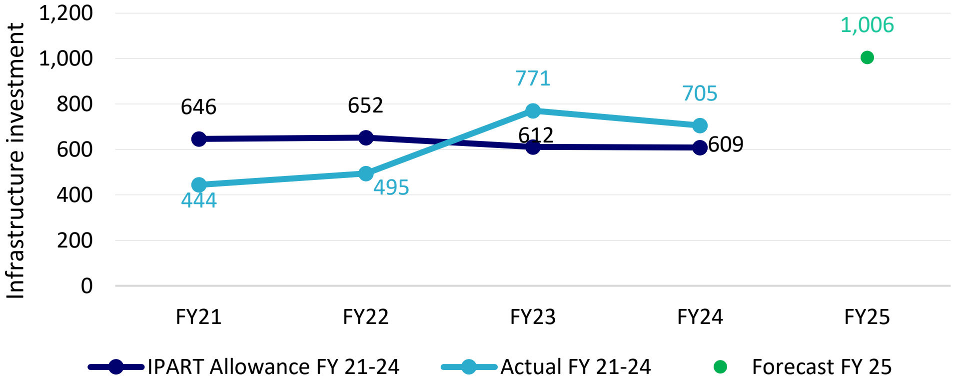
Renewals

Overall, renewals expenditure was largely in line with IPART's total allowances (-$104 million, -4 per cent). While it was behind the original determination over the first two years, the renewals investment continues to recover from disruption, with investment programs adapting to changes in need.

In the first two years of the period, the work delivered in most investment programs was less than planned due to productivity disruption from COVID-19 lockdowns and issues with supply of materials from interstate and overseas.

Extreme wet weather events and related flooding caused operational disruption and the need for rectification works. These weather conditions also required a significant uplift in investment in pretreatment of poor raw water quality to meet existing compliance standards (for example, turbidity) and health-based water quality targets.

Figure 6.3: Infrastructure renewals ($24-25, $millions)



To address these issues and best deliver our targeted objectives and customer needs, it was necessary to reallocate funds across the renewals program in the 2020 IPART determination, but overall expenditure has been within 4 per cent of the original determination. Some of the material changes included:

- **Spending on wastewater treatment plant renewals increased by $108 million (18 per cent)** to address ageing assets and poor asset and service performance (see Chapter 3), taking up the initial risk share we took on by adjusting our program investment request in our 2019 price proposal.[21]
- **Spending on water filtration plant renewals increased by $61 million (191 per cent)**. We required higher than planned investment in pre-treatment augmentation to respond to poor water quality (see **Chapter 3**).
- **Spending was not required on deep ocean outfall (DOOF) concentration limits ($172 million in the 2020 IPART determination)** after successful engagement with the NSW EPA to renegotiate concentration limits associated with the ocean outfalls for large ocean plants.
- **Spending on critical wastewater trunk main renewals was -$346 million (-52 per cent) lower than the allowance** due to extreme wet weather delaying and limiting access to the NSOOS, Bondi Ocean Outfall Sewer (BOOS) and SWSOOS critical trunk wastewater systems. These renewal works were found to be even more complex than expected and delays were exacerbated by limited supply of specialist resources. This program has been the primary driver of underspending in the overall renewals investment across the period.

[21] As recognised by IPART's efficiency reviewers, in 2019, we proposed to take the risk on the initiative by reducing the capital request by approximately 40–50%: Atkins (2020), *Atkins Final Report*, p 22.

The increase in expenditure forecast for 2024–25 is driven by the start of delivery of the Prospect Pretreatment project and increased work across our critical wastewater systems program to catch up from the above delay.

Improvements

Investment in improvements was $60 million (56 per cent) below IPART's allowance. We underspent by $66 million (85 per cent) on our Vaucluse Diamond Bay project against the planned 2020–24 amount. We needed to revisit the servicing solution and delivery strategy, address geotechnical issues with planned worksites, and complete significant community engagement in respect of the changes. The project will continue into the 2026–30 period and is expected to be completed by 2027.

Our Waterway Health Improvement Program exceeded the IPART allowance by $7 million (24 per cent). Three larger projects were complicated by contaminated land and one in particular was severely disrupted by wet weather. We also invested in planning the next tranche of investments and made progress with community and stakeholder engagement.

Compliance

Investment in compliance was $47 million (17 per cent) below IPART's allowance, mainly due to slower than planned investment in our Wet Weather Overflow Abatement Program. Work in the current financial year will bring the total closer to the original planned amount. Conversely, our Winmalee treatment plant nutrient upgrade overspent the IPART forecast, largely because the project was still being developed during the 2020 IPART submission and the scope subsequently became more extensive.

Digital capital expenditure 2020–25

We underspent by $106 million, or 15.2 per cent, against our determination allowance for digital capex. The underspend occurred across all four areas, except in systems of record. It was driven by a combination of:

- shifts in regulations and the NSW Government's data centre and cloud posture, resulting in Sydney Water needing to recalibrate our GovDC strategy – shifting to hybrid cloud hosting for digital infrastructure – and defer the majority of our spending on GovDC until future years
- delivery efficiencies such as optimising procurement outcomes through market negotiations and finding synergies across other programs that can deliver an uplift in security controls
- deferrals, such as delaying modelling until the completion of our Data and Analytics Foundation, due to synergies between digital solutions
- delays on spending because of the COVID-19 pandemic impacting site access, supply chains and the availability of labour resources to deliver planned upgrades to hardware
- not forecasting the introduction of investment in IoT deployment to allow for implementation of wastewater system blockage sensors to improve the visibility of assets and environmental compliance status
- novation and acquisition of our Field Mobility system and the rapid end-of-life date – we had to realign our plan and invest in a Field Mobility Program (Flow). Given the size of the program and the benefits, it was prudent to invest in Flow over Enterprise Asset Management and Modelling.

Partially offsetting these underspends were overspends in customer, cyber security and end-user computing due to our customer-centric focus on delivering customer self-service and campaign management, and improving the website experience. We also uplifted our cyber posture to maintain our cybersecurity in the changing threat landscape and enable remote working during COVID-19. Also of note in this submission is the shift in digital spending from capital to opex. During the current period, the market shifted from on-premises digital capability to highly flexible, scalable and resilient cloud services. Financial accounting treats on-premise builds differently to cloud builds due to the nature and ownership of the asset. Digital assets have a relatively short depreciation life, ranging from five years for physical hardware to 10 years for software. Most software companies also have a two-yearly major upgrade cycle. Historically, on-premise hardware and software would be treated as assets and depreciated. Cloud services are subscription based, so there is no financial tangible asset and it is treated as opex. As more and more services move to the cloud, more of our digital spend will be treated as opex, where it would have previously been capex. This change in funding approach is seen in our expenditure proposals in Chapter 4.

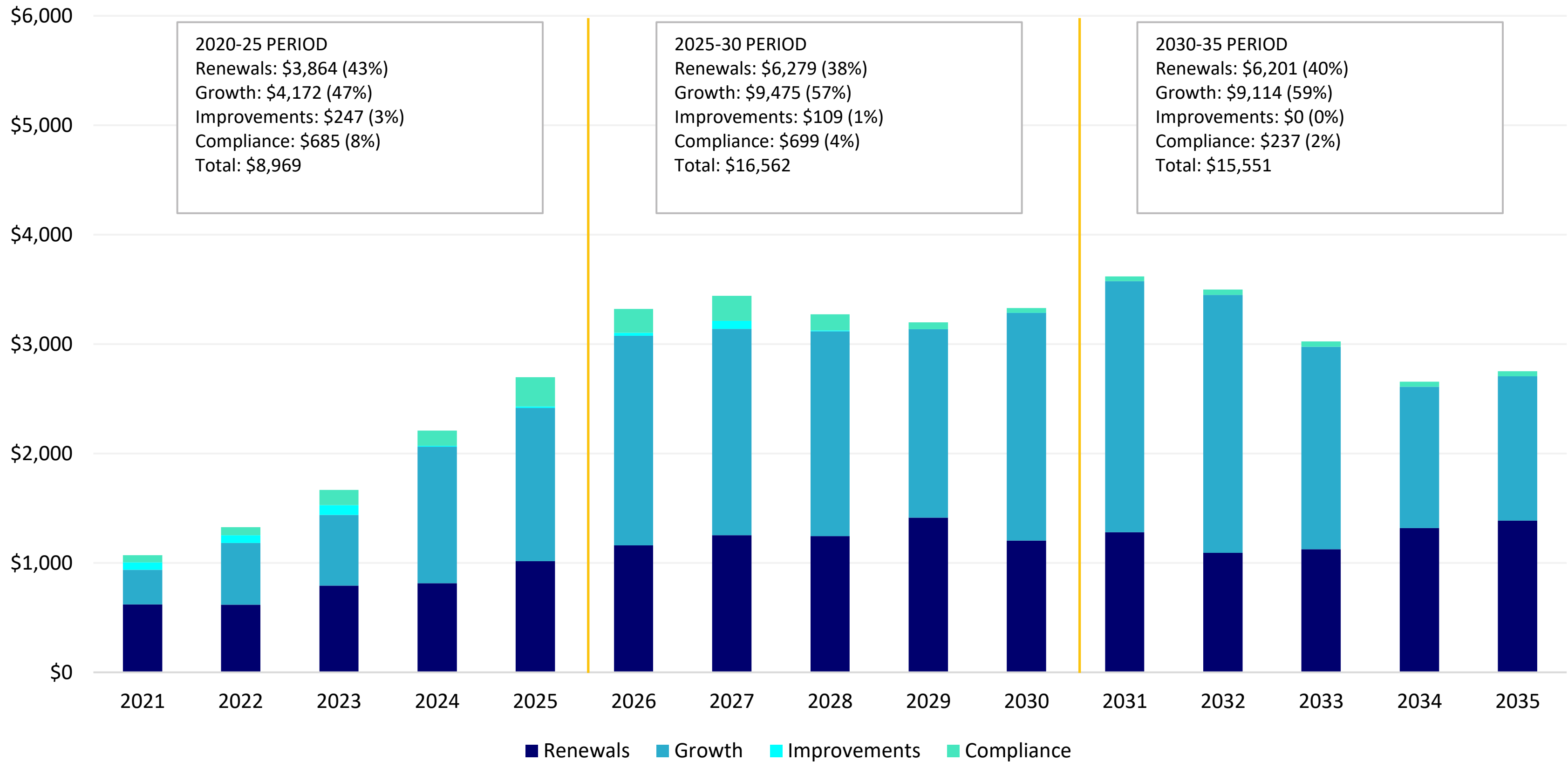
Overall, we are proposing to marginally increase spending on digital technology services in 2025–30 compared with 2020–25. This approach aligns with our peer utilities and other industries. Across most industries, there is increasing investment in technology to improve customer service and business operations. This expenditure will also support our ability to meet our ongoing operating efficiency targets.

Future determination periods: 2025–35

This section discusses our proposed capex for the 2025–30 and 2030–35 regulatory periods. These two periods are inextricably linked as we deliver a large program of growth projects and a sustained renewal capital investment program of works across the two periods. Our program will ensure our customers can access safe, clean drinking water and reliable wastewater, stormwater and recycled water services as the city grows and that customers' service expectations can be met now and into the future.

To deliver the outcomes our customers value, we plan to invest $32,113 million[22] in capex, with $16,562 million in planned spending in 2025–30 and $15,551 million in 2030–35.

Figure 6.4: Total capex by driver ($24-25, $millions)



[22] The infrastructure portofolio adjustment has been pro-rated and included across products and drivers.

Table 6.2: Capital expenditure by driver, 2020–35 ($24–25, $millions)

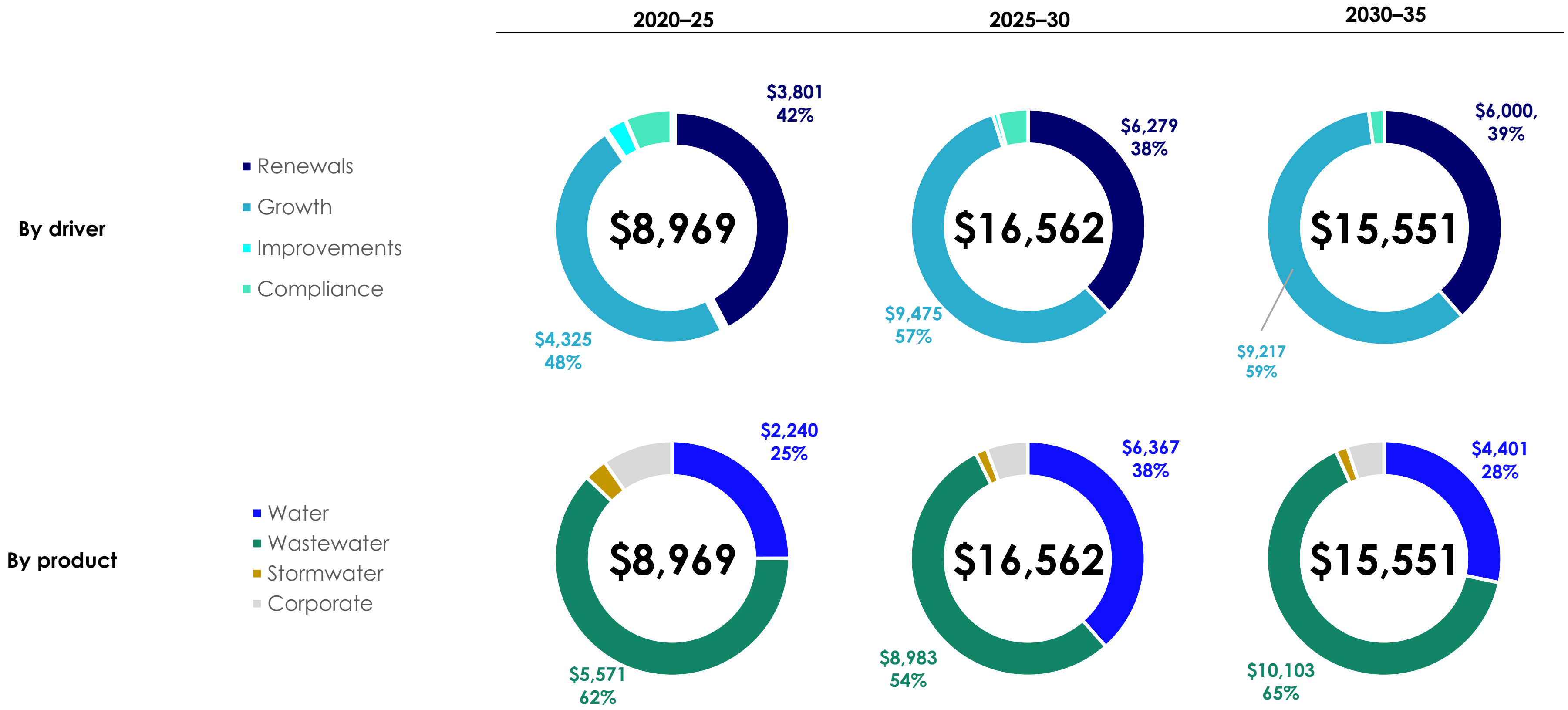
Driver							
Period 0 (2021–25)	**2020–21**	**2021–22**	**2022–23**	**2023–24**	**2024–25**	**Period total**	**% of period total**
Renewals	$621	$619	$793	$814	$1,017	$3,864	43%
Growth	$316	$563	$646	$1,248	$1,400	$4,172	47%
Improvements	$67	$71	$88	$8	$13	$247	3%
Compliance	$66	$73	$140	$140	$266	$685	8%
Total	$1,070	$1,326	$1,667	$2,209	$2,697	$8,969	
Period 1 (2025–30)	**2025–26**	**2026–27**	**2027–28**	**2028–29**	**2029–30**		
Renewals	$1,161	$1,252	$1,246	$1,415	$1,205	$6,279	38%
Growth	$1,916	$1,887	$1,871	$1,720	$2,080	$9,475	57%
Improvements	$25	$74	$8	$2	$0	$109	1%
Compliance	$218	$228	$148	$61	$44	$699	4%
Total	$3,320	$3,441	$3,273	$3,198	$3,329	$16,562	
Period 2 (2030–35)	**2030–31**	**2031–32**	**2032–33**	**2033–34**	**2034–35**		
Renewals	$1,280	$1,091	$1,124	$1,320	$1,385	$6,201	40%
Growth	$2,296	$2,357	$1,851	$1,289	$1,321	$9,114	59%
Improvements	$0	$0	$0	$0	$0	$0	0%
Compliance	$43	$50	$49	$48	$47	$237	2%
Total	$3,619	$3,499	$3,024	$2,657	$2,753	$15,551	

Figure 6.5 shows the breakdown of our proposed expenditure across the three periods (2020–25 to 2030–35), by driver and by product.

The proposed capex for 2025–30 is $16,562 million, or 85 per cent, more than the current period and is necessary to support substantial growth servicing, enable us to address asset performance risk, provide efficient stormwater and integrated water cycle management services in Western Sydney, begin to increase water supplies to address short-term yield gaps, and add resilience to our systems.

We cover our capex requirement below and in more detail in *Appendix 6.1: Infrastructure growth summary* and *Appendix 6.2: Infrastructure renewals summary*.

Figure 6.5: Breakdown of total capex ($24-25, $millions)



This $32 billion capital plan is the level of investment that is required to manage an appropriate level of risk and deliver essential services to our customers. To achieve this, we have removed all non-essential investment from our plan and reduced or deferred investment where we have deemed it prudent and efficient to do so. This ensures we are taking appropriate risk on delivering services (we will invest if and when we need to), but only recover the costs we think are very likely to occur.

Delivering customer outcomes

Our key investments over the next decade are all required to deliver our customers' priorities. The investments in the following list are informed by our strategic investment plans (see **Chapter 2**) and are required to achieve our customer outcomes and objectives.

Water quality and reliability

As Sydney's population and cities grow, the consequences of water supply failure increases. A safe and secure supply of water is essential for Greater Sydney to grow and prosper. Our customers identified safe and clean water as the top priority throughout our engagement. Our 10-year capex plan optimises continuity and efficiency of our water supply, and targets immediate investment that will mitigate the most pressing water quality risks, maintaining safe and clean water supply, including:

- $3,738 million to supply water services to **new developments across each growth area** via new water assets or augmentation of existing water assets
- $1,436 million of capital investment to **upgrade water filtration plant (WFP) pretreatment** at **Prospect**, **Orchard Hills**, **Nepean**, **Cascade WFPs, and other priority WFPs,** to sustain the reliability and supply of safe and clean drinking water, meeting customer expectations
- $1,441 million to **build purified recycled water** (PRW) plants at Quakers Hill, Camellia, Liverpool and Glenfield to transition to more RFIS, providing a more secure water supply for the future
- $920 million to **expand the desalination water network** – duplicating Sydney's water network so that it is capable of receiving the additional capacity produced by the expanded SDP (in 2030), improving water security
- $2,373 million to **renew existing WFPs and networks** (an increase of $535 million (59 per cent) for the 2025–30 period compared to the current period) to proactively manage reliability risks and maintain our high-level performance in water continuity and quality to our customer
- Digital investment including in **Enterprise Asset Management systems** to enhance Sydney Water's automation, monitoring and control of infrastructure. The **Spatial services program** will upgrade and sustain a critical Geographic Information System (GIS) platform, enabling better visibility of assets and improved customer experience, a shift to self-service GIS services, and **digital twins** for building information models for design and planning services.
- Investment in **Supervisory Control and Data Acquisition (SCADA**) renewals to enable additional automation controls that are bespoke to each site, providing for more efficient and reliable operations.

Table 6.3: Major investment in water quality and reliability (2025-35, $24–25)

Customer objectives	Capital expenditure
Safe and clean water	• WFP upgrades and pretreatment at Prospect, Nepean, Cascade and Orchard Hills: $990 million • Other priority WFP upgrades and pretreatment: $446 million • Water filtration plant renewals: $561 million • New or augmentation of WFPs to support growth: $445 million
Reliable water	• Critical water main renewals: $477 million • Reticulation water main renewals: $415 million • Water pumping stations renewals: $274 million • Water reservoir renewals: $646 million
Secure water supply	• New or augmentation of water network to support growth: $3,293 million • RFIS – PRW: $1,441 million • Sydney Desalination Plant (SDP) – water network expansion: $920 million
Saving water together	• *Minor capex – mostly opex*
Technology Investment underpinning all customer objectives	• WFP, WWRF and SCADA renewals • Enterprise Asset Management systems • Spatial services • Digital twins

Environmental protection

Improving waterway health, reducing pollution, recovering resources and enhancing environmental performance are core elements of the Sydney Water Act, our environmental regulations and operating licence. Our 10-year capex plan is required to meet these requirements and our customers' expectations that we protect the environment and improve waterway health. The capex plan includes:

- $11,319 million in **building new or augmenting existing wastewater treatment and network infrastructure** to enable growth across Greater Sydney. This includes building three new facilities: the USC AWRC (currently under construction), the new Upper Nepean AWRC, and the new Camellia AWRC. It also includes upgrades at over 15 existing WRRFs, including the North West Treatment Hub program (currently being delivered) and nearly 250 km of new wastewater network infrastructure to support almost 300,000 new dwellings
- $3,145 million in **new stormwater and recycled water infrastructure** across the **Mamre Road and Aerotropolis precincts**, supporting cool and green natural places and continuing improvements in waterway health
- $2,872 million in **WRRF renewals**. Customers expect that we minimise environmental harm by improving performance. Our engagement confirmed customers' expectations that we progressively bring underperforming WRRFs to compliance. We are investing across our renewal and growth programs so that all WRRFs are compliant by the end of the upcoming period
- $2,204 million for the **renewal or refurbishment of critical wastewater system trunk mains** and pressure mains across Sydney Waters' area of operations. This investment is essential as these major assets are key to transporting wastewater to the treatment facilities without polluting the environment
- $480 million to continue our **Wet Weather Overflow Abatement Program** to address overflows that occur when rain inundates the wastewater network. This program is moving from an 'overflow frequency' measure to a 'risk-based' one, which is aimed at reducing environmental impact, rather than just reducing the number of overflows
- $101 million targeting **new renewable energy facilities**. During customer engagement, customers recognised the role of Sydney Water in reducing carbon emissions. We aim to achieve net zero carbon emissions by 2030 and will look to offset our emissions where we are unable to directly and efficiently do so.
- $34 million to drive efficient operations through recovery and reuse of scarce resources by investing in the construction and renewal of **biosolids facilities**.
- Digital investments, including to enhance our data and analytics models, bringing them onto consolidated **modelling** platforms. Our **Field Mobility** platform will improve our field scheduling, inventory management and customer engagement for our maintenance work. **Smart sensors (IoT)** will improve real-time monitoring, enabling proactive work to prevent issues and provide rapid response. We will **upgrade our wastewater system blockage detection** with next-generation sensors for timely identification of issues before they impact customers or damage assets.

Table 6.4: Major investment in environmental protection (2025-35, $24-25)

Customer objectives	Capital expenditure
Prevent pollution	• Extend wastewater capacity and meet environmental requirements in response to growth: $11,319 million • Water resource recovery facilities (WRRFs) renewals: $2,872 million • Critical wastewater system renewals: $2,204 million • Wastewater network (reticulation and pumping stations) renewals: $1,040 million • Wet Weather Overflow Abatement Program: $480 million • Wet weather surcharge program: $178 million • Vaucluse Diamond Bay upgrade: $85 million
Recover resources	• Biosolids handling facility upgrades: $34 million
Cool, green and natural places	• Mamre Road and Aerotropolis trunk stormwater and recycled water: $3,145 million • Waterway Health Improvement Program: $104 million
Net zero carbon emissions	• New renewable energy facilities including solar and energy efficiency upgrades: $101 million
Climate-resilient systems	*No dedicated capital program – considered within individual growth and renewal projects if deemed prudent and efficient to do so.*
Technology Investment underpinning all customer objectives	• Modelling • Smart sensors (IoT) • Maintain wastewater system blockage detection

Customer experience

We aim to deliver a positive customer experience and seek to keep our services affordable. We will invest in sustaining our systems and in transforming our technology platforms that manage our customer experience and interactions. We also need to invest in stormwater asset renewals to protect public safety and property. We are investing in the roll-out of digital water meters, which will benefit customers by providing more timely and accurate water use and billing. Our 10-year capex plan relating to customer experience includes:

- $600 million in **smart water metering**. Sydney Water’s customer meter fleet is predominantly mechanical. We are targeting to convert over 90 per cent of our meters to smart meters by 2035 under our Enable Smart Metering program. The program will allow most households and businesses to monitor and measure water use and detect leaks, and it will provide insights regarding water consumption and costs
- $494 million in **stormwater renewals and flood risk** to keep communities safe, protect properties, and deliver the ecological and societal benefits to local environments through water sensitive urban design. Infrastructure under this program aims to meet licence obligations while satisfying the environmental and quality expectations of Sydney Water’s many external stakeholders. It aims to do so at the lowest lifecycle cost and with acceptable risk, in alignment with the needs of local communities. Our Stormwater Flood Risk Program provides for planning and delivery of solutions, in collaboration with councils’ flood risk management committees, to reduce the impact of flooding
- Digital investment in **customer empowerment** via investments to maintain, sustain and enhance the Customer Experience Platform. The initiative will enable better integration of customer data across the business, which will allow us to provide more efficient and targeted services driven by actual customer demand and needs
- Digital investment in **developer transformation** by supporting digitalisation and an end-to-end partner engagement experience to enhance the developer experience and our capability to interact and collaborate with developers. This is a critical requirement for us to service the industry and customers given the significant anticipated growth across Greater Sydney and the role developers play in planning for and delivering this growth.
- Digital investment in **Digital Customer Platform (DCP)** to improve customer interactivity and customer contact self-service. This will also provide for improved interaction with local government planning teams, another central stakeholder in coordinating infrastructure and housing delivery to support growth.

Table 6.5: Major investment in customer experience (2025-35, $24-25)

Customer objectives	Capital expenditure
Positive customer experience	• Stormwater renewals: $457 million • Stormwater – flood risk: $36 million
Informed and empowered customers	• Enable Smart Metering: $600 million
Fair and affordable bills	*Minimal capex – mostly opex*
Swimming and recreation sites	*Minimal capex – mostly opex*
Technology Investment underpinning all customer objectives	• Customer empowerment • Developer transformation • Digital Customer Platform • Field Mobility

Infrastructure capital expenditure 2025–35

Over 2025–30, we are proposing to invest approximately $16,066 million in infrastructure capex.

Compared to the previous five years, this represents an increase of $7,729 million. This uplift in capex will support substantial growth in servicing (contributing to over 70 per cent of the increase in expenditure), enable us to address asset performance risk, provide efficient stormwater and integrated water cycle management services in Western Sydney, begin to increase RFIS to address short-term yield gaps, and add resilience to our systems. We explore each of these investment drivers in the following section.

Table 6.6: Infrastructure capital investment 2020–35 ($24–25, $millions)

IPART driver	Period 0 20–25	Period 1 25–30	Period 2 30–35	Total 10-yr 25–35	10-yr % of infrastructure capital
Growth	4,590	11,073	9,800	20,873	62%
Renewal	3,422	6,075	5,860	11,935	36%
Improvement	59	137	52	189	1%
Compliance	266	242	238	480	1%
Infrastructure capital (pre-portfolio adjustment)	**8,337**	**17,527**	**15,949**	**33,476**	**100%**
Portfolio adjustment	*-200*	*-1,461*	*-878*	*-2,339*	*-7%*
Infrastructure capital	**8,137**	**16,066**	**15,071**	**31,137**	

Direction on how we invest is set via our LTOP, Asset Management Framework and regional and system plans, with the most economical option and solution developed via our capital project development process (see **Chapter 4**).

Prudency and efficiency

The infrastructure capital portfolio consists of thousands of individual projects ranging in size and complexity, and all at different stages of the project lifecycle, from strategic planning to the final stages of construction and delivery. For our 2025–30 price proposal, we have applied a similar efficiency review process we used in previous proposals. Each investment program and initiative is tested for prudency and efficiency, and we challenged ourselves to determine how costs could be further reduced (and subsequently customer bill impact reduced) while assessing and managing impact to risk and performance.

Through the expenditure planning processes discussed in Chapter 4, investment program moderations were made in the order of nearly 38 per cent, from a 10-year bottom-up build of just over $50 billion down to $33.5 billion across the infrastructure portfolio. This moderation is in consideration of program or project certainty, affordability, risk, timing, servicing strategy, and efficiencies, ensuring that our investments are prudently prioritised and efficiently allocated to address the most immediate investment needs.

Because of the size and complexity of the infrastructure capital portfolio, we felt it was appropriate to push ourselves and set an ambitious portfolio capital efficiency factor. On top of these individual program adjustments, we have applied a further portfolio-wide downward adjustment of around 7 per cent or just over $2.3 billion across the 10-year portfolio. This is to ensure we continue to drive an efficient process and continual improvement across the entire portfolio. This efficiency factor considers that a relatively large component of our 10-year investment program is still within planning and business case development stages. Future efficiencies, including by updating servicing strategies and assessing options, should assist us in achieving this efficiency.

Our *Cost Efficiency Strategy* in the reading room and **Chapter 4** provides an overview of how we deliver efficiencies through our capital planning and delivery processes. It also outlines key efficiency initiatives and improvement activities currently in development to support the realisation of this efficiency factor.

This $31 billion 10-year infrastructure capital plan is the minimum required level of investment to manage an appropriate level of risk and deliver essential services to our customers. To achieve this, we have removed all non-essential investment from our plan and reduced or deferred investment where we have deemed it prudent and efficient to do so, ensuring we are taking appropriate risk on delivering services (we will invest if and when we need to), but only recovering the costs we think are very likely to occur.

Growth

IPART's growth driver relates to capex associated with increasing the capacity of assets or construction of new assets to meet growth in demand or to provide additional security of supply.

We have an obligation to support development by providing essential water, wastewater and stormwater services to new customers. Doing so facilitates the growing population and cities of Greater Sydney. We aim to achieve this through prudent and efficient timing of our investments. Failure to invest at the right level will risk severe consequences, such as:

- breach of service obligations to new customers
- inadequate services or inappropriate levels of risk to existing customers
- deterioration in environmental outcomes and delayed reversion to environmental compliance
- inability to support development in a timely manner that is consistent with NSW Government's growth policy and objectives.

Understanding the need to secure Greater Sydney's water future, we are reshaping our approach to better manage today's needs and future challenges. By decentralising our water and wastewater systems and disrupting the west-to-east flow, we aim to move away from a heavy reliance on a few key assets. This includes building new RFIS infrastructure and reusing water, such as through advanced recycling. In the medium-term, this approach secures a resilient water supply, helps avoid expensive upgrades to coastal wastewater treatment facilities, supports healthier waterways, and reduces the long-term costs of maintaining ageing infrastructure.

The requirement to service growth accounts for the biggest infrastructure expenditure driver by far – 62 per cent of capex over the next 10 years. Our plan forecasts infrastructure investment of $20,873 million over the next decade with:

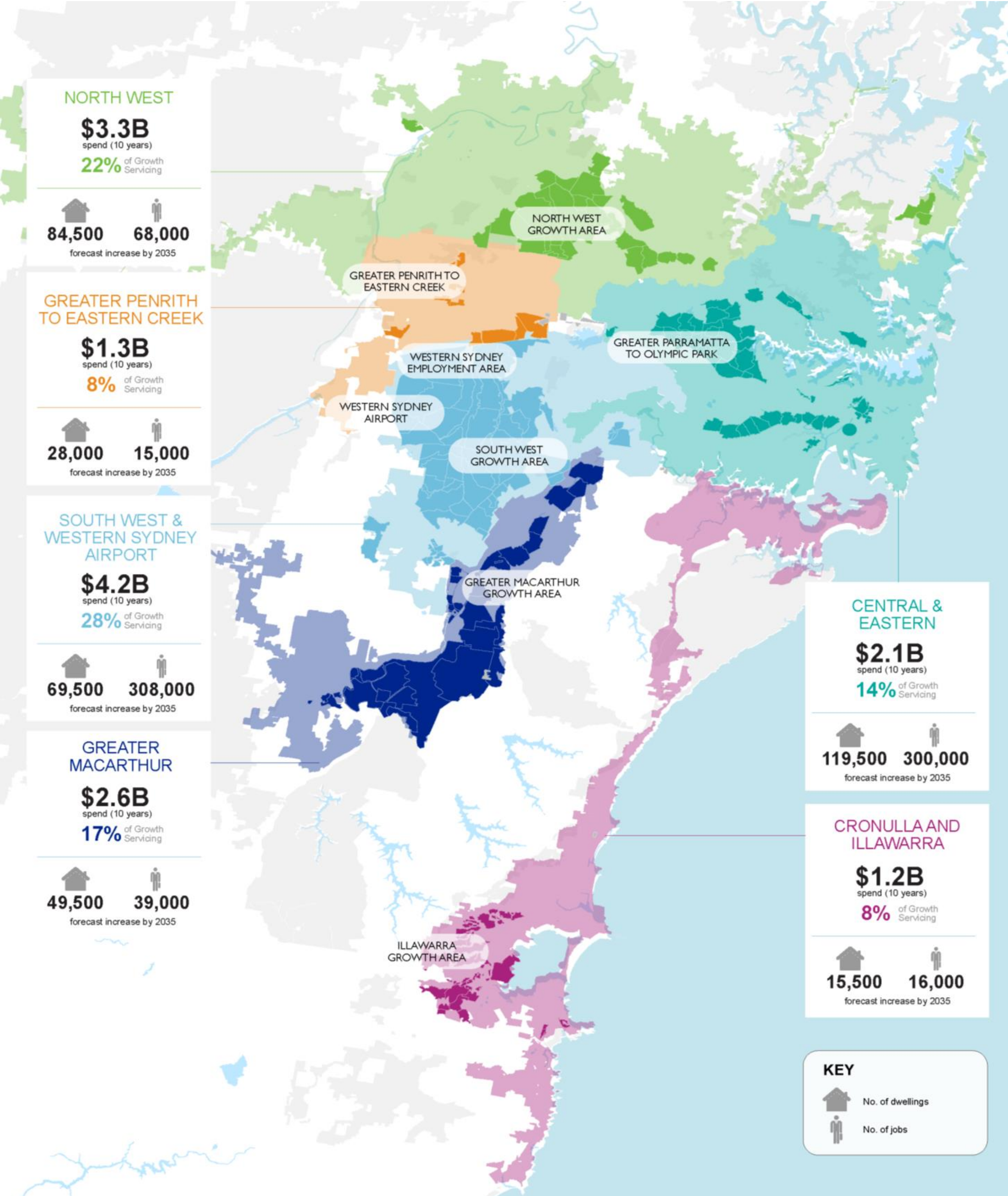
- $15,057 million (72 per cent) to provide water and wastewater services to nearly 360,000 newly connected residential and non-residential premises through economic servicing solutions that deliver our customers' environmental and service expectations
- $2,670 million (13 per cent) to build RRWS by investing in RFIS
- $3,145 million (15 per cent) to deliver an integrated stormwater servicing solution across Mamre Road and the Western Sydney Aerotropolis precincts via stormwater and recycled water management.

Table 6.7: Growth investment 2020–35 ($million, real $2024–25)

Programs	2020–25	2025–30	2030–35	Total 2025–35	% of growth servicing	% of growth driver	% of infrastructure capital
Growth servicing	**4,388**	**8,326**	**6,732**	**15,057**	**100%**	**72%**	**45%**
South West Growth Area (SWGA) and Western Sydney Aerotropolis Growth Area (WSAGA)	*2,377*	*2,576*	*1,579*	*4,155*	*28%*		
North West Growth Area (NWGA)	*720*	*1,596*	*1,657*	*3,253*	*22%*		
Greater Macarthur (GMAC) Growth Area	*189*	*1,780*	*817*	*2,596*	*17%*		
Central and Eastern City	*744*	*789*	*1,338*	*2,128*	*14%*		
Illawarra and Cronulla	*148*	*733*	*501*	*1,234*	*8%*		
Greater Penrith to Eastern Creek (GPEC)	*30*	*637*	*645*	*1,282*	*8%*		
Growth – other (Developer Services, External Authorities)	*181*	*214*	*195*	*409*	*3%*		
RRWS	**97**	**1,306**	**1,364**	**2,670**	**NR**	**13%**	**8%**
Aerotropolis and Mamre Road stormwater	**105**	**1,442**	**1,704**	**3,145**	**NR**	**15%**	**9%**
Growth total	**4,590**	**11,073**	**9,800**	**20,873**		**100%**	**62%**

Further detail on infrastructure capital investment relating to the IPART growth driver is provided in *Appendix 6.1: Infrastructure growth summary*.

Figure 6.6: Growth servicing regions ($24-25, $millions)



Moderated and efficient growth investment

Our infrastructure delivery is timed to support the NSW Government's growth ambitions and is aligned with housing supply policy over the long term. It is important to note that growth planning proceeds based on the government's dwelling and job forecasts, but **infrastructure investment and delivery only proceeds when there is sufficient certainty**. This relies upon supplementing dwelling forecasts with a range of 'on-the-ground' intelligence and data sources, including whether developers have fully committed to their investments. We make investment decisions that are financially prudent, so the timing or our infrastructure investments is critical. Any new infrastructure we fund is substantiated by demonstrated development demand with high certainty of delivery and timing.

A comprehensive assessment of all major growth investments is carried out to inform the level of need, certainty, and risk in the investment forecasts. As a result, we have applied a 'risk sharing' approach to ensure that customers do not fund less certain projects in advance.

The unadjusted growth expenditure forecast is based on capital investments identified via regional master planning, systems plans and growth servicing investment plans. These plans are aligned to support baseline and high-growth housing targets set by the Department of Planning, Housing, and Infrastructure (DPHI). Some of the associated capital investment includes a scope contingency allowance added to P50 estimates to account for the uncertain nature of projects at early stages of planning.

Based on the above, the unadjusted growth investment need across the growth program over the next 10 years is approximately $26 billion, against the adjusted $15 billion in this price proposal (excluding Mamre Road and Aerotropolis Stormwater Program and excluding the RRWS program).

To moderate the growth servicing expenditure, we typically make three key assumptions:

- While Sydney Water's infrastructure planning supports both the baseline and high-growth housing targets, our infrastructure expenditure provision is moderated to support the more certain baseline growth housing targets.
- For projects in early stages of planning, we remove any scope contingency allowance assumed within the original cost estimates to achieve an efficient P50 target.
- Projects to service areas outside the boundaries of our *Growth Servicing Plan 2024-2029*[23] only have funding provisions for planning works that have been undertaken and the cost to deliver is considered at risk. This adjustment of almost $11 billion, or -42 per cent, reflects the amount of additional capex that we could expect to spend over the next decade if the government's high-growth scenarios were to be fully realised.

We also assume an efficient P50 (*scope contingency removed*) forecast for growth projects in the early stages of planning and business case development. Due to the inherent uncertainty of growth forecasts, we propose to only recover any additional costs from our customers if it is prudent to do so and these investments are required, and only in the regulatory periods after costs are incurred.

Like the current period, this will not prevent us from investing in growth as needed and we propose to manage this risk on behalf of customers. Our process balances a range of government plans and policies with developer insights to ensure that any growth investment is prudent and timely.

[23] Growth Servicing Plan and map (sydneywater.com.au)

Growth Servicing Strategy and investment requirements

There is a need to move to an integrated water management solution.

Given the significant challenges (see **Chapter 3**) we face over the next 10 years, and the scale of growth servicing over that time, our Growth Servicing Strategy must look beyond the previous traditional water servicing solutions and invest in **alternative servicing pathways that deliver the outcomes our customers expect of us, in the most cost-effective way**.

The need to manage demand on our wastewater systems while also addressing water security risk and building greater water resilience across Sydney requires transitioning away from the traditional west-to-east water and wastewater servicing to a more localised, but integrated, water and wastewater servicing approach.

To meet growth needs now and into the future, and build resilience into the system, we must implement a more connected and integrated water management approach, such as through stormwater harvesting, recycled water management, PRW and greater use of desalination. The fundamental service shift is the basis of our LTCOP (see **Chapter 5)** and resulting investment plan.

Our LTCOP outlines the optimal pathway to integrated water management and our price proposal includes the required investments to meet immediate growth servicing demands and enables us to transition to the integrated water management approach in the long term. Over the next five years, growth servicing needs to be delivered concurrently right across the Greater Sydney growth areas, requiring investment in new water and wastewater systems as well as augmentation of our existing assets and systems.

Wastewater services

As highlighted in our last determination, we have historically often been able to service growth by building local assets to connect new dwellings to existing wastewater networks while using up existing treatment plant capacity. Having exhausted that excess capacity, our ability to connect to our existing wastewater coastal systems is now limited (see **Chapter 3**).

Unfortunately it’s not possible to support growth at the cost we have incurred in the past. The size and geographical spread of growth into regions without any existing treatment or network assets, or with at-capacity systems, has increased dramatically. This is why, through our LTCOP and regional and system plans, we have developed alternate servicing pathways for this growth, doing so in the most sustainable and economical way possible.

Our coastal wastewater systems service nearly 60 per cent of Sydney and are reaching capacity. As noted in **Chapter 3,** some of our major wastewater systems are now approaching or exceeding 100 years of age. Major assets such as the Northern Suburbs Ocean Outfall Sewer (NSOOS) require major investment to remove decades of silt build-up as well as structural repairs and new internal lining (see *Appendix 6.2: Infrastructure renewals summary* and outlined below). Nearly a century of population growth in the upstream catchments also means that capacity has been mostly taken up and, without major investment (see **Figure 6.7**), much of the NSOOS will be unable to reliably accept new connections from the early 2030s. The Southern and Western Suburbs Ocean Outfall Sewer (SWSOOS), which transports large quantities of wastewater to the Malabar WRRF, is facing similar issues (see **Figure 6.8**).

The ability to continue to connect to our coastal wastewater system is now restricted, with limited capacity remaining. Doing nothing is not an option in either system, but there are options to do things differently. There is now an immediate need to shift how we manage and augment our water and wastewater systems across Sydney, and ensure we also invest appropriately in asset renewals and maintenance to manage what capacity we have left.

The investment in wastewater systems is crucial for supporting Sydney’s growth, ensuring reliable services and maintaining environmental compliance. The investments are allocated to build new networks, augment existing ones and disconnect from overburdened systems to create a resilient and efficient wastewater infrastructure network.

Figure 6.7: Reducing capacity and required investment for the North Head system

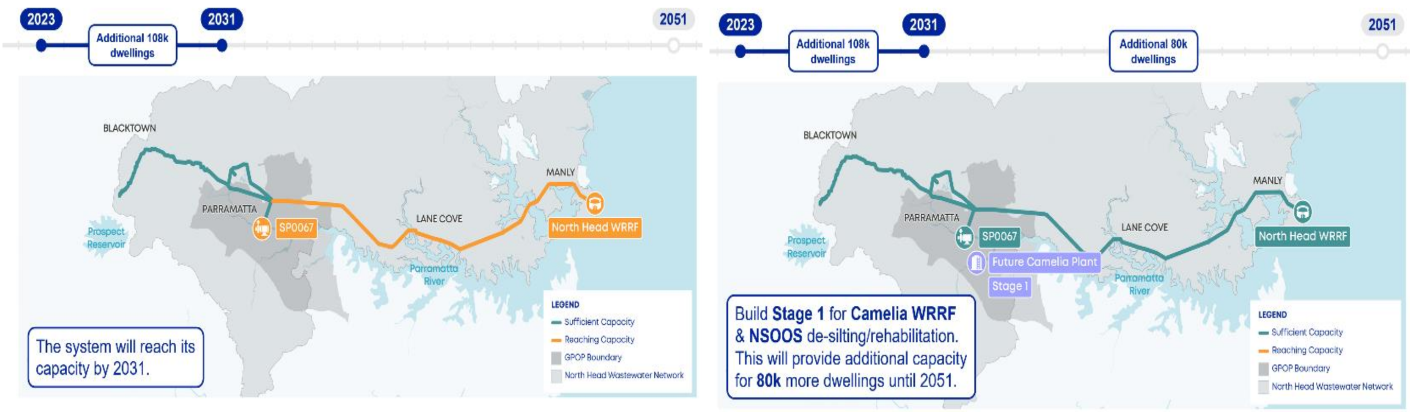
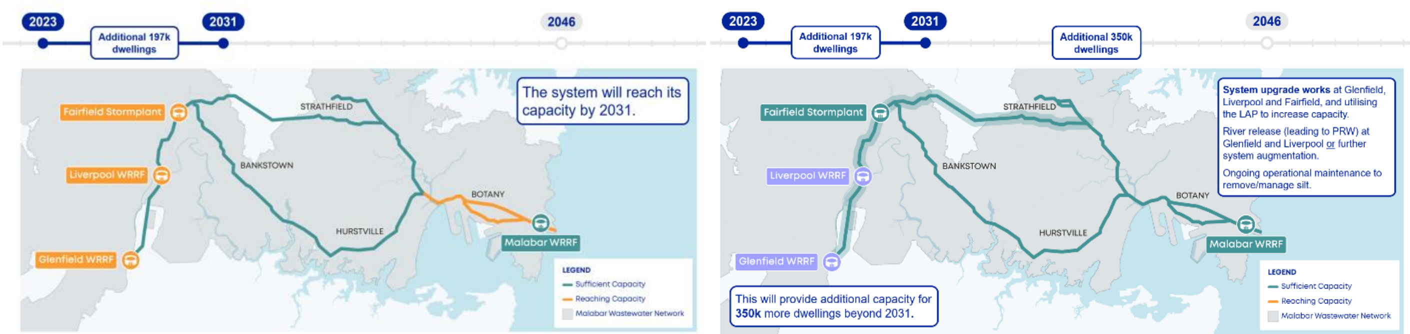


Figure 6.8: Reducing capacity and required investment for the Malabar system



New wastewater treatment facilities in Greater Sydney

Three new major wastewater treatment facilities – the **USC AWRC** (*under construction*), **Upper Nepean AWRC** and **Camellia AWRC** – are required in the next five years to service growth.

The **USC AWRC** and associated new **USC wastewater networks** are required to service the Western Sydney International Airport and surrounding SWGA and WSAGA, and treat wastewater flows that would otherwise have placed the Liverpool and West Camden treatment plants under severe operational pressure, increasing the risk of non-compliant overflow. The new USC AWRC also provides a reliable supply of recycled water to support the government's liveability vision around greening and cooling Western Sydney and improving the resilience of water supply in Sydney.

The new **Upper Nepean AWRC** is expected to start treating flows in 2031 and will support approximately 60,000 new dwellings and 40,000 new jobs across the **GMAC Growth Area** by 2040. The new Upper Nepean AWRC provides greater opportunity for improved environmental outcomes and future water resilience at the lowest cost and is consistent with the adaptive pathway set out in our GMAC regional plan.

These AWRCs will treat wastewater that would have otherwise flowed and added additional pressure on our existing local assets such as Picton, West Camden and Glenfield WRRFs, as well as the coastal Malabar wastewater system. Building these new treatment facilities is the most economical way to service these growth areas now and into the future.

Under our current west-to-east wastewater system flows, increased growth in the **Eastern City and Central City** is driving the need to create capacity in our coastal wastewater system. Approximately 75 per cent of wastewater currently generated within the GPOP Growth Area is transferred by NSOOS to the North Head WRRF, with the remaining 25 per cent of wastewater serviced by the Malabar wastewater system. The new **Camellia AWRC** is required to meet the immediate growth need in the GPOP region and address wastewater capacity constraints within the North Head wastewater system at the most economical cost. This will defer the need to duplicate the NSOOS and expand the North Head WRRF and provide a pathway for future PRW schemes.

Upgrades to our existing water resource recovery facilities

In conjunction with requirements for new AWRCs to service growth across Greater Sydney, we also need to amplify existing wastewater treatment facilities and networks across multiple systems.

Across the current period and into the next two periods, upgrades are required at multiple existing wastewater facilities including at North Head, Malabar, Picton, Richmond, Riverstone, Rouse Hill, Castle Hill, Liverpool, Glenfield, Fairfield, West Hornsby, Penrith, Quakers Hill and Illawarra.

The **Malabar Near Term Program** is required to service the demand growth in the **SWGA and WSAGA**. The Malabar wastewater system is the largest and one of the oldest wastewater systems in Sydney, including the SWSOOS, with emergency relief structures discharging into the Mill Stream and Botany Wetlands. Driven by NSW EPA compliance requirements, growth servicing requirements and recycled water demands, the Malabar near-term upgrade works include upgrades to the **Glenfield**, **Liverpool** and **Fairfield WRRFs**. This program will also support the future disconnection of Glenfield and Liverpool WRRFs from the SWSOOS and the Malabar WRRF system (via the **Malabar Mid Term Program**).

The **Malabar Mid Term Program** will address trunk capacity constraints beyond 2031, through duplication of the SWSOOS and major amplification of Malabar WRRF or through disconnection of the Glenfield and Liverpool WRRFs and river release (current preferred pathway) (see **Figure 6.8**). Planning is currently underway, with a decision required by 2026.

Significant expansion of network and treatment services are required to service the **North West Growth Area**. Investment over the 2020–25 period has focused on amplification of the **Riverstone WRRF Plant** (Lower South Creek) and **Winmalee** WRRF as well as a ramp-up of plant upgrades for the **North West Treatment Hub** program (Rouse Hill, Castle Hill and Riverstone) and WRRFs at **Hornsby**, **West Hornsby** and **Richmond** to meet compliance and service growth. Expansion of the wastewater system will ramp up over the next determination period, with continued investment in the North West Hub Program, Hornsby and West Hornsby alongside increasing amplification of wastewater networks to service growth and achieve system compliance.

Staged amplification is required at both the **Wollongong WRRF** and **Shell Harbour WRRF** to service growth in the Illawarra growth catchments, where the population is projected to increase by 31 per cent and 45 per cent, respectively, by 2045. Plant-wide upgrades are required, and a strategy for an integrated approach to meet future compliance needs including biosolids management.

The **GPEC Wastewater and Water Growth Servicing** program will develop an integrated servicing and investment plan for **Penrith**, **St Marys**, **Wallacia** and **Quakers Hill WRRFs** to meet increasing growth in the region and EPL compliance requirements.

Following initial growth upgrades, some of these WRRFs are anticipated to undergo further changes to support the delivery of PRW schemes, namely at Quakers Hill, Camellia, Liverpool and Glenfield (via the **RRWS program**). As such, we are considering future PRW-related requirements in the delivery of these upgrades.

While our Bondi wastewater system has capacity for the foreseeable future (estimated to 2046), significant renewals investment via our **Bondi Reliability works program** (see *Appendix 6.2: Infrastructure renewals summary* and outlined below) is required to replace ageing infrastructure, meet environmental compliance obligations, and maintain available service capacity. While this is classified as a renewal investment, it is also required to support growth in the Eastern region. The current preferred option of upgrading the existing Bondi system (compared to building a new treatment plant or partially diverting to and augmenting the Malabar system) is the current lowest total lifecycle cost and manageable risk option.

These wastewater treatment investments, combined with investment in PRW, outlined below, will allow for localised treatment of greenfield growth areas and disconnection from our major coastal systems – currently managing 62 per cent of Sydney's wastewater discharge. This is needed to manage capacity constraints and growth and compliance risk in a system-wide servicing approach that is the most economical available.

New wastewater network infrastructure

The rapid growth in Sydney, particularly in Western Sydney, necessitates the construction of new wastewater networks. The investment in new wastewater networks is substantial, with timely investment required to efficiently deliver these projects. This includes land acquisition, easements and the development of supporting wastewater network infrastructure.

These new networks will primarily service the WSAGA, SWGA, GMAC Growth Area and other greenfield development areas.

SWGA and WSAGA: this involves the construction of new trunk mains, pipelines and pumping stations to service growth priority areas, including Badgerys Creek, Thompsons Creek, South Creek, Lowes Creek and Cosgrove, as well as agribusiness. These assets will be delivered primarily via the **USC wastewater networks** program for **Austral**, **Leppington**, **Kemps Creek** and the Mamre Road precinct. The wastewater network will also be extended to service the growth areas of Oran Park, Turner Road and a portion of Catherine Field.

GMAC Growth Area: investments will enhance the existing network to meet increased demand. This involves amplifying and extending the network, augmenting existing pipelines and expanding network coverage to accommodate new developments. Works will take place across Wilton, Bingara, Appin, Menangle Park, Gilead and Picton.

North West Growth Area (NWGA): planning and investment will service new residential and non-residential premises. This includes expanding the network to previously undeveloped areas, ensuring new communities have access to reliable wastewater services. Construction of new wastewater mains and wastewater pumping stations and upgrades to existing pumping stations will service Marsden Park North, Box Hill, Riverstone East, Vineyard and West Schofields. Focus will be on the corridor between Epping and Rouse Hill via the **Metro North West Growth Servicing** program and **Metro North West Urban Renewal Corridor** program.

Augmentation to wastewater network infrastructure

Existing wastewater networks in Sydney are reaching their capacity limits, particularly those that service the major coastal systems such as the North Head WRRF and the Malabar WRRF. To continue providing reliable services and to accommodate future growth, these networks require augmentation.

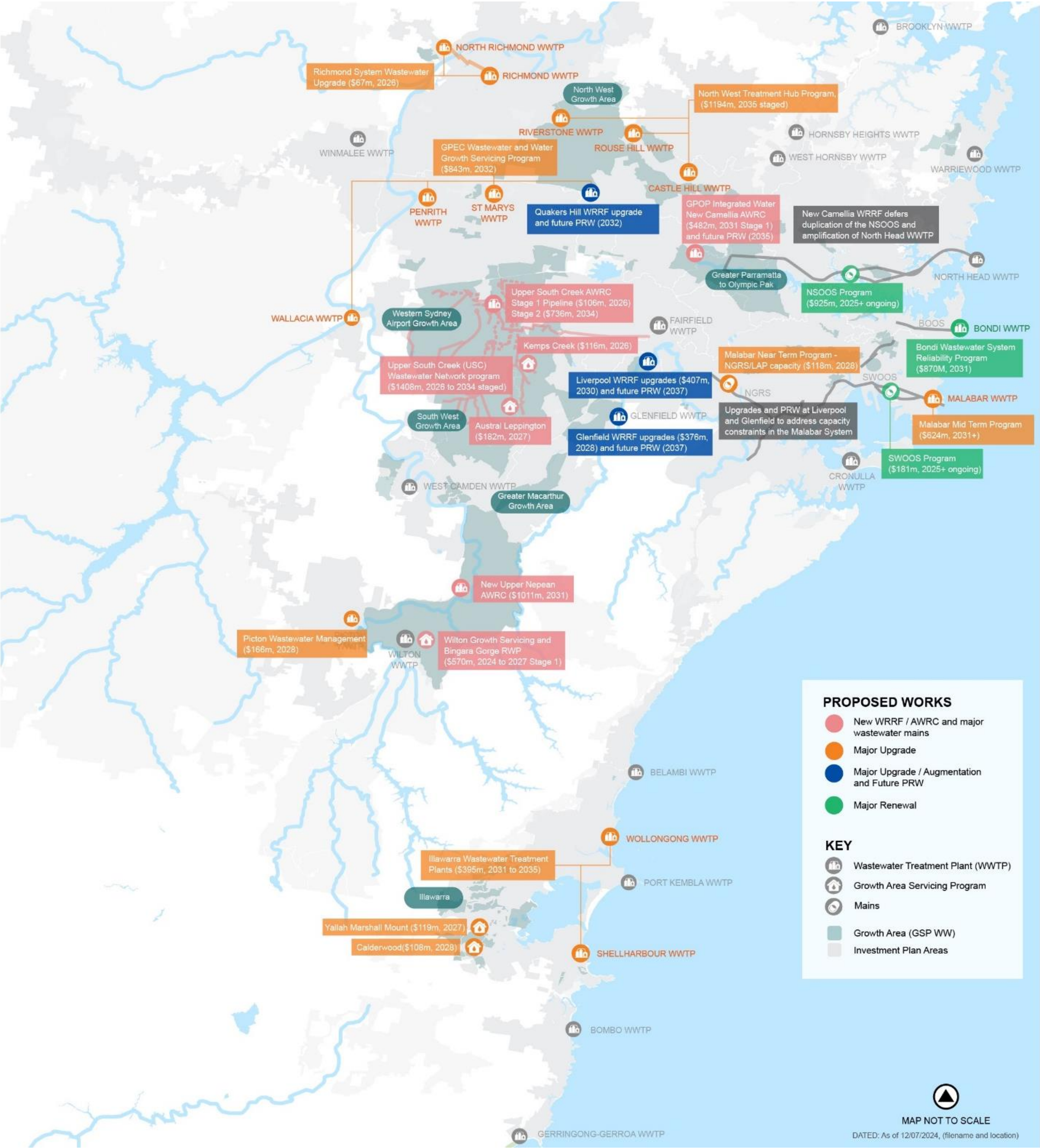
Central City and Eastern City: network augmentation within the GPOP area, including the **GPOP Stage 1 Growth Precinct** project, will support growth. This work involves upgrading existing pipelines and increasing the capacity of pumping stations to handle higher wastewater flows. The Central City and Eastern City growth region is steadily growing, with a complex growth profile shaped by large-scale infill development. It represents the largest concentration of infill growth in the Greater Sydney region. The GPOP Growth Corridor includes the Westmead Health and Education Precinct, Sydney Olympic Park and the Homebush Transport Oriented Development Precinct. Further network amplifications are needed to support growth in the **Epping to St Leonards** area and localised growth within the Central City and Eastern City. Upgrades and amplifications of wastewater networks are strategically planned to support residential development across the Sydenham to Bankstown Growth Corridor and the Willoughby Catchment.

As part of the **Malabar Near Term Program**, the functions of the **Liverpool to Ashfield Pipeline (LAP)** will include diverting flows away from the **Northern Georges River sub-main (NGRS)** to allow for desilting works and support permanent growth in the Liverpool, Glenfield and Fairfield catchments. To achieve this, extension of the LAP is planned (3 km of wastewater mains), shifting the discharge point into the **Western Branch sub-main** further downstream at Jack Shanahan Reserve in Dulwich Hill.

Illawarra and Cronulla: augmentation of network will support accelerated growth due to post-COVID migration. This involves upgrading infrastructure so the network can handle the increased load from new residents. Works include constructing wastewater mains and installing new or upgrading wastewater system pumping stations to service growth in **Yallah Marshall**, **Calderwood**, Cronulla and West Dapto. The strategy includes developers delivering lead-in and reticulation infrastructure and low-pressure wastewater systems. Near-term works include servicing infill growth areas at Kiama and Shell Harbour and greenfield development at Dunmore to service the new Shellharbour Hospital. Planning for the next phase of investments beyond 2030 is in progress. It will include Avondale, Kembla Grange, Calderwood, Kiama and Jamberoo.

GPEC Growth Area: The strategy covers suburbs from Penrith, St Marys, Jordan Springs and Ropes Crossing in the north to South Orchard Hills in the south. It involves installing new or augmenting the existing wastewater trunk and mains network and installing new wastewater system pumping stations to service growth. Other network amplifications and expansions are required in diverse infill locations around greater Penrith, including Glenmore, to support residential and commercial customers.

Figure 6.9: Major wastewater growth investments 2025-35 ($24-25, $millions)



Water services

Our top customer priority is to maintain safe and clean drinking water. This applies to existing and new customers. Our second priority is to have fair and affordable bills, so we will always make decisions on how to best stage the delivery of our infrastructure program by optimising investment over the short and long term to provide best value for money to customers. Our historical investment in water conservation means that we have avoided the need to build major new drinking water supplies since the end of the Millennium Drought (2001–09). As we move forward, and as growth continues to increase – particularly west into greenfield development areas with limited existing water systems – we need to augment our existing water systems and build new water assets to continue to provide the required level of water supply and quality.

Recent modelling has highlighted that our drinking water supply, on average, is not adequate to meet Greater Sydney's current customer demand, let alone into the future or during prolonged drought conditions. This drives the need for an integrated response to meet growth demand and provide a pathway to improved water supply and security via the **Resilient and Reliable Water Supply (RRWS) program** below.

Our investment in water systems required to deliver growth is coordinated with our approach to integrated water management and use of PRW in the long term via the RRWS program. In the immediate term, we need to invest and build new water assets in growth areas, such as the SWGA, WSAGA and GMAC Growth Area, as well as within infill growth areas such as the NWGA and the Central City and Eastern City.

New major water assets

Currently, there are limited drinking water services in the **SWGA** and **WSAGA**. There is an immediate need (by 2028) to service priority precincts within these growth areas. The **SWGA WSAGA – Water Network Strategy** will address the immediate need as well as enable staged servicing to the ultimate horizon (2056), with the lowest lifecycle cost and an acceptable risk profile. This program of work will be staged to deliver the drinking water network in the WSAGA and SWGA priority precincts while monitoring the demand projections to deliver the growth over the next 15 years.

Building a new **water pumping station – WP200** and associated rising main at Prospect has been the long-term option for the last 20 years to service the growth across the **NWGA**. This project has been continually deferred given its high-delivery cost and long implementation timeframe. By reconfiguring and maximising the use of the combined capacities of the Ryde and Prospect North systems (see below), the opportunity to defer this major capital investment until after 2031 can be realised. However, deferral of this investment beyond this is not feasible because there is no spare capacity in adjacent systems. This program includes a new 220 ML/day pumping station (WP200) at Prospect Reservoir, new 100 ML/day pumping station at Parklea and approximately 20 km of trunk water main.

Augmentation to existing water infrastructure

The **Prospect North and Ryde water supply system** services a population of approximately 1.6 million people across large parts of the **NWGA** and the **Central City and Eastern City growth areas**. The Prospect North trunk network has experienced capacity limitations and challenges due to growth, operability and maintainability, exposing the system to a water continuity breach under Sydney Water's operating licence. The system needs significant investment over the next 10 years to service growth and increase system resilience.

The Prospect North to Ryde Planning Study (2022) consolidated 5+ years of planning studies to provide a comprehensive servicing strategy to service growth and address system risk across water treatment and network assets. Upgrades to address reliability and treatment capacity constraints are captured under the water filtration plant program (under Prospect pretreatment).

The servicing strategy provides for staging of amplification of the trunk water networks and treatment systems to manage network capacity constraints, reliability and water quality risks, and to access available capacity in the Ryde and Prospect North delivery systems, until 2031, with the longer-term solution (WP200) to service growth beyond 2031.

Near-term capital works for servicing until 2031 is via the **replacement of the transfer main from Ryde to Pymble (RP03)** (under the Central and Eastern Program), rezoning of the Wahroonga system to Ryde, improving the capacity to Rogans Hill water supply zone (under NWGA Other) and the development of duplicated main at **Thornleigh Reservoir**. The RP03 main will transfer 40 ML/day from Ryde to Wahroonga (currently it transfers from Prospect North), reducing demand on water pumping station WP239. This will improve operational flexibility and reduce water quality risk at Thornleigh Reservoir. The Thornleigh Reservoir main project will provide water quality improvement and operational flexibility, decreasing the water age in the reservoir.

The **GMAC Growth Area** will be serviced primarily via the existing Macarthur system, with upgrades required to both the drinking water network and Macarthur WFP. With the expected increase in demand in the GMAC area, the need to develop a new drinking water network and upgrade the Macarthur WFP is great, with upgrades required by 2031. This will address future capacity needs and improve reliability to manage declining raw water quality. The **Macarthur WFP upgrade** is required to address growth requirements and improve reliability to manage declining raw water quality at Macarthur by 2031. The **Macarthur water network upgrade** project will address the amplification to the drinking water network in the GMAC area, including the mains and water pumping stations in the new growth servicing areas, such as Appin and Wilton.

Further planning is underway for the long-term system upgrades requirements post-2030 to amplify the plant capacity and service surging demand. PRW may be locally produced from the Upper Nepean ARWC to provide resilience to the GMAC region. This opportunity is still in development, and hence not included in the RRWS program for our price proposal.

The water servicing strategy in the **GPEC** Growth Area identifies the need to upgrade and amplify the water treatment and network capacities to service growth across the region. The water treatment upgrades are captured under the Water Filtration Plant Pretreatment program (Orchard Hills Pre-Treatment) and are not part of the GEPC growth program. However, the network side is included as part of the growth program, with parts incorporated in the **GPEC Wastewater and Water Growth Servicing program**, and the **Orchard Hill Wastewater and Water Amplification** program. The amplifications and upgrades will include the development of the water network in Orchard Hills, amplification of the Bringelly Water Reservoir, and the construction of a new water reservoir at Erskine Park.

Stormwater management for Mamre Road and Aerotropolis precincts

The NSW Government appointed Sydney Water as the Regional Stormwater Authority for the Mamre Road and Aerotropolis precincts (around 8,000 hectares) in Western Sydney in March 2022. This means Sydney Water is responsible for delivering, managing and maintaining the regional stormwater network along with drinking water, wastewater and recycled water networks.

The stormwater will initially be diverted into natural water channels and wetlands instead of concrete pipes and drains. The stormwater will then be collected, treated and harvested as recycled water to support cooling and greening in the area. Stormwater infrastructure will be delivered gradually over the next 10–20 years, in alignment with the predicted completion of the precincts to minimise and manage the impacts of development as it occurs in the Aerotropolis.

Resilient and Reliable Water Supply program

Since building the SDP, available capacity in our water system has enabled us to meet our cities' water demands and manage an acceptable level of water security risk while avoiding the need for significant investment. However, growth in our cities and population have now consumed this surplus, and with the increasing risk of climate volatility (drought and flood), requiring supply augmentation and interconnection of our water systems to maintain an appropriate level of water security and supply.

The RRWS program focuses on a more rainfall-independent supply (RFIS) and provides the least-cost approach to meeting our water demands and the level of water security risk our customers and communities value. RFIS slows the rate of depletion and provides a sustainable water supply during severe climatic events, which we are experiencing to occur more frequently due to climate change.

Specifically, the development of river release and PRW also avoids significant wastewater system augmentation (*in particular, the North Head treatment plant and NSOOS, and the Malabar treatment plant and SWSOOS*). The value of PRW improves dramatically if environmental requirements at our coastal wastewater plants become more stringent, avoiding several billion dollars of incremental investment.

The program is staged over the next 10 years to support increased RFIS where PRW could provide up to 25 per cent of Greater Sydney's water need by 2056. The first stage under this program is to duplicate parts of the Sydney Water network to be capable of receiving the additional capacity produced by expanding the SDP, currently planned for 2030.

Our water servicing infrastructure investment over the next decade aims to re-establish an appropriate level of risk through long-term solutions that minimise reliance on rainfall (slowing depletion and therefore reducing the risk of water restrictions) and avoid the need for significant wastewater system augmentation (that would otherwise cost several billion dollars of incremental investment). Our Growth Servicing Strategy therefore aims to deliver a reliable water supply that our customers value, at the lowest combined cost.

Further detail on infrastructure capital investment relating to the IPART growth driver is provided in *Appendix 6.1: Infrastructure growth summary*.

Figure 6.10: Major water growth investments 2025-35 ($24-25, millions)

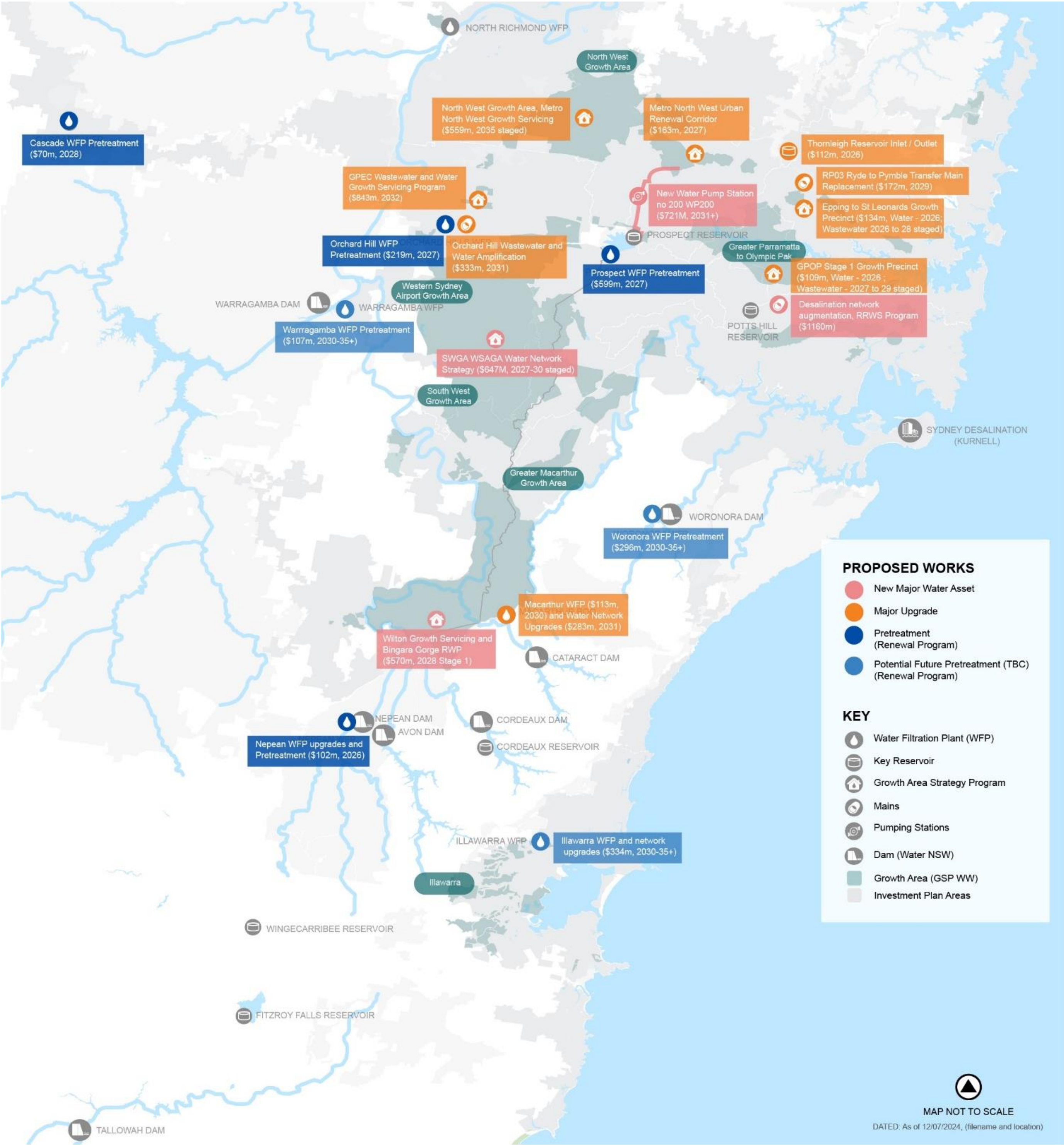


Figure 6.11: Growth investments 2025-35 ($24-25, $millions)

Western Sydney Aerotropolis Growth Area and South West Growth Area ($4.2 billion)

Investment in the WSAGA and SWGA includes more than 250 km of new trunk and main networks and 39 new water and wastewater pumping stations as part of the USC network program and completion of the new USC AWRC.

Notably, upgrades to the Glenfield, Liverpool and Fairfield WRRFs and the increase in the North Georges River sub-main capacity will also service the demand growth in the WSAGA and SWGA.

This strategy aims to service 70,000 additional dwellings and 300,000 new jobs in the WSAGA by 2035, and 210,000 additional dwellings and 565,000 new jobs in SWGA by 2056.

North West Growth Area ($3.3 billion)

Investment in the NWGA encompasses completion of the **North West Treatment Hub** program (Rouse Hill, Castle Hill and Riverstone), and **Hornsby and West Hornsby treatment plant upgrades**.

We will also amplify 15 wastewater pumping stations, 20 km of wastewater mains and 49 km of water trunk infrastructure, and augment Thornleigh Reservoir.

This will enable us to service expected growth from an additional 85,000 new dwellings and 68,000 jobs over the next decade, and 150,000 new dwelling and 495,000 new jobs by 2056.

Central City and Eastern City ($2.1 billion)

Investment in the Central City and Eastern City primarily targets amplifying the wastewater system. This includes building a **new AWRC at Camellia** to service the growing Greater Parramatta and Olympic Peninsula (GPOP) region. This defers the need to duplicate our NSOOS and expand the North Head WRRF, and provides a pathway for future PRW.

Trunk capacity constraints beyond 2031 will be addressed via **the Malabar long-term program**, either through duplication of the SWSOOS or through disconnection of the Glenfield and Liverpool WRRFs and river release.

The region is forecast to see growth of an additional 119,000 new dwellings and 300,000 jobs by 2035 and 375,000 new dwellings and 820,000 jobs by 2056.

Greater Macarthur Growth Area ($2.6 billion)

Investment in the GMAC Growth Area includes **195 km of new water and wastewater trunk and mains network, 34 new wastewater pumping stations, 11 new water pumping stations, 11–14 new reservoirs, upgrade of the Macarthur WFP**, and the construction of the **new Upper Nepean AWRC** to service an additional 50,000 new dwellings and 40,000 new jobs by 2035 and 78,000 new dwellings and 58,000 new jobs by 2056.

There is also significant investment over the next decade in **Wilton and Bingara Gorge** to provide additional wastewater treatment capacity, develop recycled water, water and wastewater networks, and upgrade the Bingara Recycled Water Plant.

Greater Penrith to Eastern Creek ($1.3 billion)

Investment in GPEC will deliver **83 km of new water and wastewater network assets, six new wastewater pumping stations, three new reservoirs,** and **upgrades at the Wallacia, Quakers Hill, St Marys and Penrith treatment plants** to support an addition 54,000 dwellings and 33,000 new jobs by 2056, and in anticipation of Hawkesbury–Nepean compliance requirements.

Illawarra and Cronulla ($1.2 billion)

Investment in the Illawarra and Cronulla will focus increased investment in key **treatment plants at Shell Harbour and Wollongong** to service greenfield developments, primarily in **West Dapto, Yallah Marshall** and **Calderwood**.

There is also planning work being carried out for an integrated water management approach to meet future needs.

The region is forecast to see growth of an additional 15,700 new dwellings and 15,900 new jobs by 2035 and 50,000 new dwellings and 82,300 jobs by 2056.

Mamre Road and the Aerotropolis ($3.1 billion)

Investment in **Mamre Road** and the **Aerotropolis** will deliver **recycled water** and incremental **stormwater infrastructure** to offset the impacts of development in the region, providing the most long-term economically efficient option for water, wastewater and stormwater servicing in the region.

Over the next decade, around 40 per cent of the total investment is expected to be due to land acquisition

.

Resilient and reliable water supply ($2.7 billion)

Investment in our **resilient and reliable water supply program** will enable us to meet our cities' water demands and maintain an acceptable level of water security risk while avoiding the need for significant whole-of-system investment through:

- duplicating the water network to make it capable of receiving additional capacity produced by the expanded SDP
- building PRW plants at Quakers Hill, Camellia, Liverpool and Glenfield
- planning to build interconnectors to address single points of failure in our water system.

Renewals

IPART's renewal driver relates to capex associated with replacing assets and generally maintaining service levels to be included in the renewal of existing infrastructure.

This investment is required to sustain system compliance and performance, and manage water supply safety and reliability, public health and environmental risks.

We plan to invest $11,935 million in capital renewal infrastructure over the next 10 years to meet our customers' outcomes and our regulatory requirements, as detailed in our strategic investment plans and infrastructure strategies. The renewals investment program proposed works is required to provide safe and reliable services, prevent pollution, recover resources, manage our carbon emissions and improve our systems resilience to climate change.

Table 6.8: Renewals investment 2020–35 ($24–25, $millions)

Programs	Period 0 20–25	Period 1 25–30	Period 2 30–35	Total 10 yr 25–35	% of IPART renewal driver	% of infrastructure capital
Wastewater network	948	1,629	1,793	3,422	29%	10%
Water resource recovery facilities	907	1,255	1,617	2,872	24%	9%
Water network	830	1,176	1,237	2,412	20%	7%
Water filtration plants	289	1,276	722	1,997	17%	6%
Property	254	382	254	636	5%	2%
Stormwater	144	280	213	494	4%	1%
Energy	49	77	24	101	1%	<1%
Renewals	**3,422**	**6,075**	**5,860**	**11,935**	**100%**	**36%**

Within the programs above, there are thousands of individual candidate and in-flight renewals projects to sustain service and asset performance across the entire asset base. There are however three major renewals investments that contribute almost $2.3 billion, or 37 per cent of the $6.1 billion 2025–30 renewal capex:

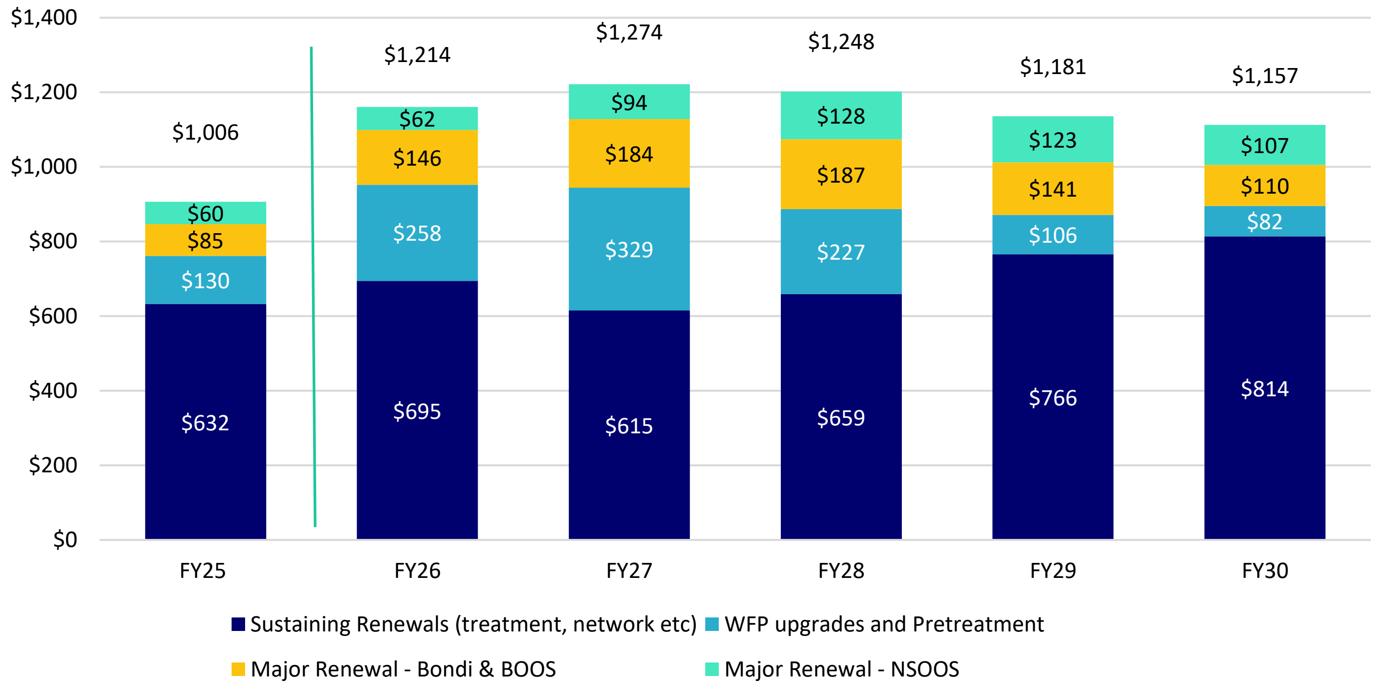
- **Water Filtration Plant Pretreatment program ($1,001 million)**: WFP pretreatment upgrades in Prospect, Orchard Hills, Nepean and Cascade will improve the reliability and supply of safe and clean drinking water to meet customers' expectations in response to increasingly volatile climate events.
- **Bondi Reliability works program ($768 million):** Renewal of our Bondi WRRF – a facility that is over 70 years old – and BOOS is needed to avoid wastewater trunk main failures, and to maintain treatment compliance, operational safety the available capacity of the system. The current preferred option of upgrading the existing Bondi system (compared to building a new system or diverting to the Malabar system) has the lowest total lifecycle cost and risk profile.
- **Northern Suburbs Ocean Outfall Sewer rehabilitation works program ($514 million)**: The NSOOS will reach capacity in 2031 based on current growth projections. This is assuming the current silt levels are reduced and the NSOOS is rehabilitated. The current condition of the NSOOS is very poor, with delamination of the concrete roof lining and partial collapse in sections, increasing accumulation of silt and debris. This means there is a very high risk of a critical failure and resultant extended raw wastewater overflows into Sydney Harbour. The build-up of debris and silt is already impeding capacity and flow of the system and the consequences of deferral of this program are severe.

While these top three programs are primarily renewal works, they are also all required to support population and housing growth by ensuring we can maintain the performance of our water and wastewater systems and provide enough resilience to retain the available capacity within these existing systems.

The remaining $3.8 billion across the next five years is spread across thousands of projects to sustain required levels of service, the operating licence and other regulatory compliance across the entire water and wastewater asset base. This is an average of $710 million per year, a modest 12 per cent increase compared to our current expenditure of $632 million forecast in 2024–25 (see **Figure 12**).

This sustained investment is required to address asset backlog and service risk related to meeting required levels of service performance (for example, water leakage and continuity), and compliance performance (for example, load and concentration limits and dry weather overflows).

Figure 6.12: Renewal program expenditure profile for next five years ($million, $24-25)



Performance, cost, and risk

We have historically balanced service and asset performance with expenditure in a way that minimised our costs to customers – investing less in asset maintenance and renewals across all water, wastewater, treatment and network infrastructure than other Australian utilities. Given the state of our assets at the time, and the surplus capacity of our systems, this was a prudent approach. It enabled us to broadly maintain compliance through an acceptable level of performance and risk.

However, poor asset health and performance from ageing assets has led to the deteriorating service performance we explored in Chapter 3 and an increased risk of failure of key infrastructure across our asset base.

To continue minimising cost to customers while maintaining an appropriate level of performance, we have carried out performance, cost and risk analysis informed by deterioration models. This exercise compared the cost of different intervention options (ranging from inaction to various stages of maintenance and asset renewal) to achieve the optimum performance and risk to service levels.

This analysis underpins our proposed renewal and maintenance investment. We propose to renew only the highest risk, poorest condition (high probability of failure) assets. If left unaddressed, a growing percentage of the asset base will fail (measured via the Asset Performance Index), resulting in increased deterioration in service performance.

As illustrated in **Figure 6.13**, our proposed increase in renewal investment is required to reduce our average asset risk from very high risk to high risk for meeting servicing objectives. While our risk appetite has always targeted a high risk (rating 4), disruptions over the past four years due to Covid and weather extremes have made it difficult to renew and maintain our assets. This has resulted in a backlog of maintenance and renewals work and consequently, many of our assets operating at very high risk in the current period. As discussed in Chapter 3, this is beyond our maximum level of manageable risk – operating our assets at very high risk has resulted in non-compliance with our service standards and increased reactive costs.

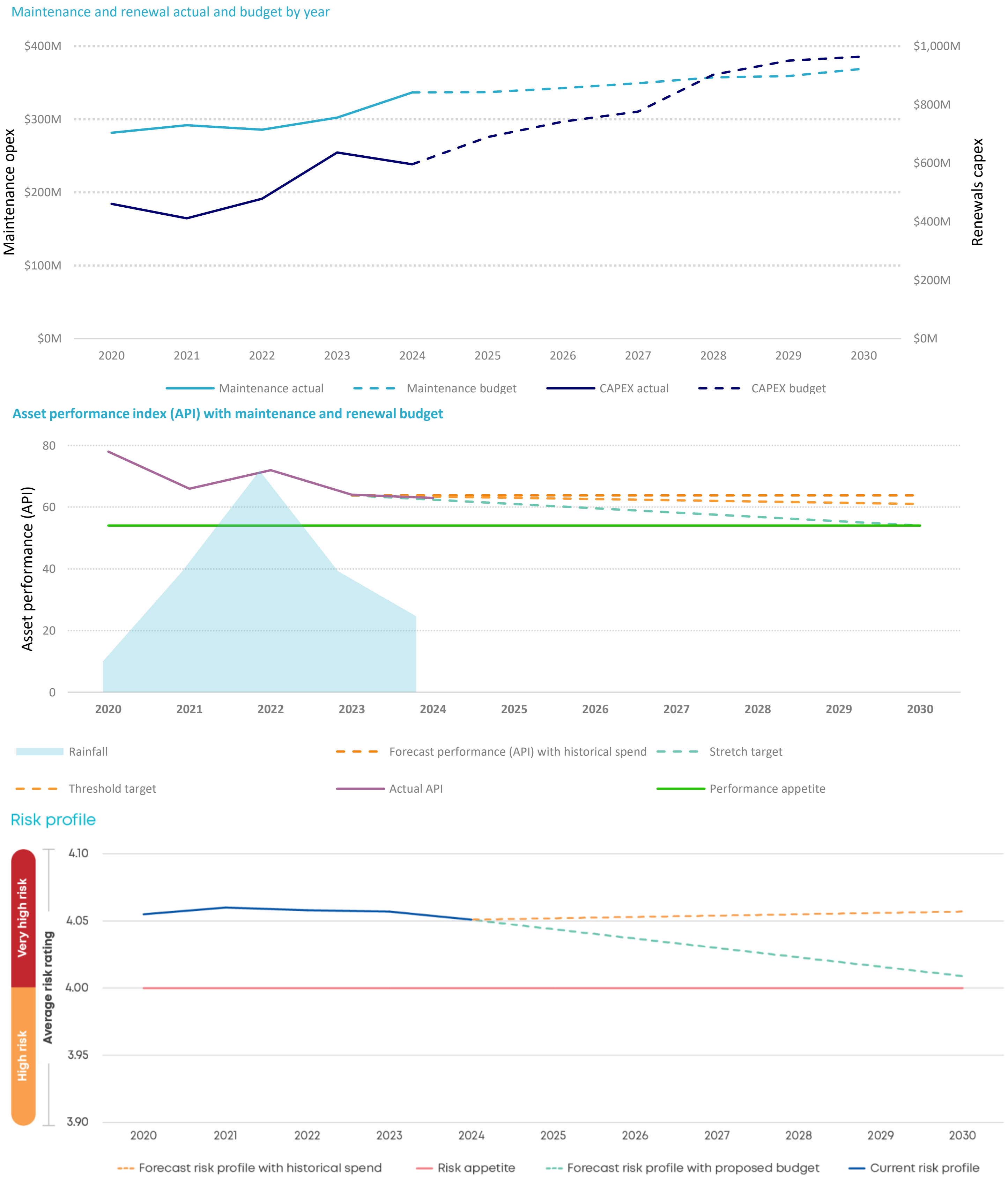
While we could maintain the current risk level if we adopted a similar spend to our current average over the period, this would mean continuing to operate with very high asset risk, significant reactive operational costs, and continued non-compliance. Conversely, operating our assets at high risk aims to bring us just within our compliance limits.

That is, going forward, trying to maintain the historic level of renewal investment is no longer sustainable:

- For example, almost 50% of our water and wastewater network infrastructure is more than 50-years old. Without appropriate intervention, this will continue to grow and place an even greater risk of asset failure and non-compliance with regulatory requirements and customer service expectations over the coming years (see **Chapter 3**).
- The configuration and interconnection of our systems prevent us from taking certain assets offline for long-term maintenance, increasing asset, service and compliance risks even further.
- Delay will result in a greater backlog of maintenance and renewals work, requiring an even greater step change in future costs as assets continue to age.

Instead, our proposed investment approach aims to bring our operations to the risk level we have historically targeted.

Figure 6.13: Historic and forecast cost[24], risk and performance



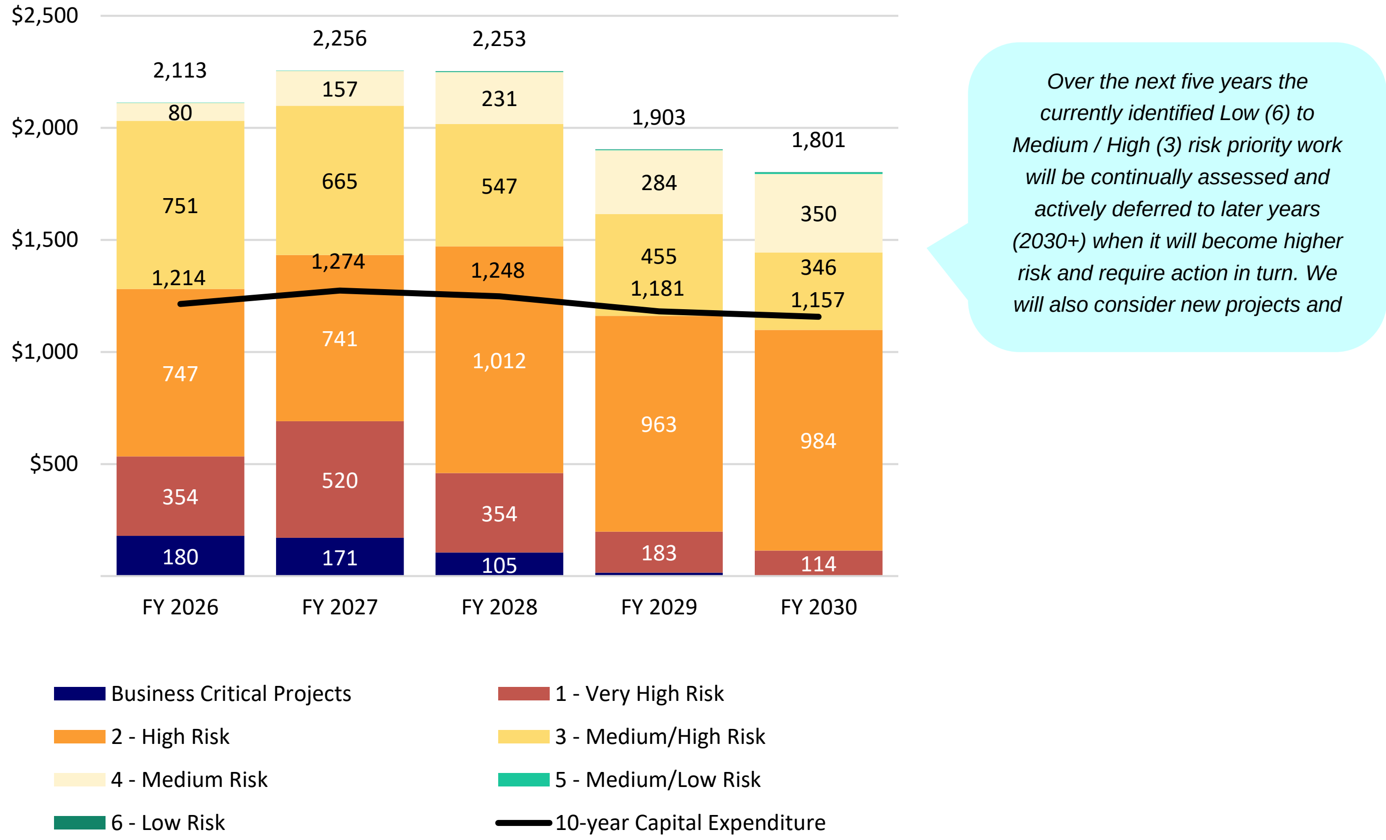
[24] Cost in graph relates only to direct asset renewal costs and excludes programs such as the water filtration upgrade and pre-treatment program.

Prudency and efficiency

The 10-year unconstrained identified renewal investment need of approximately $20 billion would considerably stretch our delivery capacity and have a detrimental impact on affordability and financeability measures.

All renewals programs have been assessed, optimised and adjusted to derive the 10-year forecast expenditure at $12 billion. This is a reduction of nearly 40 per cent across the 10 years. **Figure 6.14** illustrates that over the next regulatory period, our expenditure only addresses high and very high–risk priority projects. Current, low- to medium- or high-risk work is being deferred to later years when it will become higher risk and require action in its turn.

Figure 6.14: Identified renewal capital works and budget by current risk driver level ($24–25, $millions)



We assessed the risk profile[25] for identified candidate projects and deferred lower-risk projects (based on prioritisation), with managed budget release through our business case investment gateways and construction budgets not released until a Delivery Approval Business Case (DABC) (see **Chapter 4**) is approved. This ensures our expenditure is prudently managed through the project lifecycle and keeps us within risk tolerance levels. We also made adjustments based on each investment program's ability to deliver, taking into account the level of certainty and current productivity rates, focusing on prioritising and maximising risk–return of investments for renewals programs. Our Performance, Cost and Risk (PCaR) framework (see **Chapter 4**) provides a structure to assist with prioritising and optimising investments. We will continually assess and prioritise our renewal investment so we can continue to invest prudently and efficiently over the next five and 10 years.

Further detail on infrastructure capital investment programs relating to the IPART renewal driver are provided in *Appendix 6.2: Infrastructure renewals summary*.

[25] This risk assessment refers to the operational, service and asset performance risk the project is addressing (the risk rating as of 2024, or the current 'need' of the project), noting the longer these projects are deferred the greater the operational risk.

Compliance

IPART's compliance driver relates to expenditure driven by new regulatory or legislative obligations or by an increase to existing ones.

Our approach to compliance-driven capital investment is to include only expenditure required to address certain well-defined regulatory changes in our capital plan.

We are regulated by NSW Health and the NSW EPA in relation to product quality, including the safety of drinking water and ecologically sustainable wastewater treatment and disposal.

Our 2025–30 capital forecast addresses the new wet weather overflow EPL requirements. At this stage, other possible new requirements are less certain in terms of timing or content.

Looking back over 2020–25, the Winmalee WRRF nutrient upgrade was driven by what was then a new requirement under the Hawkesbury–Nepean Nutrient Management Framework (HNNF). This is included under the compliance driver in this proposal. Other investments influenced by the HNNF are included under the growth driver.

Table 6.9: Compliance investment 2020–35 ($million, real $2024–25)

Programs	2020–25	2025–30	2031–35	Total 2025–35	% of compliance driver	% of infrastructure capital
Wet weather overflow	217	242	238	480	100%	2%
Winmalee WRRF nutrient upgrade *(project completed within current period)*	49	0	0	0	0%	0%
Compliance	**266**	**242**	**238**	**480**	**100%**	**2%**

The Wet Weather Overflow Abatement Program is to address wastewater overflows that occur when rain inundates the wastewater network, causing large-volume increases that lead to uncontrolled overflows that can impact public health and ecosystems, and even damage property.

This has been an area where regulation has evolved over time, moving from an 'overflow frequency' measure to a 'risk-based' measure aimed at reducing environmental impact, rather than just reducing the number of overflows. While the four major coastal systems are subject to this evolving approach, there are 19 other systems where the licence-limit approach remains.

The investment in the Wet Weather Overflow Abatement Program in the current and next period is to address this evolving regulation. While the majority of work is for the high-priority new regulation systems (and the higher impact sites within those), there is some work to maintain compliance in other systems.

Other future regulatory changes we are aware of are not addressed in the forecast before 2030 because timing or the specific requirements are unclear, or both (see **Table 6.10**). In some cases, the indicative forecast beyond 2030 includes notional provisions for some of these changes.

As for our capex, needs are constantly reassessed and priorities can change for many reasons. The investment portfolio must be flexible to these changes and investment will be initiated where required. We also actively engage with regulators and other stakeholders to determine the appropriate level of response and that there is an appropriate lead time to adequately address potential changes.

Table 6.10: Summary of future regulatory assumptions

Summary of change	Certainty	Inclusion in forecast and expected work impact
Stage 2 Concentration and Load Limit Review (NSW EPA) **Stage 2 Concentration and Load Limit Review – comprehensive environmental review of discharge limits. Full implementation to take more than 10 years.**	**Certain** Exact limits and timing depend on period of monitoring	**Not covered in IPART forecast (2025–30)** Environmental assessment ongoing with around a two- to three-year lead time to understand the impact on pilots. Investment plans will be considered after that. As such, no investment is assumed before 2030, although there may be some opex impact (for monitoring and/or analysis). This is aligned to LTCOP approach.
NSW Biosolids Regulatory Review (NSW EPA) **Change to include limits on per- and polyfluoroalkyl substances (PFAS) and other persistent organic pollutants limiting beneficial reuse. Final guideline assumed from 2024–25 may be for staged compliance.**	**Almost certain** Exact coverage, limits and impacts to be confirmed	**Provisioned only if considered efficient within individual capital projects (2025–30) under growth program.** A small capex provision has been included over 2025–30 but it is more likely that investment will be post-2030 if thermal sludge treatment is required at some or all WRRFs to enable beneficial reuse. The opex forecast includes minor provision for additional storage and testing costs that will be required regardless of the detailed regulations.
Workplace Exposure Standards (SafeWork) **New ventilation requirements for areas with potentially unsafe gas concentration limits still to be determined. Gases to be covered and limits not yet known**	**Likely** Not possible to assess impact before detail is known	**Not covered in IPART forecast (2025–30)** It requires a significant effort to even understand the implications. Any enclosed space with significant gas concentrations will need investigation for compliance with new limits, with likely infrastructure modifications at any subterranean plant or chemical facility.
Pathogen Health Based Targets (Australian Drinking Water Guidelines update, 2022) (NSW Health) **Requirement to show adequate pathogen log reduction through WFP processes, based on source catchment risk.**	**Certain** ADWG has been updated. Investment timing subject to discussion with NSW Health	**Provisioned for in IPART forecast (2025–30) under water filtration program**. Assessment of each water source and WFP is complete and will be submitted to NSW Health. The full implications on investment will be considered over time but at this point a UV filter at Cascade is considered likely. This will be fully considered in the context of the planned plant upgrade and restrictive site constraints. All required work will be prioritised from a general funding provision in the current forecast.
Disinfection By-Products (Trihalomethane) in ADWG (NSW Health) **Possible changes to allowed levels of THM by-products or requirement for more comprehensive monitoring.**	**Possible** New requirement uncertain	**Not covered in IPART forecast (2025–30)** We anticipate ADWG drinking water guidelines to become more stringent in future, which may drive the need to increase our forecast investment over the period to meet compliance. While the various planned and in-progress pretreatment investments (above) are likely to assist with compliance (depending on what work is carried out and how the ADWG is updated), given the relative uncertainty of the requirement, no specific provision for ADWG compliance has been made in the forecast.
PFAS (National Health and Medical Research Council) **Independent review of the health-based guideline values for PFAS**	**Uncertain** Detail of any new requirements are uncertain and timing is not known	**Not covered in IPART forecast (2025–30)** The outcome of the review is not expected until late 2025 after which time we will work with NSW Health to consider any new requirements. Any additional needs will be reviewed and prioritised alongside all others.

Improvements

IPART's improvements driver relates to capex to improve service levels and/or reliability to meet customer preferences above compliance requirements.

Table 6.11: Improvements investment 2020–35 ($24–25, $millions)

Programs	2020–25	2025–30	2030–35	Total 2025–35	% of improvements driver	% of infrastructure capital
Vaucluse Diamond Bay	23	85	0	85	45%	<0.5%
Stormwater Waterway Health Improvement	36	53	52	104	55%	<0.5%
Improvements	**59**	**137**	**52**	**189**	**100%**	**<1%**

During 2026–35, we are planning two improvement investments:

- **Vaucluse Diamond Bay upgrade** – this project will stop the release of untreated wastewater discharges from cliff-face outfalls during dry weather. This is a customer-supported initiative – we consulted widely with customers and there was a strong preference that this situation be addressed.
- **Stormwater Waterway Health Improvement Program** – this is a $104 million program over 2026–35 to improve waterway health outcomes through stormwater management. This program is driven by strong community support for improvement of urban waterways. The program is targeting 13 waterway health improvement projects including five wetland/bioretention systems and eight gross pollutant traps. It aims to improve the water quality, safety and overall health of Sydney's waterways for recreation and swimming by delivering waterway enhancements.

The total proposed infrastructure expenditure for the 2025–30 and 2030–35 periods is discussed in more detail in:

- *Appendix 6.1: Infrastructure growth summary*
- *Appendix 6.2: Infrastructure renewals summary*

Major infrastructure projects and programs

Across our 10-year capital forecast, our most significant projects are driven by growth and renewals. **Table 6.12** sets out the top 35 major projects totalling nearly $20 billion, representing nearly 65 per cent of the total infrastructure capital investment (see *Infrastructure investment overview in the reading room*).

Among these projects, 31 are to support growth initiatives, while four primarily map to renewals. They are aligned with key customer outcomes and reflect customers' highest priorities in maintaining the current level of wastewater and water performance.

The internal and external governance applied to these projects provides further assurance that the robustness of the investment decisions is fully tested and that they are both prudent and efficient. Our internal and external Infrastructure NSW (INSW) governance processes are explained further in **Chapter 4**.

To ensure that all our major projects have an efficient market construction cost, the majority[26] of our major projects are delivered via competitive tender process under tailored contracts and delivery models.

Open and transparent engagement with our customers, community and supply chain

We provide publicly accessible project information, issue newsletters, establish community reference groups and carry out community information sessions to involve our customers and the local communities in the project development and delivery phases of our major projects.

For our customers and community: Capital projects | Sydney Water Talk

For our contractors and supply chain: Major Projects program | Sydney Water Talk

This level of engagement allows Sydney Water to earn credibility with our customer base and the community by demonstrating our willingness to deliver outcomes that promote customer value while managing community expectations through effective dialogue and meeting customer commitments.

Table 6.12: Major projects greater than $100 million expenditure over next 10 years ($24–25, $millions)

Map ref.	Initiative	Investment program	Project stage[27]	Product[28]	IPART driver	Customer outcome	Customer objective	2025–35 10-year total
42a to 43b	**Aerotropolis Mamre Road stormwater**	Aerotropolis Mamre Road Stormwater	Planning and development	Stormwater	Growth	Environment protection	Cool, green and natural places	3,145
39 to 41	**Resilient and reliable water supply**	Resilient and Reliable Water Supply	Planning and development	Water	Growth	Water quality and reliability	Secure water supply	2,670
24	**Upper South Creek (USC) wastewater network**	WSAGA/SWGA	Delivery	Wastewater	Growth	Environment protection	Prevent pollution	1,408
27	**North West Treatment Hub**	NWGA	Delivery	Wastewater	Growth	Environment protection	Prevent pollution	1,194
9	**Upper Nepean AWRC**	GMAC	Planning and development	Wastewater	Growth	Environment protection	Prevent pollution	1,011
45 a, 46 b	**Bondi Wastewater System Reliability Program**	Wastewater Treatment/ Wastewater Network	Planning and development	Wastewater	Renewals	Environment protection	Prevent pollution	870
15	**GPEC wastewater and water growth servicing**	GPEC	Strategic initiation	Wastewater, water	Growth	Environment protection, water quality and reliability	Prevent pollution, secure water supply	843

[26] Some projects may be delivered via our Regional Delivery Partner model where the procurement assessment deems it the most efficient and highest value for money option.

[27] Current project stage as at August 2024. Refer Sydney Water project stages in **Chapter 4**.

[28] Primary product(s), IPART driver, customer outcome and objectives. Projects can have multiple products, drivers, outcomes and objectives.

Map ref.	Initiative	Investment program	Project stage[27]	Product[28]	IPART driver	Customer outcome	Customer objective	2025–35 10-year total
25 c	**USC advanced water recycling centre (AWRC) (stage 2)**	WSAGA/SWGA	Strategic initiation	Wastewater	Growth	Environment protection	Prevent pollution	736
30	**Water pump station number 200 'WP200'**	NWGA	Planning and development	Water	Growth	Water quality and reliability	Secure water supply	721
26	**SWGA WSAGA – Water network strategy**	WSAGA/SWGA	Strategic initiation	Water	Growth	Water quality and reliability	Secure water supply	647
4	**Malabar mid term program**	Central City Eastern City	Strategic Initiation	Wastewater	Growth	Environment protection	Prevent pollution	624
44 a	**Prospect WFP pretreatment**	WFPs	Delivery	Water	Renewals	Water quality and reliability	Safe and clean water	599
13	**Wilton growth servicing and Bingara Gorge RWP**	GMAC	Delivery	Water, wastewater	Growth	Environment protection, water quality and reliability	Prevent pollution, secure water supply	570
32	**North West Growth Area, metro North West growth servicing**	NWGA	Planning and development	Water, wastewater, stormwater	Growth	Environment protection, water quality and reliability	Prevent pollution, secure water supply	559
3	**GPOP integrated water (New Camellia AWRC)**	Central City and Eastern City	Planning and development	Wastewater	Growth	Environment protection	Prevent pollution	482
20 a	**Malabar near term program – Liverpool WRRF upgrade**	WSAGA/SWGA	Delivery	Wastewater	Growth	Environment protection	Prevent pollution	407
34	**Illawarra wastewater treatment plants**	Illawarra and Cronulla	Planning and development	Wastewater	Growth	Environment protection	Prevent pollution	395
12	**Malabar near term program – Glenfield WRRF upgrade**	GMAC	Delivery	Wastewater	Growth	Environment protection	Prevent pollution	376
16	**Orchard Hill wastewater and water amplification**	GPEC	Planning and development	Water, wastewater	Growth	Environment protection, water quality and reliability	Prevent pollution, secure water supply	333
11	**Macarthur water network**	GMAC	Planning and development	Water	Growth	Water quality and reliability	Secure water supply	283
44 b	**Orchard Hills WFP pretreatment**	WFPs	Planning and development	Water	Renewals	Water quality and reliability	Safe and clean water	219
18	**Austral Leppington**	WSAGA/SWGA	Delivery	Wastewater	Growth	Environment protection	Prevent pollution	182
25	**USC AWRC and pipelines**	WSAGA/SWGA	Delivery	Wastewater	Growth	Environment protection	Prevent pollution	177
5	**RP03 Ryde to Pymble transfer main**	Central city and Eastern City	Planning and development	Water	Growth	Water quality and reliability	Secure water supply	172
14	**Picton wastewater management**	GMAC	Planning and development	Wastewater	Growth	Environment protection	Prevent pollution	166
33	**Metro North West urban renewal corridor**	NWGA	Delivery	Water, wastewater	Growth	Environment protection, water quality and reliability	Prevent pollution, secure water supply	163
6	**Epping to St Leonards growth precinct**	Central City and Eastern City	Planning and development	Water, wastewater	Growth	Environment protection, water quality and reliability	Prevent pollution, secure water supply	134

Map ref.	Initiative	Investment program	Project stage[27]	Product[28]	IPART driver	Customer outcome	Customer objective	2025–35 10-year total
36	**Yallah Marshall Mount**	Illawarra and Cronulla	Delivery	Water, Wastewater	Growth	Environment protection, water quality and reliability	Prevent pollution, secure water supply	119
20 b	**Malabar near term program - NGRS/LAP capacity**	WSAGA/SWGA	Delivery	Wastewater	Growth	Environment protection	Prevent pollution	118
19	**Kemps Creek**	WSAGA/SWGA	Delivery	Wastewater	Growth	Environment protection	Prevent pollution	116
10	**Macarthur WFP upgrade**	GMAC	Planning and development	Water	Growth	Water quality and reliability	Safe and clean water	113
28	**Thornleigh reservoir**	NWGA	Delivery	Water	Growth	Water quality and reliability	Safe and clean water	112
1	**GPOP Stage 1 growth precinct**	Central City and Eastern City	Delivery	Water, wastewater, stormwater	Growth	Environment protection, water quality and reliability	Prevent pollution, secure water supply	109
37	**Calderwood**	Illawarra and Cronulla	Delivery	Wastewater	Growth	Environment protection	Prevent pollution	108
44 c	**Nepean WFP upgrades and pretreatment**	WFPs	Planning and development	Water	Renewals	Water quality and reliability	Safe and clean water	102

Deliverability

We face high levels of growth in customer numbers over the next 10 years, as well as a need to increase our renewals investment to ensure we can provide sustainable and reliable services for our customers while meeting regulatory obligations and dealing with the impacts of climate change.

We need to invest $32 billion of capex over the next decade to deliver essential water, wastewater and stormwater services to Greater Sydney, the Illawarra and Blue Mountains regions (see Table 6.12). Most of this uplift in capital is to enable growth in new and existing regions as Western Sydney continues to develop and as population growth exhausts remaining excess capacity in water and wastewater systems.

This proposed expenditure represents an 85 per cent increase compared to the 2020–25 period (see Table 6.2). Furthermore, for the 2025–35 period, the proposed expenditure reflects a nearly 250 per cent increase in capital delivery (see Table 6.2). Over the 2016–20 period, we delivered an average of $577 million in infrastructure capital per year. Last year (2023–24), we delivered over $2 billion of infrastructure capital (equal to the total 2012–16 capital allowance). This significant increase in delivery capacity is despite significant headwinds over the 2020–24 period including the COVID-19 pandemic, bushfires and an extended period of significantly above average rainfall and flooding events.

The impacts of the measures we have put in place to expand our capability and capacity have not yet been fully realised because it takes time to sustainably grow and develop internal and external business capability, and for large-scale projects to move through their lifecycle. These measures will continue to support the increase from $2 billion per year in 2023–24 to an average of $3.3 billion per year over the 2025–30 period. We also plan on implementing new measures to drive capability and capacity in our delivery model.

Growing and developing our delivery workforce

We have continued to grow and develop our workforce as Sydney Water's investment requirements increase. This has been achieved through restructuring our organisation around customer outcomes and including a dedicated infrastructure delivery group to solely focus on delivering the program. This has driven enhanced focus on effectiveness and efficiency.

Since 2020, the key infrastructure development and delivery functions of the business have grown by approximately 14 per cent year on year from 307 full-time equivalents (FTEs) to 522 FTEs. This 70 per cent increase in FTEs has delivered 90 per cent more capital dollars per FTE over the past four years and indicates that we are not only growing the capacity of our delivery teams but also their capability. Our delivery workforce is becoming more effective and efficient in what it does.

We intend to build on these outcomes and have developed a detailed headcount plan based on forecast resources for 2023–33. This headcount plan will inform the basis of our recruitment and onboarding strategic planning so that the right number of people are hired at the right time to balance deliverability and commercial risks.

Modified delivery, commercial and contracting approach to drive better value for our customers

Over the past four years, we have put in place commercial and contractual improvements that drive capital delivery efficiency. We introduced a full suite of delivery models to improve supplier efficiency, including construct only; design and construct; design-build-operate and maintain; and delivery partner/engineering procurement and construction management. These models optimised lifecycle cost results by integrating various expertise such as operations, maintenance, procurement and design into the contract model where it is commercially beneficial to do so.

Specialist major projects delivery capability focused on high-risk/high-profile investments

We created a major projects function to deliver a number of significant investments, from project development to procurement, delivery, commissioning and operational handover. This function has grown in capability from delivering $213 million in 2020 to $1 billion in 2023–24. This has enabled us to focus our internal resources on delivering complex, high-profile infrastructure investments, and strategically fostering and building strong relationships with the suppliers we will need to deliver the anticipated increase in major project expenditure over the next price period.

Expanding and diversifying our supply chain to match our increasing investment needs

We have recognised that there is an ongoing need to scale up our infrastructure delivery capability and the supply chain to meet our long-term plans (set out in our LTCOP and this price proposal). In response, we have developed and started to implement a Market Development Plan. We are already seeing significant improvements in our supply chain access. This includes increasing the pool of Tier 1 contractors who can manage large complex projects from three to 11, as well as significantly expanding the number of Tier 2 and Tier 3 contractors. We will continue to expand our market to promote awareness of, and track supply chain interest in, our projects, which we expect to lead to an expansion in our supply chain similar to what we have seen over the past two years. Our recent efforts demonstrate that we have active interest from the market for all of our investment plans for the 2025–30 period, giving us confidence that we can deliver our proposed capital program for that period. We will continue to monitor and adapt as market intelligence evolves.

Implemented a holistic, enterprise-wide approach to supplier relationship management to ensure they align to our needs

Recognising the critical role our suppliers have in maintaining operations and delivering capital works, a supplier management operating model and supplier relationship management (SRM) strategy was developed and implemented to deliver additional value beyond the scope of our existing contracts and foster mutually beneficial long-term partnerships with our most important suppliers. Our suppliers and internal stakeholders have provided positive feedback on the value SRM is bringing, including improved performance, greater visibility and alignment across our organisations, greater transparency across the relationship and the identification of joint value opportunities aligned to our organisational objectives. This helps to ensure we can access resources from our critical suppliers as we need them.

Closer relationships with key NSW Government functions on statewide strategic responses to enable efficient delivery

We have actively engaged with INSW as the policy and strategy arm of the NSW Government and contribute to the INSW Co:Lab function, which assists in achieving NSW Government infrastructure objectives by empowering participants to co-design solutions and begin discussions on how to resolve common challenges. We have worked with government to prioritise the infrastructure pipeline for NSW in light of capacity challenges as part of the Kanofski Review. We have engaged in dialogue around commercial, capacity and industrial relationship challenges that are shared across the sector. We will continue to leverage these relationships and the shared knowledge forum to strategically manage our investment plans.

Established 10-year strategic partnerships to deliver our underlying renewal and maintenance needs

Our long-term strategic relationships with the planning partner and regional consortiums have ensured resource availability despite the strong demand for infrastructure resources in Australia since 2020. The regional consortiums have combined responsibilities for maintenance, as well as capital design and delivery, which incentivises optimal whole-of-life decision making and results in more efficient use of resources. The regional vehicles averaged $600 million in capital delivery over the past four years. We expect to expand this to deliver $1 billion year on year, reflecting the underlying renewals and minor extension work in the forward investment plan.

A significant increase in infrastructure is required to meet these needs in the next price period to ensure that we can continue to provide a reliable service to meet Greater Sydney’s growth and mitigate the impacts of climate change.

In addition to these in-train and planned improvements that will continue to grow our delivery capability and capacity, we will continue to identify and deliver improvements in what we do. These range from continuous improvements to our regional delivery model and procurement processes to our talent acquisition and retention strategies. Our feedback loops and improvement cycles allow us to continue to evolve and adapt to changing circumstances.

It is through these current and future improvements in our delivery model that we are confident we can deliver the level of investment required during 2025–30 to provide new services to customers and maintain existing services at levels our customers, regulators and the community want and value.

Digital investment

Our customers expect safe, affordable and reliable water services that are environmentally sound – our technology underpins this.

Our commitment to providing customers with safe, reliable and efficient services requires us to invest in effective digital services. The investment approach for the next 10 years has been grouped into four portfolios.

Foundation and Connectivity Systems

Our foundation systems are the cornerstone of our technology services and underpin our critical day-to-day operations. They include foundational infrastructure technologies (such as end-user devices, services and networks) and enterprise services (which enable connectivity, security and collaboration).

Investment in end-user technologies – such as field mobile devices and equipping sites with facilities for hybrid work – enable our people to be more efficient, technology-enabled and better connected in their day-to-day work and with our customers. Mobility enables our people to do their work from anywhere on any device. Our technology investment – such as infrastructure, network and connectivity services, and foundational integration, applications and middleware – run our customer, asset, corporate and intelligence services, providing our customers, people and partners with a digital footprint that enables safe interaction with our water services.

Additionally, utilities and government services face increasing cyber risks as we transform into digital utilities. This is recognised in the *Security of Critical Infrastructure Act 2018* (Cth), which Sydney Water is required to comply with. The heightened cyber posture of the Australian policy and legislative environment has necessitated investment to meet current and future obligations, including investment in a shift towards hybrid cloud hosting of digital infrastructure, sovereignty of mission-critical services and an uplift in our cyber control posture. Since 2020, Australia has seen an increase in reports of cyber incidents. The Australian Signals Directorate reported an increase of 34,194 reports between 2020 and 2023. Sydney Water has also seen an increase in actual disruptive cyber events on its partners, from no disruptive events in 2020 to four in 2023. It is critical to maintain a positive cyber posture with our partners to ensure safe services and trusted data security for our customers.

As such, in 2025–30, we will invest **$148.5 million** on the following programs of work:

- Essential core maintenance (hardware and platform) – maintains critical hardware that runs the organisation, from our corporate services to services that enable operational technology. Sydney Water is averse to taking risks around critical infrastructure services. However, to ensure we are efficient with our investment, we may choose to take some lifecycle risk over non-critical infrastructure
- End user technology and core services – provides staff with the devices and technology they need to do their job in a safe and effective manner
- Cyber security uplift (manage and protect) – delivers the cyber security controls needed to keep our corporate and operational technology systems cyber safe
- Optimising digital infrastructure – delivers a hybrid cloud infrastructure solution to replace existing data centres at Homebush and Parramatta, and government data centres, and consolidates Sydney Water's public cloud landscape.

Systems of Differentiation

Systems of Differentiation (SoD) systems and associated services support business capabilities that deliver on our better life strategy, placing our customers at the heart through investing in systems that enable better-value outcomes. The key areas include spatial, digital twins, field mobility and modelling. We are focusing our investment on our linear assets and the critical information needed to plan, build and operate our civil infrastructure in support of our investment in our growth objectives – including field resource management tools that enable the delivery of reactive and planned work orders.

This portfolio supports business intelligence used for internal data collection, collation and reporting. Investment in systems of differentiation allows us to enable data-driven decisions.

The portfolio also invests in our SoD Continual Improvement program to maintain our delivered capabilities. Without this, continued investment will erode over time and we will not be able to sustain targeted or forecast business growth. Consequently, continual improvement is required to support the delivery of our vision of creating a better life with world-class water services through the incremental delivery or business value to our internal and external stakeholders.

As such, in 2025–30, we will invest **$92.20 million** on the following programs of work:

- Software systems – maintenance of these systems will bring security patches, functional updates, vendor support and software stability. Sydney Water is risk adverse and aims to maintain critical software systems within their product support lifecycle. Where there is low risk, we may choose to extend the life of a product to minimise ongoing costs
- Digital customer platform – enables smooth interactions between businesses and our customers, delighting the customer with a better self-service and interactive digital experience. This will also provide for improved interaction with local government planning teams, which are central stakeholders in coordinating infrastructure and housing delivery to support growth
- Field mobility platform – improves field scheduling, inventory management and customer engagement for our reactive and planned maintenance work across our network and facilities
- Developer transformation – enhances organisational capability to interact and collaborate with developers through supporting digitalisation and an end-to-end partner engagement experience. This is critical for us to be a partner of choice and increase capability to service the industry and customers, a particularly important requirement given the significant growth anticipated across Greater Sydney and the role played by developers in planning for and delivering this growth
- Spatial – this need for investment was identified in the previous investment period, given that the current spatial platform is beyond its end-of-life and no longer capable of meeting the current or emerging needs of the organisation. This uplift was not delivered in that period due to a shift of priorities to a field mobility system due to the product nearing end-of-life. Through delivering on the full intended works, Sydney Water will be able to improve turnaround to configure and deploy GIS apps and data to the business, contractors and in the field to enable faster response to reactive and planned works. The new system will also reduce the risk of damage to assets due to network strikes from incorrect GIS data, as well as enable self-service
- Modelling – consolidates and revamps models onto our current data and analytics platform to simplify the way we create, manage and run our models.

Systems of Monitoring and Control

Our systems of monitoring and control (M&C) focus on implementing new tools and increasing automation to improve service reliability and reduce costs. M&C is the interface between the digital and the physical world, allowing us to automatically operate physical infrastructure in a safe and reliable way. For example, this portfolio includes multiple telemetry and SCADA systems and applications for operations resource management. Customers will benefit from improved service through the efficient allocation of work to the nearest and best-equipped people, ensuring relevant safety information is available and improved management of hazards and incidents in the field.

It includes operational technologies like IoT that allow real-time asset monitoring and analytics for more efficiently managing our physical infrastructure, as well as enabling new approaches to demand management and pricing. This period, we demonstrated the value and capability of IoT devices through our wastewater network monitoring program and identified opportunities to be more cost-efficient in delivering our services in a safe and environmentally friendly way.

Investing in emerging technology systems presents an opportunity for us to manage assets more efficiently. These technologies are declining in price and increasing in physical resilience. They will eventually allow for transition from reactive to predictive interventions.

As such, in 2025–30, we will invest **$116.7 million** on the following programs of work:

- Supervisory Control and Data Acquisition (SCADA) – renewals over the period at WFPs and WRRFs will introduce additional automation controls bespoke to each site, providing for more efficient and reliable operations
- Internet of Things (IoT) – provides improved real-time monitoring of assets and services, enabling proactive work to prevent issues as well as rapid response where problems do arise
- Sewer blockage detection devices – replacement with next-generation sensors, which will enable timely identification of issues across Sydney Water's network so that these can be addressed before impacting customers or damaging assets
- Digital twins – enables improved scenario testing capabilities to build greater planning into services.

Systems of Record

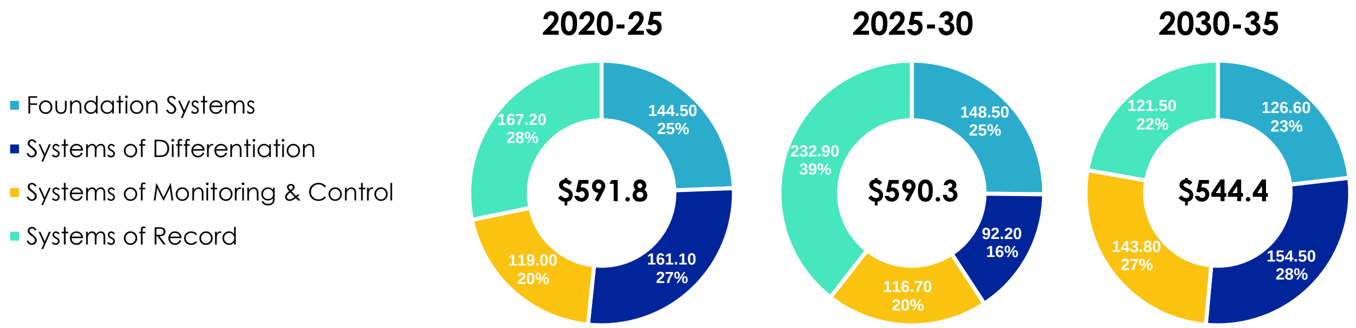
Systems of Record (SoR) are systems and associated services that support the common business capabilities (such as finance, human capital management, payroll, procurement; customer management and Enterprise Asset Management) that all businesses require to operate effectively. Sydney Water continues to consolidate these business capabilities into a unified architecture, adopting standard processes. The replacement of obsolete systems and the requirement to simplify and consolidate the overly complex digital landscape is reflected in this price proposal and was contained in our 2016–20 and 2020–24 submissions.

This investment will help us improve service, reliability and cost, maximise the benefits from other digital capability investments, and meet our responsibilities for data management and security.

During 2025–30, we plan to invest **$232.9 million** in:

- Business Experience Platform (BxP) – continual improvement and SAP roadmap alignment. SAP announced a shift away from on-premises SAP systems to cloud-based services. We must plan for this transitional investment and take the opportunity to gain business value in the process
- People Experience Platform (PxP) – continuing investment to build on the foundations for improving our people's experience. This investment is crucial to operating in a post-COVID environment where digital connectivity is essential for a high-performing workforce
- Customer Experience Platform (CxP)– ongoing improvements and transformation, in alignment with the SAP roadmap enables better integration of customer data across the business, allowing us to provide more efficient and targeted services directly informed by customer demand and needs
- Enterprise Asset Management (EAM) Maximo platform – upgrades and transformation works to enhance automation, monitoring and control of infrastructure by supporting asset lifecycle management. New and upgraded systems provide greater capability to plan how assets are managed throughout their lifecycle, including optimising and streamlining asset creation, and scheduling and planning operations, maintenance, retirement and renewal processes. This will allow us to improve asset performance and delivery timeframes, boost asset resilience and support future-ready water infrastructure.

Figure 6.15 Digital investment (capex and project opex) by regulatory period ($24-25, $millions)



Becoming a digitally intelligent water utility

We face increasing pressures from evolving customer expectations, competition, the climate and growth. Towards 2050, we will need to operate in an environment where the challenges are even further exacerbated. However, these challenges will also generate opportunities for digital solutions. Technology vendors are shifting their services to the cloud and leveraging the advancements in the size, speed, intelligence, capabilities and applications of sensors, robotics and other technologies, meaning that water supply and network operations will be transparent, almost autonomous, predictable and self-repairing. Data volumes will also be exponentially greater than today. As such, digital investment now and over the long term will support and enable us in our journey towards a digitally intelligent water utility, harnessing the following benefits and outcomes.

Table 6.13: Benefits and outcomes of digital investment

Empowered customer	Intelligent assets	Insight-led performance	Intuitive people experience
Enable a shift in customer advocacy and engagement through better bill affordability and self-service Smart sensors and data empower our customers with more accurate insights and greater control over their water use and service visibility Improving our field mobility through optimised scheduling and dispatch, early failure prediction and proactive repair of ageing infrastructure Faster responses to issues (for example, leakage) through real-time status monitoring, and automated notifications	Digitalisation transforms us into an intelligent asset business We plan, build and operate assets that inform us in real time of their performance and adjust accordingly Smart sensors enhance our asset performance and improve customer service value Greater ability to meet demand growth from digitally enabled network optimisation Transform by maturing our asset systems with next-generation capability, addressing our Asset Management Platform, spatial platform, field scheduling platform and establishing digital twin capability, incorporating smart sensor data for true end-to-end autonomous system control and intelligent data-driven decisions	Empower and connect the organisation to use reliable, secure, consistent and trusted data to drive actionable insights at speed Increased safety through use of AI and drones to rapidly complete inspections in dangerous or confined environments Reduced likelihood of network interruptions from pipe blockages and leaks via rapid intelligent detection, reducing environmental impacts and wastewater pollution events Minimise disruptions and optimise operations and maintenance through AI and data-driven decisions	Technology is embraced by our people, and we are highly flexible, adaptive and productive, and work collaboratively Support growth through technology as diminishing marginal costs such as digital capabilities easily scale compared to traditional operations Reduced overheads and administration, optimal planning and automated responses in business processes Experience is immersive through enhanced end-user technology, people-designed systems and trusted data to support automation Employee-centric platforms, partner interoperative services and immersive human-to-virtual interactivity Our people’s digital and data literacy is modern and relevant to their role

Chapter 7: Operating expenditure

Key message

Over the next 10 years, we are proposing to spend $21 billion in operating expenditure to enable our day-to-day operations to deliver reliable water, wastewater and stormwater services to more than 5.4 million customers. This proposed operating expenditure will support rising bulk water costs, growth, improved asset and service performance through increased investment in maintenance, ensure a safe and secure water supply, and enhance our digitalisation landscape.

Summary

- Over the current determination period, we faced several challenging events and circumstances, including La Niña conditions, the COVID-19 pandemic, rising inflation and a global energy crisis. Despite these challenges, and through robust planning and reprioritising to adapt to our new circumstances, we have managed our expenditure to align closely to IPART's determination and expect to spend $6,794 million over 2020–24. Some of the challenges we have seen in this period will endure into the next period.
- We have also saved a total of $137 million in operating expenditure for our customers over the 2020–24 period, which equates to an efficiency of two per cent. The largest contributors to these savings were our Business Experience Platform (BxP), ($50 million over 2020-24), the Production Improvement Program ($65 million over 2020-24) and Business Connect ($3 million over 2020-24). We have embedded all these savings in our forecast expenditure going forward to ensure we begin from an efficient baseline.
- Over 2025–30, we are forecasting to spend approximately $10 billion in total operating expenditure (opex). From 2030–35, we expect to spend a further $11 billion in total regulatory opex. In total, this means we are expecting to invest $21 billion in operating expenditure over the next 10 years.
- Within our plan, we have included more than $590 million in efficiencies over the next five years. This ranges from $82 million to $160 million per year, which is made up a 0.7 per cent p.a. compounding efficiency factor next period and an additional $413 million step efficiency over the next five years. This is a one-off additional efficiency stretch target for 2025–30, which we are challenging ourselves to achieve to deliver better value for our customers.
- The step efficiency will be delivered by a combination of in-flight and planned projects (including our FLOW program, People Experience Platform (PxP), Optimising Digital Infrastructure and our Enterprise Service Management (ESM) programs), embedded efficiencies in our maintenance and chemicals plan, and an additional stretch efficiency.

Key reference materials

APPENDICES

Nil

READING ROOM

Benchmarking report for water and wastewater operating expenditure
Oxford Economics Cost Escalation Forecast 2024/35 Report
Water Conservation Plan
Net Zero Carbon Emissions Management Plan
Innovation, Research and Deployment plan

Guided by our 3Cs focus principles

CUSTOMER OUTCOMES

We have linked our proposed operating expenditure to the three customer outcomes and further proposed some step changes to support customer outcomes, in line with customer insights and preferences.

BALANCE RISK AND LONG-TERM PERFORMANCE

In developing our proposed operating expenditure, we have considered a range of planning inputs and assumptions, including regulatory requirements, our capital investment program and asset management plans, to ensure we balance risks and benefits to our customers and our business in the context of long-term asset and service performance. We further have a range of measures in place to continuously monitor cost risks and reprioritise expenditures, such as Executive and Board reporting and cost management plans.

EQUITABLE AND EFFICIENT COST RECOVERY

We have set challenging efficiency targets to ensure we deliver customer outcomes and meet our other requirements in a way that achieves maximum value for our customers.

Current opex over 2020–25

Over 2020–24, we expect to reach $6,794 million in total regulatory opex, which is $31 million or 0.5 per cent lower than IPART's $6,825 million allowance for the determination period.

Of this $6,794 million in total regulatory opex over 2020–24, we expect to spend $4,912 million in core opex, which is $70 million or 1 per cent lower than IPART's $4,982 million allowance for the period. The remaining $1,882 million of bulk water opex, which covers our bulk water costs from WNSW and SDP, is $39 million or 2 per cent higher than IPART's $1,843 million allowance for the period.

For 2024-25, we expect to spend $1,746 million, with $1,275 million in core opex and $470 million in bulk water opex. This is largely in line with our average annual expenditure over 2020-24.

Figure 7.1 Our total regulatory opex relative to IPART Determination, over 2020–24 ($24–25, $millions)

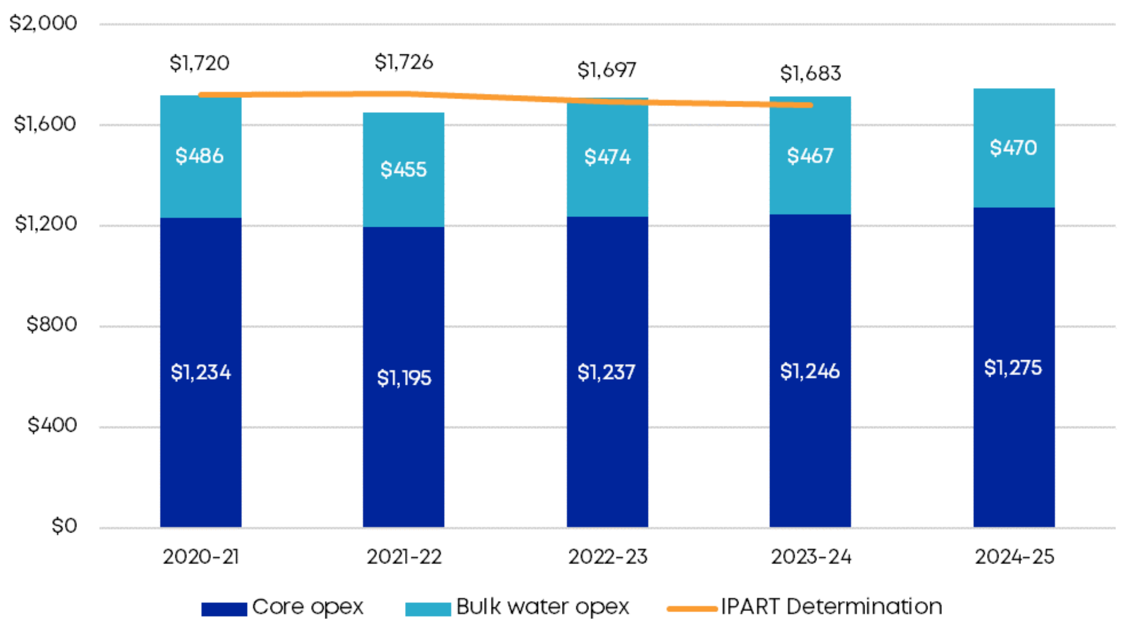


Table 7.1 Our total regulatory opex by service, over 2020–24 ($24–25, $millions)

Service	2020–21	2021–22	2022–23	2023–24	2020-24 Total	2024-25
Water	1,065	1,029	1,015	979	4,088	996
Wastewater	596	572	660	690	2,517	704
Stormwater	23	20	14	22	79	23
Recycled water (s16A)	37	29	22	22	110	22
Total	**1,721**	**1,649**	**1,711**	**1,713**	**6,794**	**1,746**

We have faced a confluence of events throughout the current period that have influenced our operating expenditure, including the COVID-19 pandemic, La Niña conditions resulting in significant wet weather and flooding across three consecutive years from 2021 to 2023, rising inflation and a global energy crisis. These changes to our operating environment impacted our operating expenditure in the following ways:

- a re-balancing of our bulk water costs between WNSW and SDP, with higher than expected purchases from SDP in the early part of the current period due to raw water quality issues at Warragamba Dam
- a reduction in labour costs from decreased training, administration and oncosts during the COVID-19 pandemic, slightly offset by an increase in salaries and wages and recruitment costs from a tighter labour market towards the end of the determination period
- a delay in our civil and mechanical/electrical maintenance across our water and wastewater networks and plants due to COVID-19 movement restrictions and public lockdowns throughout 2020 to 2022, with a resulting uplift in work now required until the end of the determination period
- higher material costs, particularly chemical prices, arising from supply chain pressures related to the COVID-19 pandemic and a global energy crisis, exacerbated by the Russian–Ukraine conflict
- an increase in our wet weather overflow fees in 2021–22 and 2022–23 due to La Niña conditions and significant rainfall and flooding
- delays and shifts in several of our Digital programs, such as the Government Data Centre (DC) relocation program, due to resourcing constraints and restricted access to worksites during the COVID-19 pandemic and changes in government policy
- an increase in our corporate costs to enable remote working capability, and ensure customer experience, during the onset of the COVID-19 pandemic in 2020.

We describe some of the key variations in more detail below.

Variances against the IPART Determination

Bulk water costs

We purchase bulk water from WNSW and SDP. These costs are based on prices determined through separate IPART processes and are outside of our control.

As summarised in **Table 7.2**, our bulk water costs were made up of:

- WNSW bulk water costs of $908 million, which is $72 million or 7 per cent lower than IPART's Determination in 2020. This underspend was due to lower WNSW bulk water volumes, which totalled 1,976 GL over 2020-24. This was primarily driven by poor raw water quality.
- SDP bulk water costs of $973 million, which is $110 million or 13 per cent higher than IPART's Determination in 2020. This overspend was primarily due to higher SDP water volumes over 2020–21 to 2022–23 to supplement our bulk water supply from WNSW.

Table 7.2 Our bulk water opex relative to the IPART Determination, over 2020–24 ($24–25, $million)

	2020-21	2021-22	2022-23	2023-24	2020-24 Total	2024-25
IPART Determination						
WNSW costs	244	245	245	246	980	-
SDP costs*	217	215	215	216	863	-
Actual/forecast						
WNSW costs	236	223	219	230	908	230
WNSW volume (GL)	504	489	460	515	1,967	506
SDP costs	250	231	255	237	973	240
- SDP fixed costs	234	207	205	205	852	207
- SDP usage costs	16	24	50	32	121	33
SDP volume (GL)	20	22	68	36	146	41
Variance						
WNSW costs	(8)	(21)	(26)	(16)	(72)	-
SDP costs	33	16	40	21	110	-

*Note: For our 2020 Price Determination, IPART's allowance for SDP costs only included fixed service charges. This is because IPART accepted our proposal at the time to recover SDP usage charges through a separate cost pass-through mechanism. We have provided our actual SDP costs, including both service and usage charges, above for completeness.

Over the early part of the current determination period, we experienced poor raw water quality issues at Warragamba Dam, due to a combination of La Niña conditions, and drought and bushfires from the last 2016–20 determination period. In response to potential public health risks, we issued an emergency response notice (ERN) requesting that SDP remain operational throughout 2020–21 to 2022–23, to supplement our bulk water supply from WNSW. This increased our SDP bulk water volumes, which resulted in our SDP bulk water costs being $89 million higher than IPART's allowance from 2020–21 to 2022–23. Correspondingly, we reduced our WNSW bulk water volumes, resulting in our WNSW bulk water costs being $55 million lower than IPART's allowance over the same timeframe.

In 2023–24, raw water quality at Warragamba Dam continued to remain poor but improved slightly compared to previous years. Around the same time, the release of the GSWS saw the role of SDP evolve, from one of 'drought response' to more flexible, full-time operation in line with the needs of the wider water supply system. On 1 July 2023, SDP formally commenced its flexible, full-time operational role, with a new Network Operator's Licence and IPART SDP Price Determination 2022–23. There were changes to SDP prices, including a 6.1 per cent increase in plant service charges, a 4.6 per cent reduction in pipeline service charges and a 24.3 per cent increase in water usage charges.

With raw water quality seeing slight improvements in 2023–24, we increased our WNSW bulk water volumes to 515 GL, incurring $230 million in 2023–24. Correspondingly, we reduced our SDP bulk water volumes to 36 GL. Despite this reduction, our SDP bulk water costs totalled $237 million, which is $21 million or about 10 per cent higher than IPART's allowance. This was largely due to the higher SDP plant service and usage charges set by IPART in the SDP Price Determination 2022–23.

Core operating expenditure

Our core opex covers the day-to-day operating, maintenance and administrative costs that we incur in delivering our services. It includes the costs of labour, materials, contractors and energy, as well as expenditure associated with the privately owned and operated water filtration plants under the build-own-operate (BOO) arrangement. **Table 7.3** summarises our core opex over 2020–25 and variance against the IPART Determination.

Table 7.3 Our core opex by item relative to the IPART Determination, over 2020–24 ($24–25, $million)

	2020-21	2021-22	2022-23	2023-24	2020-24 Total	2024-25
Labour (excluding employee provisions)	215	214	257	343	1,028	350
Employee provisions	62	47	67	90	265	91
External consultants and/or contract(or)s	360	340	276	333	1,309	304
Plant and Fleet (incl hire services and finance lease, excl BOO)	10	0	0	0	10	0
Build-own-operate (BOO) costs	117	114	117	116	465	128
Licence fees	17	21	25	14	77	16
Materials	56	41	79	54	230	58
Energy	56	57	56	60	230	81
Operating leases	39	35	33	35	142	42
Other	90	30	188	140	449	169
Corporate	212	296	139	60	708	36
Total core opex	**1,234**	**1,195**	**1,237**	**1,246**	**4,912**	**1,275**
IPART Determination	**1,258**	**1,266**	**1,236**	**1,221**	**4,982**	**-**
Variance	(24)	(71)	1	25	(70)	-

Labour (including employee provisions) and external contractors

Our labour and contractor costs include wages and salaries for our direct labour force, including any on-costs for leave and superannuation, and the costs of contractors and consultants (for example, data management contracting, and electrical and mechanical maintenance outsourcing) engaged through our procurement process.

Over 2020–24, our labour and contractor costs post-capitalisation totalled $2.6 billion, or 53 per cent of core opex. It is the largest share of our core opex compared to any other cost category. However, it was still 18 per cent lower than our labour and contractor costs during the 2016–20 determination period ($3.1 billion).

With the onset of the COVID-19 pandemic, our labour (including employee provisions) and contractor costs were lower than expected in the early part of the determination period. As our employees transitioned to working from home, we saw decreased training, administration and on-costs, leading to reductions in labour and employee provision costs. We also experienced delays across some of our non-urgent civil and mechanical/electrical maintenance work, as a result of movement restrictions and public lockdowns being in place from 2020 to 2022. In response, we had to defer and re-profile our maintenance workplans. These circumstances saw our labour and contractor costs range from $600 million to $637 million between 2020–21 and 2022–23.

Since then, our labour and contractor costs have gradually returned to pre-COVID-19 levels, totalling $766 million in 2023–24 with a similar cost of $746 million expected for 2024-25. This has in part been driven by higher salaries and wages and recruitment costs from a tighter labour market, following the end of the COVID-19 pandemic. It has also been driven by our revised maintenance workplans (discussed in more detail below).

Maintenance

As part of our approach to asset management, we consider a range of factors, including asset condition, operating environment, service standards, risk appetite, consequence of failure, lifecycle costs, and customer expectations. These inputs inform our infrastructure strategies, which are in turn critical to setting our maintenance workplans, repair or reactive work, and inspection and replacement volume forecasts at the beginning of each price period.

After our experience over the 2016-20 determination period, we have been committed to improving the resilience and performance of our water and wastewater networks. In 2020-21, we increased our planned and reactive maintenance work on our water and wastewater network, delivering more than 4,000 mains to meter jobs, 12,000 km of leak detection, and 20,002 breaks and leak repairs. Similarly, we increased our planned and reactive maintenance works on our wastewater network as part of the Environmental Improvement Program (EIP).[29] In 2020-21, we completed approximately 536 km of CCTV inspections and 36,593 manhole and asset inspections, as well as increasing our work on chokes and clean-ups to improve our performance against EPL conditions relating to chokes and dry weather wastewater overflow incidents.

With the onset of the COVID-19 pandemic, however, we were required to defer and re-profile our civil and mechanical/electrical maintenance workplans, as the NSW Government issued a series of public health orders imposing movement restrictions and public lockdowns. These orders, which lasted from 2020 to 2022, resulted in significant delays across our non-urgent civil and mechanical/electrical maintenance work and saw some of our completion rates of planned and reactive maintenance decrease over 2021-22. This was further exacerbated by La Niña conditions, which required resources to be further diverted to address wet weather and flooding events around the same time. As a result, we saw an increase in overdue and deferred maintenance during this time.

In water networks, this saw limited improvement in our performance in areas such as water continuity and leakage compared to the previous 2016-20 determination period. While we managed to comply with our water continuity standard in our *Operating Licence 2019-2024*, we came within only 1,700 to 2,600 properties of breaching the licence limits twice during the current period (2020-21 and 2022-23) after breaching the limit twice in the previous period (2018-19 and 2019-20). Our leakage performance also remained outside the economic level of leakage (ELL) band throughout the current period. Most recently, the volume of water lost from leaks and breaks in the drinking water system was 132 ML/day in 2023-24. This was only exacerbated with COVID-19 lockdowns limiting our ability to proactively find leaks and reducing customer-reported instances of visible leaks, and wet weather conditions making leaks difficult to distinguish from surface rainwater.

Similarly, across our wastewater networks and treatment plants, our performance in areas such as dry weather overflows and chokes has improved slightly but remains poor. While the number of non-compliant dry weather overflows has improved since peaking in 2020-21, we continue to face issues with returning to 100 per cent compliance. For the period between 2013-14 and 2022-23, we also had 58 wastewater system main chokes on average compared to the median of 23 for 15 major water utilities in Australia. The performance of our WRRFs has further remained outside EPL targets, with 66 non-compliant treatment plant bypasses and 73 load and concentration non-compliances during the current period. Our water and wastewater network performance and these issues are discussed in more detail in **Chapter 3**.

As the COVID-19 pandemic has come to an end and public health orders have been lifted, we have since revised our maintenance workplans to reinstate the work required to improve the resilience and performance of our water and wastewater networks identified from the previous 2016-20 determination period. This has seen a gradual increase in our planned and reactive maintenance work again across both our water and wastewater networks. For example, our planned leak detection on our water network has increased from 6,578 km in 2021-22 to 18,108 km in 2022-23 and 16,095 km for 2023-24, and our root-cutting program has increased from 529 km in 2021-22 to 827km in 2022-23 and 659 in 2023-34.

We expect that this uplift in maintenance will be required in the 2024-25 gap year and to be sustained throughout the next 2025-30 determination period. Despite these challenges, we recognise the importance of delivering this uplift in maintenance and are committed to completing greater maintenance until the end of the current and next determination periods to ensure the resilience and performance of our water and wastewater networks for our customers.

[29] With drought breaking in early 2020, we re-prioitised some of our maintenance expenditure from our water network to our wastewater network to help improve our poor dry weather overflow performance at the time.

Licence fees

Our licence fees are composed of fees payable to the NSW EPA under our EPLs, including plant load-based licensing (LBL) fees, network fees and administration fees. In particular, the plant LBL fee depends on the efficiency of pollutant treatment at our water resource recovery facilities (WRRFs), while the network fee is dependent on dry and wet weather overflow performance.

In 2021-22 and 2022-23, our licence fee costs were slightly higher at $21 million and $25 million, respectively. Extreme wet weather events during these two years, driven by La Niña conditions, caused our load limits to be quickly exceeded and resulted in poorer wet weather overflow performance. This caused higher than expected plant LBL and network fees.

Materials

We use chemicals across our water and wastewater network and treatment plants, as well as pipes, fittings and other materials in our maintenance programs. Chemicals typically make up the largest share of our material costs, with prices often strongly influenced by energy prices due to an energy-intensive manufacturing process. Poor raw water quality also increases chemical costs in water treatment and filtration plants.

Over 2020-24, our material costs totalled $230 million and made up about 5 per cent of our core opex. This was 24 per cent higher than our material costs of $185 million over the last determination period. In the early part of the determination period, this was largely due to poor raw water quality issues at Warragamba Dam, arising from a combination of La Niña conditions and drought and bushfires from the last 2016-20 determination period. The quality of raw water supplied to our water filtration plants was well outside the design limits of those facilities and we were required to increase our chemical coagulants and flocculants in the process to treat this raw water. This saw our material costs equate to $56 million in 2020-21.

Following the COVID-19 pandemic, there were further disruptions in global supply chains resulting in upward pressures on prices and a global energy crisis, exacerbated by the Russian-Ukraine conflict. This resulted in high volatility in chemical prices and increases throughout 2022 and the early part of 2023. Prices for some chemicals rose by as much as 65 per cent, strongly influenced by cost increases in energy inputs and supply chain disruptions. Other materials used in our maintenance program, such as pipes and fittings, as well as consumables, such as gloves, masks and sanitisers also rose in price during this time.

This was in line with the experience of the broader market. Work done by Oxford Economics found that basic chemical manufacturing prices rose by 8 per cent in 2021-22 and a further 40 per cent in 2022-23 (in nominal terms), due to the Russia-Ukraine conflict driving up energy commodity prices (including gas). Steel beams and sections prices rose by 31 per cent in 2021-22 and a further 5% in 2022-23, while steel pipe and tube prices increased by 42 per cent in 2021-22 and 6 per cent in 2022-23. Polyethylene pipe prices also rose by 16 per cent in 2021-22 and 4% in 2022-23.

In 2022-23, our material costs reached a peak of $79 million. As energy and chemical prices have begun to ‘correct’ in market and return to pre-COVID-19 levels, our material costs have reduced to $54 million in 2023-24. We expect that our material costs will remain similar for 2024-25 at $58 million.

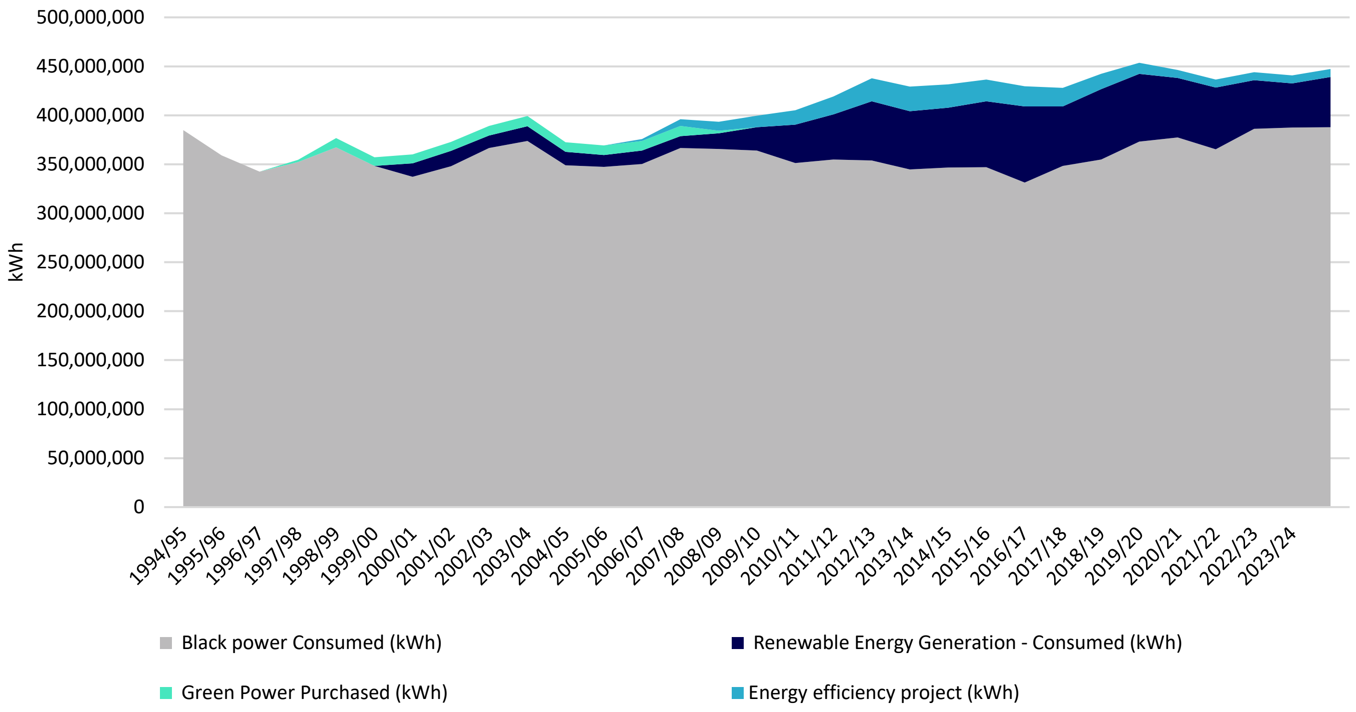
Energy

Energy plays a critical part in our operations, with electricity being our primary energy source over gas and other fuels. We use electricity for water and wastewater treatment processes and at our pumping stations, for the delivery of water. This is sourced from a combination of purchases from the grid, as well as self-generation through our hydro, solar and co-generation assets. In 2023–24, our grid electricity consumption was 386 GWh, slightly above our previous internal target to be in line with our 1998 usage of 366 GWh. In the same year, our on-site renewable energy generation (59 GWh) was equivalent to 13 per cent of our total energy consumption.

Over 2020-24, our energy costs totalled $230 million or about 5% of our core opex. In line with our previous internal target to achieve our 1998 usage, our annual grid consumption has been relatively stable across the period, averaging about 387 GWh of electricity to pump and treat water and wastewater across 1,200 sites. Through our electricity procurement strategy, which focusses on load savings and limiting our exposure to changes in the short-term electricity market through hedging, we were further able to ensure our energy costs remained stable ranging between $56 to $60 million each year. This was so despite the market experiencing volatile wholesale electricity prices and network costs throughout the period, impacted by a global energy crisis and geopolitical tensions.

In 2024-25, we are expecting our energy costs to total $81 million. This increase has mainly been driven by higher rates both in the wholesale forward market and network tariff price rises. As we move into the next determination period, we expect these costs may stabilise with the grid transition to renewables.

Figure 7.2 Our energy usage by source, 1995 to 2024



Corporate

Our corporate costs cover a range of general management and administrative costs, such as finance, human resources and some of our digital costs. Over 2020-24, these costs totalled $707 million and made up about 14% of our total regulatory opex.

With the onset of the COVID-19 pandemic in 2020, we saw some increases in our corporate costs in the earlier part of the current period. This included an additional $829,994 in digital costs over 2020 to enable remote working capability across our business (including an uplift in infrastructure and an increase in licences and laptop hardware supplies), and to ensure we maintained customer experience for our customers in financial need through changes to our billing application. We also incurred higher customer support costs throughout the COVID-19 pandemic, as we increased financial support and bill assistance to customers impacted by job losses, and carried out campaigns to further promote support available to our customers. While our customer support costs have decreased more recently, they remain high as customers continue to require assistance due to cost-of-living pressures, driven by higher inflation and interest rates.

In addition to the COVID-19 pandemic, there were also changes in government policy, which resulted in further variations in some of our digital costs. We had initially planned to transition data storage from our Tier 1 data centres into the NSW Government's then-Tier 4 data centre, GovDC, at a cost of approximately $10 million p.a. over the current period. Due to legislative changes and a move in Department of Customer Services (DCS) policy away from Government Data Centres to Private Data Centres and then again to Public Cloud First, we had to shift our approach to a hybrid-cloud policy for the hosting of our digital infrastructure. This resulted in a review of our Government Data Centre (DC) relocation program, where we had to defer our planned expenditure and re-prioritise it towards Public Cloud leveraging about $1 million per year of opex during the period.

Achieving our efficiency targets

Over 2020-24, we saved a total of $137 million in operating expenditure for our customers, which equates to an efficiency factor of two per cent. This was achieved largely through the following initiatives:

- BxP, our SAP-based enterprise resource planning platform, which replaced our previous financial management and procurement system to provide an integrated, enterprise-wide view of our main business processes. This delivered around $50 million in savings in inventory, procurement, software and other corporate costs over 2020-24,
- Business Connect, which consolidated a range of our internal business processes and activities into a single area, through organisation design changes and the creation of shared service functions. This delivered more than $3 million in total savings over 2020-24,
- Our Digital Customer Platform (DCP), which replaced our previous Sydney Water website and introduced campaign management, analytics, and a self-service ‘My Account’ capability. In addition to helping us meet our ‘every time’ customer promise of being proactive and easy to deal with, DCP has also delivered almost $1 million in savings in 2023-24 in reduced banking fees, lower postage costs, and decreased call volumes through the creation of the MyAccount portal on our website. We anticipate that DCP will continue to deliver savings over the next 2025-30 period,
- Our Production Improvement Program, which saw the successful implementation of treatment plant restructure and a reduction in labour costs of $65 million in total over 2020-24 compared to our initial target of $61 million,
- The re-organisation of our networks business, which reduced management overheads and has been delivering a saving of $3.2 million p.a. since 2020, and
- Re-balancing our workforce through our civil operating model, which has enabled us to achieve an additional $1.3 million in cost savings each year since 2020.

These savings are embedded in our base year (discussed in further in this chapter), ensuring this proposal starts from an efficient base. Further in this chapter we also propose additional operating efficiencies for the 2025–30 period, building upon the transformational changes occurring at Sydney Water as we enter a period with high demand for capital expenditure and we focus on ways to manage bill impacts for our customers.

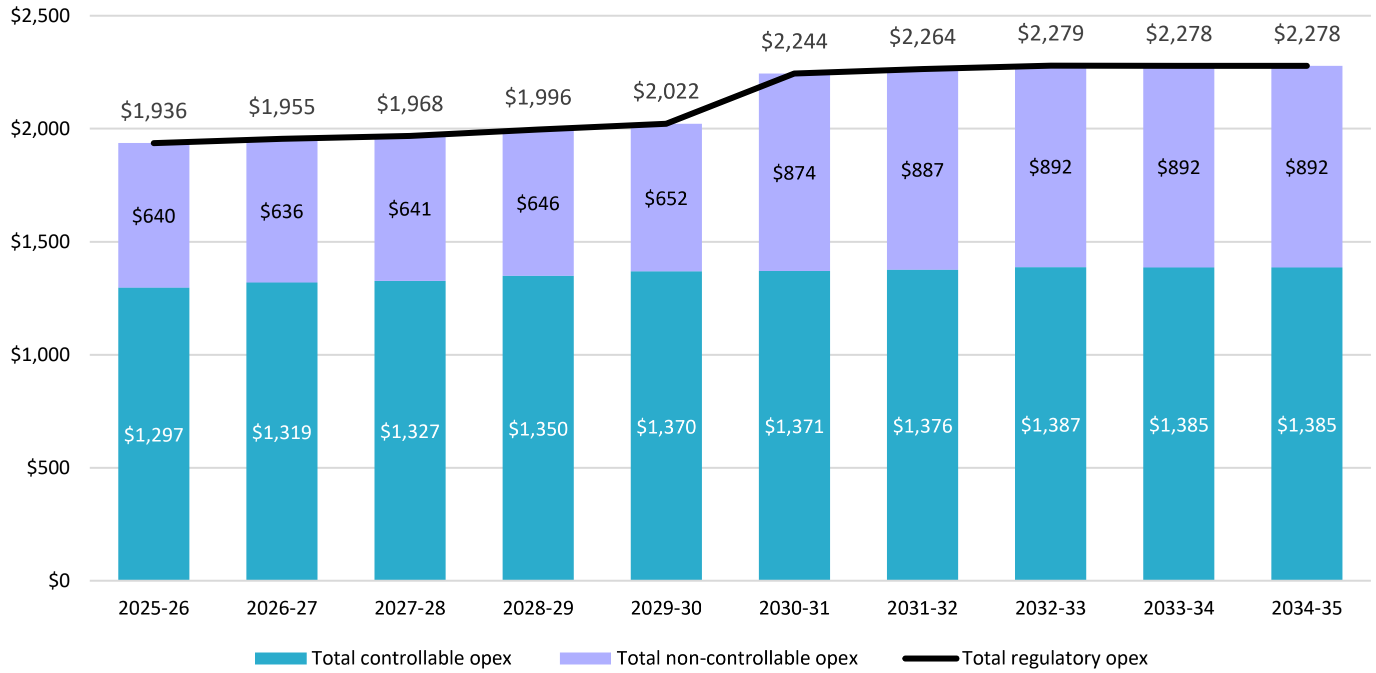
Forecast opex over 2025–35

Over 2025–30, we forecast spend approximately $10 billion in total operating expenditure. From 2030–35, we expect to spend a further $11 billion in total regulatory opex. This means we are expecting to invest a total of $21 billion in operating expenditure over the next 10 years.

Of this $21 billion in total regulatory opex, we forecast spending:

- controllable opex of $14 billion across the 10 years, which includes $7 billion over 2025-30 and a further $7 billion over 2030-35. These are costs which can be directly or indirectly influenced by our operational decisions, and make up just under two thirds (64 per cent) of total regulatory opex.
- non-controllable opex of $8 billion over the 10 years, which includes $3 billion over 2025-30 and further $4 billion over 2030-35. This covers bulk water costs, licence fees, council rates and land tax, which are outside of our control, and makes up over a third (36 per cent) of our total regulatory opex.

Figure 7.3 Forecast total regulatory opex by controllable and non-controllable costs, 2025–35 ($24–25, $million)



Compared to the current 2020–24 determination period, our total regulatory opex over the next five years represents an average 16 per cent increase in our annual operating expenditure. Over the next 10 years, it is an average 25 per cent increase in our annual operating expenditure over the current 2020–24 determination period.

In line with IPART's 3Cs framework, we have applied a base-trend-step (BTS) approach to our forecast operating expenditure over 2025–30. The main drivers behind this higher forecast operating expenditure include:

- Our bulk water costs are increasing, with our annual WaterNSW bulk water costs set to increase by more than 40 per cent compared to 2020–24.
- To facilitate the NSW Government's growth ambitions, we are investing more than $20 billion in capex over 2025–35. This will require greater operational costs, higher energy and material costs, and increased customer support and billing, resulting in an additional $1 billion in opex over the next 10 years.
- Higher costs to meet new or changing regulatory requirements, support customer outcomes and reflect changes in the relationship between capex and opex. This includes meeting new requirements under our Operating Licence 2024-2028 and changing water quality and environmental requirements from NSW Health and EPA. It also includes the costs of supporting customer outcomes and priorities around water quality and reliability, and environmental protection; and maintaining our current service level performance into the future; and changes to our operating costs from enhancements to our digitalisation landscape.

We recognise that this is an uplift in expenditure and have challenged our business to identify efficiencies over the next period opex. For this reason, we have included an 0.7 per cent per year efficiency target on our controllable costs, which will generate some $179 million in savings for customers over 2025–30.

Over and above our 0.7 per cent p.a. efficiency target, we are also proposing a business-wide efficiency stretch target of $413 million in total across 2025–30. This as a one-off additional efficiency stretch target, we are specifically proposing as a measure to improve affordability for our customers.

Table 7.4 provides a further breakdown our forecast total regulatory opex over 2025–35, by service and by controllable and non-controllable costs.

Table 7.4 Forecast total regulatory opex by service, over 2025–35 ($24–25, $millions)

Service	Type	2025–26	2026–27	2027–28	2028–29	2029–30	Total
Water	Controllable	496	501	501	506	511	2,514
	Non-controllable	610	605	608	612	615	3,050
	Total	**1,105**	**1,106**	**1,110**	**1,117**	**1,125**	**5,564**
Wastewater	Controllable	545	565	571	591	602	2,873
	Non-controllable	29	30	32	34	37	163
	Total	**574**	**595**	**603**	**625**	**639**	**3,036**
Stormwater	Controllable	19	19	19	19	19	95
	Non-controllable	0	1	1	1	1	3
	Total	**19**	**19**	**19**	**20**	**20**	**98**
Corporate	Controllable	238	235	236	234	238	1180
	Non-controllable	-	-	-	-	-	-
	Total	**238**	**235**	**236**	**234**	**238**	**1180**
Total opex		**1,936**	**1,954**	**1,968**	**1,996**	**2,022**	**9,877**

Delivering customer outcomes

Our key operational expenditure over the next decade will help to deliver our customers' priorities. The activities listed below are informed by our **Strategic Investment Plans** (Chapter 2) and are required to achieve our customer outcomes and objectives.

Customer experience

We aim to deliver a positive customer experience and seek to keep our services affordable. We will continue our operations and services supported by our technology platforms to manage our customer experience and interactions. Our 10-year operational expenditure plan relating to customer experience includes:

- $499 million on **read to cash** to support customer experience including meter reading, billing process, payment and hardship administration
- $394 million on **retail services** to support customer experience including customer contact, developer services and key accounts management
- $348 million on **digital opex** to support implementation of customer experience, developer transformation etc
- $150 million on **maintenance of stormwater drainage systems** to ensure communities are safe, properties are protected, whilst satisfying the environmental and quality expectations, in alignment with the needs of local communities
- $288 million on **customer and community education and engagement**, including continued customer engagement and research; educating the community on the value of water through advertising and digital media campaigns; school education programs and provision of tours of purified recycled water (PRW) plants; and continuing to inform and engage with customers and stakeholders on infrastructure projects.

Water quality and reliability

As Sydney's population and cities grow, the consequences of water supply failure increase. A safe and secure supply of water is essential for Greater Sydney to grow and prosper. Our customers identified safe and clean water as the top priority throughout our engagement. The uplift in operational expenditure over the next 10 years will support rising bulk water costs and growth, and improve asset and service performance through increased investment in maintenance to ensure a safe and secure water supply. Key programs and projects include:

- $523 million on **operations and maintenance of water filtration plants** including energy, chemicals, sludge disposal, and tactical asset management including **incremental water treatment operations** costs from pre-treatment upgrades to sustain the reliability and supply of safe and clean drinking water
- $1,281 million on **build-own-operate plants** water filtration costs
- $1,499 million on **operations and maintenance of water network (watermains, pumpstations, reservoirs)** including energy, chemicals and asset management, with a focus on maintaining reliability where customer impact is greatest (excluding leak reduction program). This includes **incremental water network operations** costs from providing water
- $100 million on **enhanced water efficiency** including Water Fix program helping our customers take greater control of their water usage and lowering bills through education and water efficiency programs such as WaterFix® Residential, Strata and non-residential (WaterFix Commercial and Schools) and monitoring programs e.g. to locate water leaks
- $303 million on **leak reduction program**, including proactive/active leak detection inspection and minor preventative maintenance, improved leak response times and water network pressure management (excluding other water network operations and maintenance)
- $203 million on **digital opex** to **improve the monitoring** of our network to maintain services to customers and better manage the impact of outages and other operational costs to support digital technology.

Environmental protection

Improving waterway health, reducing pollution, recovering resources and enhancing environmental performance are customer priorities and core elements of the Sydney Water Act, our environmental regulations and our operating licence. The uplift in operational expenditure over the next 10 years is required to meet these requirements and our customers' expectations to protect the environment and improve waterway health. Key programs and projects include:

- $2,493 million on **operations and maintenance of water resource recovery facilities** including energy, chemicals and asset management. This includes incremental wastewater treatment costs from new or augmented facilities.

- $1,969 million on **operations and maintenance of wastewater network (including critical sewers, reticulation, pump stations)** with a focus on prioritising effort where environmental risk is greatest, including incremental wastewater network operations costs from providing wastewater services to new developments across each of the growth areas via new or augmented wastewater network assets.
- $232 million on **maintenance of stormwater natural assets** including wetlands, riparian land and new stormwater at Mamre Road and Aerotropolis precincts
- $100 on completing our **Net Zero carbon program**, including renewable energy facilities operations and maintenance,
- $65 million on a range of offset activities to improve waterway health under the new **Hawkesbury-Nepean Nutrient Management Framework** (HNNMF).

Enabling customer outcomes

Supporting our three customer outcomes, we have two organisational enablers for Sydney Water outlining 'how' we will enable our business to deliver our customer outcomes. Our people are the single most important enabler in our vision for the potential future for Sydney Water, designing how we will build and deliver our aspirations, and delivering services to the communities we support and our strategic outcome – **Accountable, Agile, Innovative Culture** – which is critical to our success. Engagement with our stakeholders confirmed the expectation that we are a financially and socially responsible business. Our strategic outcome – **Successful and Sustainable Business** – lays the foundation for providing a positive influence in the sector and communities we serve. Key programs and projects to deliver these customer outcomes include:

- $343 million on **human resources services** including payroll and occupational health and safety
- $551 million on **finance services** including procurement, accounting services, corporate governance services
- $317 million on **innovation and research**, **continual improvement and training** services (note this may include some opex for unregulated activities that will not be included in the total opex)
- $290 million on **property management and fleet** (excluding rents, rates and land tax).

Applying a base-trend-step approach

As part of IPART's requirements, we have applied a top-down BTS approach to our forecast opex for 2025–35. This includes determining a baseline level of opex, reflecting the efficient and recurring costs of providing our services, and identifying key trend and step changes in our forecast costs for the determination period.

We note that our BTS approach has been applied in parallel, with our usual annual bottom-up budgeting process, which is based around a value chain framework for our water, wastewater and stormwater services.

The baseline, trend and step components that make up our forecast opex for the coming regulatory period are summarised in **Figure 7.4**, which illustrates the building blocks for the forecast. These include:

- establishing the baseline opex by including only controllable and recurring costs, and applying adjustments to normalise expenditure in our base year (in this case 2023–24) to ensure it reflects our efficient costs incurred in a 'typical year'
- identifying trends that can be reasonably foreseen to impact opex in a regular way into the forecast years, including growth, real input price changes and efficiencies
- identifying expected step changes in the forecast period, based on upcoming changes to regulatory obligations or ways of working that will improve customer outcomes
- identifying non-controllable and/or non-recurrent opex costs that are expected to be incurred in the forecast period.

We discuss our BTS methodology in more detail in the following sections.

Figure 7.4 Our forecast total regulatory opex by BTS over 2025–35 ($24–25, $million)

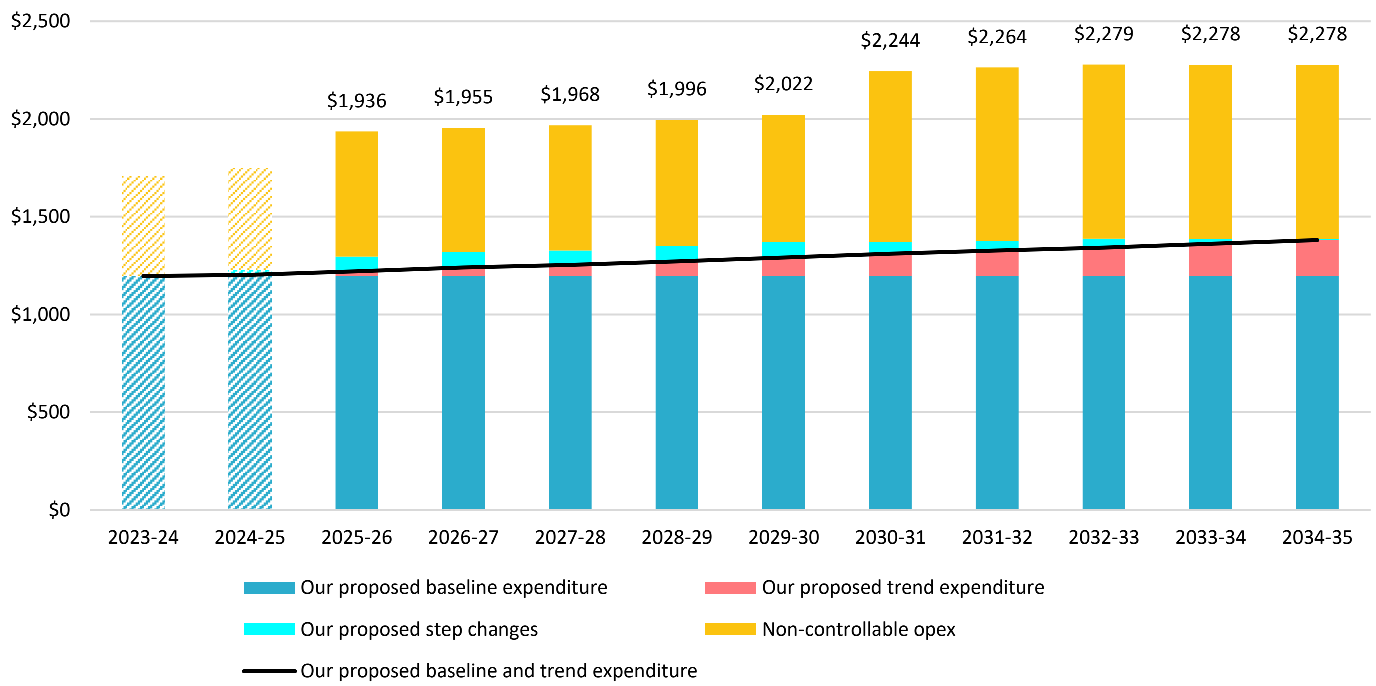
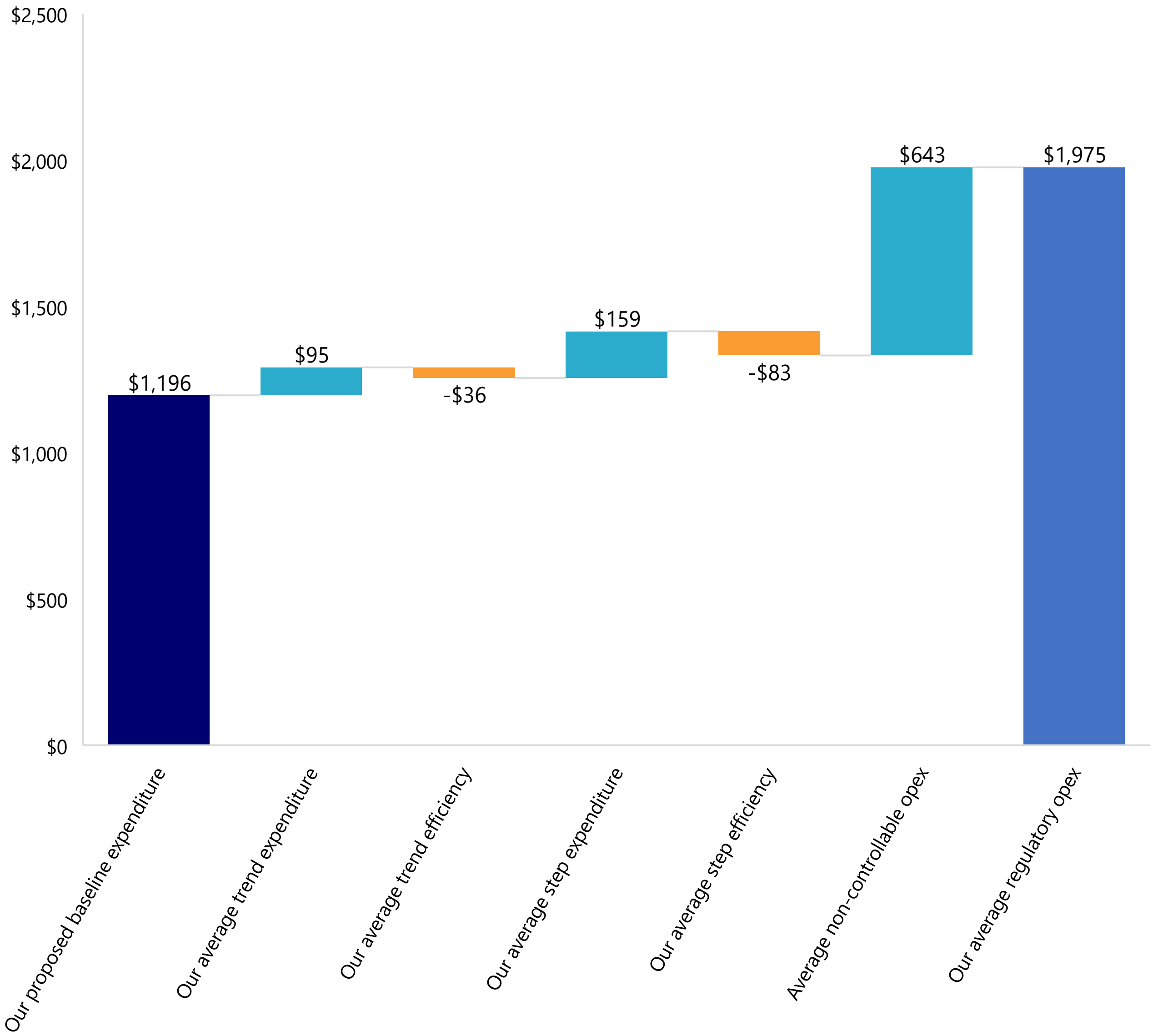


Figure 7.5 Our average annual forecast opex by BTS over 2025–30 ($24–25, $million)



Our proposed baseline operating expenditure

Our proposed baseline operating expenditure reflects the ongoing, efficient level of costs needed to provide our services in a stationary operating environment. Alignment with the more varied changes we expect in our operating environment are reflected in trend and step changes to our baseline, discussed further below.

In determining our baseline operating expenditure, we have:

- used financial year 2023–24 as our base year, with actual total regulatory opex incurred up to March 2024 and forecasts for April to June 2024[30]
- included only controllable costs and removed any non-controllable expenditure items, such as our bulk water purchases and licence fees

30 We have included a base year adjustment line item in our AIR-SIR to adjust for the difference between our 2023-24 forecast and 2023-24 actuals.

- made adjustments to our operating expenditure for 2023–24 to reflect recurring expenditure (that is, by deducting any one-off or non-recurring expenditure items incurred in the base year or adding normally occurring items that were not incurred in the base year) and to account for any additional cost savings or efficiency improvements expected or committed to in the final years of the current determination period.

Each of these exercises are discussed in more detail further below.

In total, our controllable operating expenditure for 2023–24 was $1,204 million across all our services and corporate. We have made adjustments of about $7 million and are proposing a baseline operating expenditure of $1,196 million. We consider that our proposed baseline expenditure reflects the typical, efficient operating cost of delivering water, wastewater and stormwater services to our customers. This is supported by our opex benchmarking analysis presented later in **Chapter 7**, which shows that we are operating at a relatively efficient level, within a reasonable range relative to other utilities in Australia.

Water conservation

Our water conservation program is included in our proposed baseline expenditure of $1,196 million. Over 2025-30, we are proposing opex of around $50 million for water efficiency, program governance and innovation within this baseline expenditure. Additional opex for leak management activities, such as active leak detection and reactive maintenance, also contributes to our water conservation outcomes. Some of the expenditure for our leak management activities, over and above our baseline expenditure, have been included as part of our proposed step change to uplift maintenance over 2025-30.

More broadly, water conservation will also be supported through other business activities, such as digital metering, FLOW, pricing tariffs, and recycled water investment. We will also be making contributions into the Climate Change Fund (CCF) to support DCCEEW in enabling and implementing water conservation activities across Greater Sydney.

Water conservation plays an important role in meeting our customer expectations and supporting the implementation of the Greater Sydney Water Strategy (GSWS) and our Long-Term Capital and Operational Plan by making our drinking water supply go further. By ‘using what we have better’ we may delay the timing of investment in new large-scale drinking water supply sources like desalination, improve our resilience to supply constraints and help to manage affordability of our services.

Our water conservation activities will enable the community, and ourselves, to save water under all weather conditions through the delivery of a diverse program of water efficiency, leak reduction and recycled water activities.

We have developed a *Water Conservation Plan* that has the capability to deliver to the aspirations of the GSWS, in particular its water efficiency targets, and the expectations of our customers and our *Operating Licence 2024-2028* requirements. We will continuously monitor, review and adapt our program and forward plan to reflect lessons learnt, changing circumstances and ensure that it continues to deliver value for our customers and the Greater Sydney community.

Base year

We have used financial year 2023–24 as our base year, in line with IPART's *Water Regulation Handbook,* which identifies the second last year of the current determination period as the preferred base year for determining baseline operating expenditure.

At the time of writing this Price Proposal, we used our most recent and best available financial data for 2023–24. This is our March 2024 quarter forecast operating expenditure, which includes nine months of actual total regulatory opex, incurred from July 2023 to March 2024, and three months of forecast, from April through to June 2024.

Controllable costs

Our proposed baseline operating expenditure includes costs which we consider to be controllable. Controllable costs are costs that can be directly or indirectly influenced by our operational decisions. This includes costs which we have some degree of control over, even though they might also depend on external market conditions such as labour, energy, materials and external consultants and/or contractors.

As such, we have excluded any non-controllable costs from our proposed baseline expenditure. These costs include:

- our bulk water purchases from WaterNSW and Sydney Desalination Plant (SDP), which are subject to separate IPART pricing determinations and therefore non-controllable
- our EPL licence fees, which are also non-controllable
- council rates and land tax for our existing land and properties.

We have provided a separate forecast for each of these non-controllable items later in **Chapter 7**.

Baseline adjustments and efficiencies

In order to ensure that our actual expenditure incurred in our base year of 2023–24 is representative of the efficient and recurring costs of providing our services in a typical year, we have made a number of adjustments. These adjustments included:

- deducting any extraordinary items that were included in the base year
- adding on any normally occurring items that were not incurred in the base year
- removing any non-recurrent costs incurred in the 2023–24 base year that will not be incurred in each year of the next period
- reflecting some minor accounting adjustments
- ensuring realised efficiencies are embedded in the base year where they are not one-off savings.

With respect to extraordinary items, we deducted a one-off 'cost of living' payment we made to support our employees in late 2023, and another one-off cost to update our employees' Cat2 uniforms in line with safety policy changes.

We have also added back on some labour costs for a number of vacant backfill positions, which we expect to be filled within the coming year and to bring us back down to our assumed long-term vacancy rate of 2.5 per cent of full-time employee (FTE) headcount. This includes a handful of positions in our Water Supply and Production, Laboratory Services and Innovation and Product Development teams. We have also made a small number of adjustments.

There were no material non-recurrent costs in the 2023–24 base year that would not be incurred in future years, so no further adjustments were made.

With respect to realised efficiencies, we note in our last price proposal we targeted operating cost efficiencies of $83 million, including $49 million from our Production Improvement Program, $11 million from Business Connect, $14 million from supply chain efficiencies, $5 million re-organisation of our networks business, and $4 million of labour cost savings from changes to our civil operating model. We have been able to deliver most of these initiatives, alongside some other initiatives, to deliver a total saving of $137 million over 2020-24. These efficiencies are embedded in our proposed baseline opex.

Table 7.5 summarises our proposed baseline expenditure and these adjustments, by service and corporate.

Table 7.5 Proposed baseline expenditure and these adjustments, by service and corporate ($24-25, $millions)

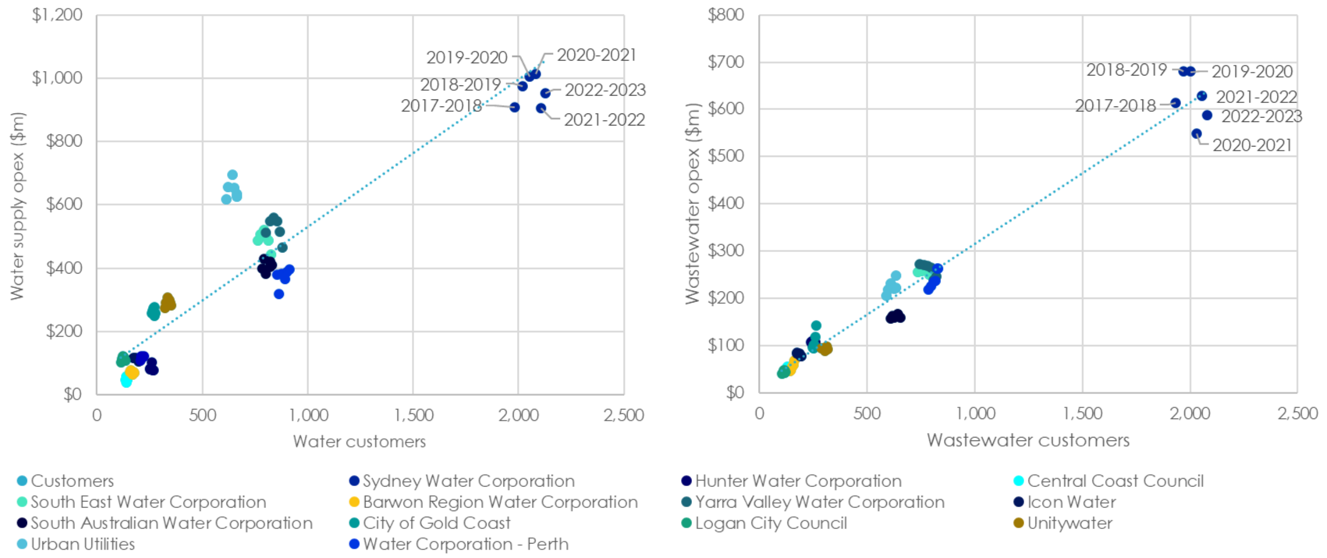
Service	Proposed baseline expenditure	Adjustments	Rationale
Water	458	(5)	• Cost of living payment • Labour vacancies • Adjustment for FY24 Actuals
Wastewater	499	(4)	• Cost of living payment • Cat2 uniform costs from safety policy changes • Labour vacancies • Prior year credits • Adjustment for FY24 Actuals
Stormwater	16	0	• Adjustment for FY24 Actuals
Corporate	223	1	• Labour vacancies • Adjustment for FY24 Actuals

Benchmarking

Despite the challenging circumstances in the current period, benchmarking shows that Sydney Water's operating expenditures are relatively efficient compared to our peers.

Based on the size of our customer base, our recent operating costs appear to be in line with other Australian utilities. In **Figure 7.6**, we benchmark our operating expenditure performance against our peer group of water and wastewater utilities. On water supply, our annual operating expenditures since 2017–18 was below averages of our industry peers, controlling for the number of customers through a line of best fit. This suggests that we were relatively efficient on a per customer basis. For wastewater services, our annual operating expenditures were more varied. Prior to 2020–21, our wastewater operating costs were above our peers' average for our number of customers. Since then, our wastewater operating costs have been better than this benchmark.

Figure 7.6 Opex by number of customers



Source: Bureau of Meteorology (2023), National performance report 2022–23, Sydney Water analysis.

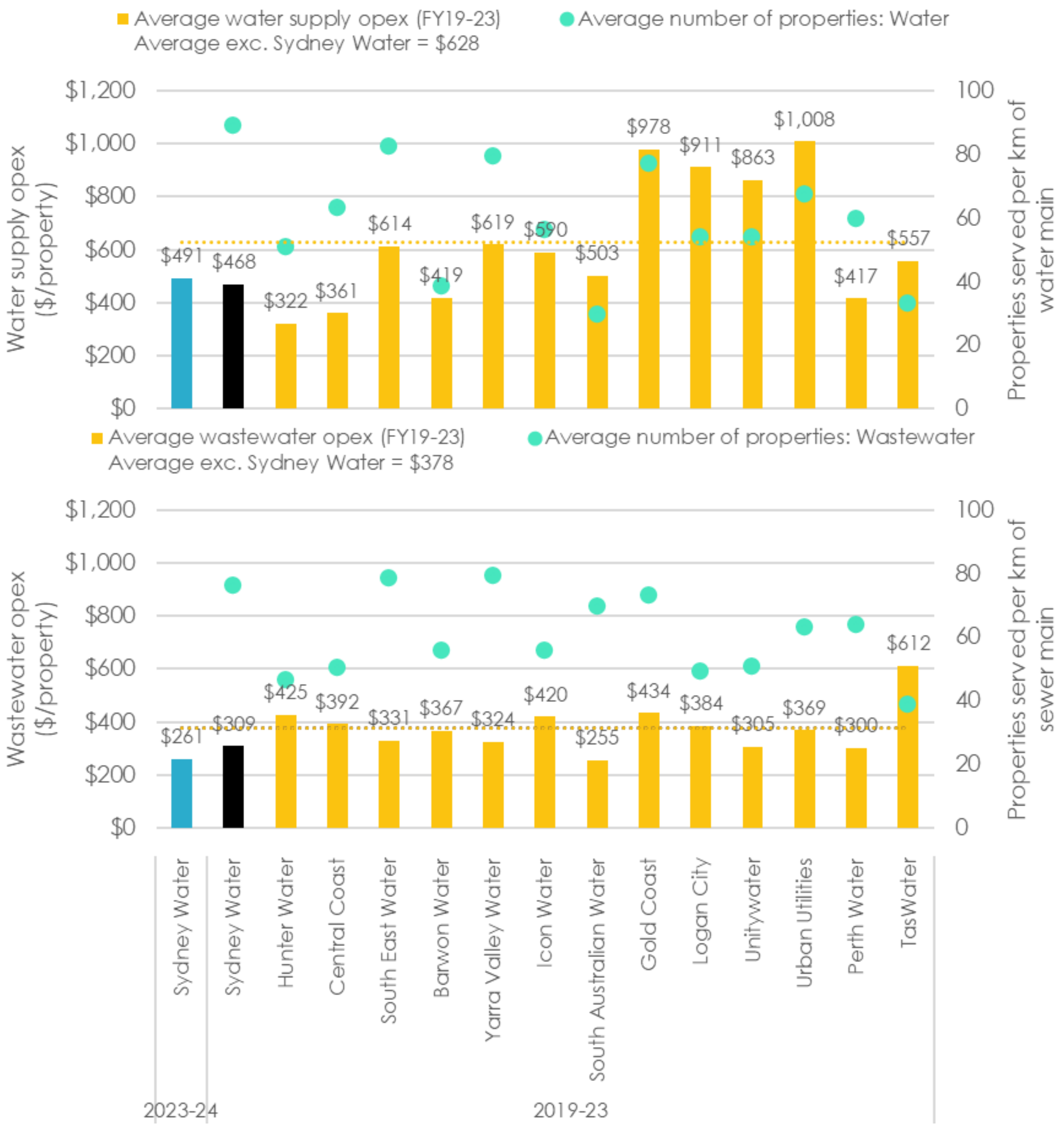
These conclusions are similarly illustrated by **Figure 7.7**. In this figure, we compare the 2017–23 average opex per property and density of customer bases (proxied by the number of water and wastewater customers per km of water and sewer mains respectively) between Sydney Water and our peers.

For water services, our operating cost per property between 2017 and 2023 was around $468. In comparison, our peers' average operating cost per property over the same period was around $628. We also include a forecast of our 2023–24 opex per property (actual water, s16A recycled water, and allocated corporate opex based on forecast 2024 financial year-end customer numbers). While we have a moderate uplift in opex per property to $491, this is still below the 2022–23 peer average. This reflects how the base year in our base-trend-step analysis is at least comparable to our peers.

For wastewater, our operating cost per property is among the lowest of our peers ($309 compared to an average of $343). Similar to water, our forecast of wastewater opex per property in our base year is comparable to our peers. Compared to our 2022–23 $309 per property, we forecast our wastewater opex in 2023–24 to fall to $261 per property.

This benchmarking exercise, discussed in more detail in *Benchmarking report for water and wastewater operating expenditure*, demonstrates that our operating expenditure base year for this pricing proposal is an efficient base to forecast from.

Figure 7.7 Benchmarking report for water and wastewater operating expenditure

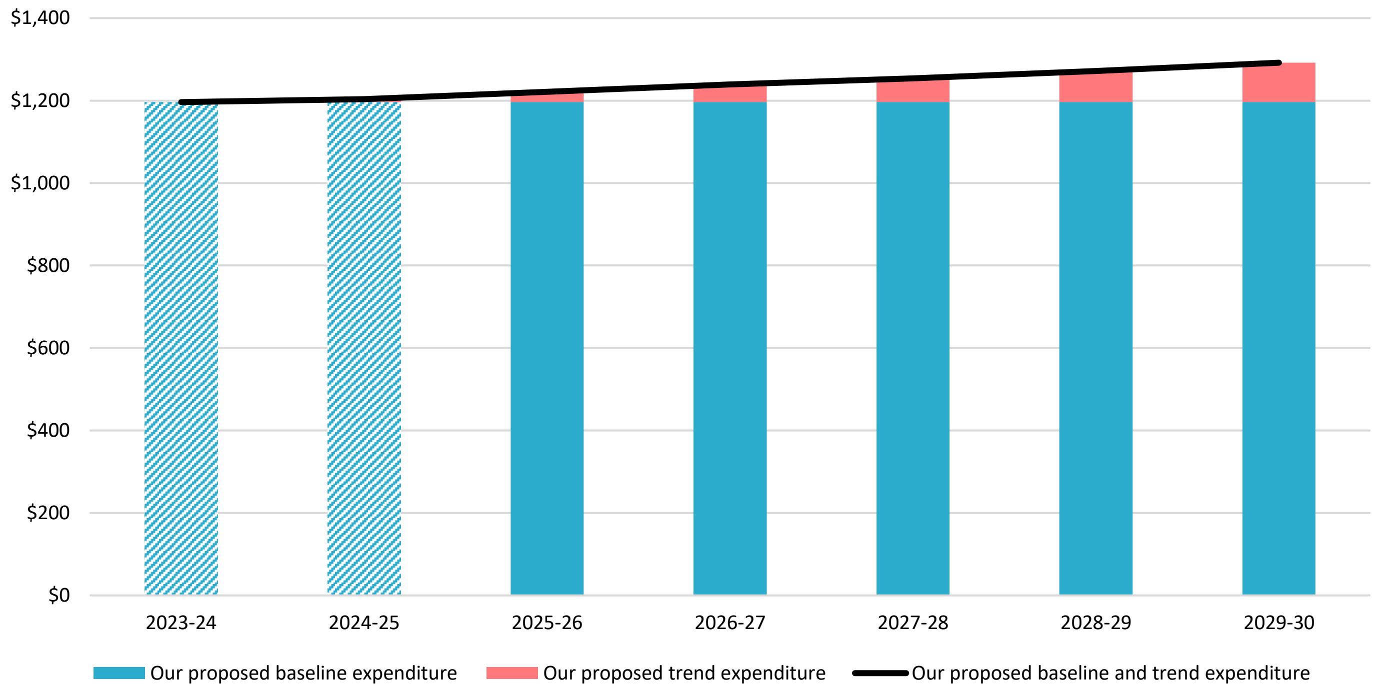


Our proposed trend

Trend expenditure refers to predictable variations in expenditure over time due to known factors such as demand growth or inflation. Following IPART's methodology, we have considered growth, real input price escalation and future efficiencies as relevant trends, with assumed rates of change over the forecast period.

Our identified trends include increases in opex related to both growth and real input price escalation, partially offset by efficiencies, resulting in an opex trend profile of between $25 to $96 million each year over 2025-30. We describe our approach in more detail below.

Figure 7.8 Our proposed trend expenditure over 2025–30 ($24–25, $millions)



In addition to using IPART's top-down methodology to forecast our trend expenditure over the next 5 years, we have also developed a bottom-up forecast of all our growth-related operating expenditure to validate the outputs of the top-down forecast, and to ensure that the business can deliver the outputs of the forecast at a business group-level.

We estimate that we require between $49 million to $117 million each year, over 2025-30. For water, this includes $141 million over 2025-30 in increased BOO costs, greater maintenance to keep up with growth at our water treatment plants and on networks, higher energy and chemicals costs to treat and deliver greater volumes of water and additional labour full-time employees (FTEs) for customer support and billing. Similarly for wastewater, we have estimated we will require an additional $264 million in total regulatory opex over 2025-30 to support our major projects in Upper South Creek, Greater Parramatta and Olympic Peninsula (GPOP), and Bingara Gorge, and growth hubs in areas such as North Head, Blue Mountains and Malabar. This includes greater maintenance to keep up with growth on our wastewater networks and water resource recovery facilities, higher energy, chemicals and biosolids costs to treat wastewater and additional labour FTEs for customer support and billing. In stormwater, we anticipate some smaller additional costs for customer support and billing. At the same time, we have also identified a range of efficiencies over 2025-30, including our FLOW program, People Experience Platform (PxP), and Smart Metering.

We consider that our proposed trend expenditure of between $25 to $96 million each year over 2025-30, using IPART's top-down methodology, is sufficient to cover our additional growth-related costs, after taking into account some of our proposed efficiencies.

The cost of growth

Greater Sydney is one of the fastest-growing cities in Australia, with the population set to reach 8 million over the next 40 years.[31] In 2023, the estimated population in Greater Sydney grew by 146,700 people or 2.8 per cent to 5,450,496 people.[32]

Water plays a vital role in a growing city, and we support growth by ensuring that there is essential water, wastewater and some stormwater services available to new customers. In particular, we service new growth areas by installing new networks and upgrading existing infrastructure as appropriate.

Supporting growth means that there are additional operating costs for water and wastewater networks, particularly in:

- chemical costs – as there is more water and wastewater that needs to be treated
- electricity (supply) costs – to pump more water to additional customer locations or more wastewater for disposal across a greater network
- repair and maintenance costs – to respond to a greater incidence of failures across a greater water and wastewater network
- biosolids – additional contractors required to deal with transport and disposal of biosolids across a greater wastewater network.

Since 2008, we have been committed to absorbing any additional maintenance opex created by growth. This accounts for supplying almost 1 million more people across Greater Sydney. We committed to absorbing this growth-related maintenance for the benefit of our customers, to ensure that our customers would not take on the risk of these costs should growth not eventuate.

Over the 2008–12 determination period, there were 75,000 new customer connections, serving an additional 250,000 people. We absorbed all the maintenance costs of this growth.

> ‘*In addition to the above efficiency savings, Sydney Water has absorbed the operating costs of system growth to service an increase in the customer base (…) forecasts for the four years to 2011–12 did not make provision for the additional costs of operating and maintaining new assets installed to extend water and wastewater systems*.’

Sydney Water | Submission to IPART 2012 Pricing Determination (p 47)

Over the 2012–16 determination period, there were 87,000 new connections, serving an additional 284,000 customers. Again, we absorbed all the maintenance costs of this growth.

> ‘*Sydney Water will absorb all growth related costs or maintenance backlog costs apart from (…) chemicals, energy and Sydney Desalination Plant increases*.’

Sydney Water | Submission to IPART 2016 Pricing Determination (p 53)

Over the 2016–20 determination period, there were 152,000 additional connections, serving more than 400,000 new customers. Again, we proposed to manage the maintenance costs of this growth within our forecast opex envelope.

> ‘*Although the customer and demand growth expected over the period creates more maintenance work, we assumed that this will be managed through delivery efficiencies*.’

Sydney Water | Price Plan 2016–20 (p 155)

[32] Department of Planning and Environment 2022, *Greater Sydney Water Strategy Water for a thriving, sustainable and resilient Sydney*.

[32] Australian Bureau of Statistics (ABS) 2024, Regional population 2022-23 financial year.

Growth

For output growth, we have used our forecast growth in water, wastewater and stormwater customer connections, based on our demand projections (released April, 2024), as our measure. For corporate, we have assumed a weighted average of forecast growth in customer connections across our different services.

Table 7.6 summarises our forecast growth in customer connections by service over 2024–25 and the 2025–30 determination period.

Table 7.6 Forecast growth in customer connections by service over 2024–25 and 2025–30

	2024–25	2025–26	2026–27	2027–28	2028–29	2029–30
Water (%)	1.4	1.4	1.5	1.4	1.3	1.2
Wastewater (%)	1.4	1.4	1.5	1.4	1.3	1.2
Stormwater (%)	1.4	1.4	1.5	1.4	1.1	1.0
Corporate (%)	1.4	1.4	1.5	1.4	1.3	1.2

*Note: Our forecast stormwater customer connections excludes Rouse Hill and the Mamre Road/Aerotropolis precincts.

As described in more detail in Chapter 10, we are forecasting our water customer connections to grow by 1.4 per cent per year, increasing to 1.5 per cent in 2026–27 before falling to 1.2 per cent in 2029–30. We expect similar growth trajectories for our wastewater customer connections.

For stormwater, we note that we have excluded customer connections in Rouse Hill and the Mamre Road/Aerotropolis precincts. As our capital and operating expenditure in these precincts benefit waterway health protection for all customers, we are proposing to recover this expenditure across our broader customer base, rather than just from our stormwater customers. Accordingly, we have reallocated any forecast customer connections in these precincts from stormwater to water and wastewater above.

Real input price escalation

Overall, we have determined escalation of real price inputs by analysing relevant market changes during the current period, and through labour and material cost escalation forecasts for the coming period carried out by Oxford Economics Australia. We have taken a weighted average of all the forecast real changes in inputs, based on the historical share of the input in our controllable opex. We then applied this weighted average across our all our services. For corporate, we have simply used the forecast labour cost escalation factor.

The key inputs we have taken into account and their cost outlook over 2025–30 are summarised below:

- **Labour:** The Wage Price Index (WPI) for the EGWWS (Electricity, Gas, Water and Waste Services or ‘Utilities’) sector in New South Wales (NSW) is used as a proxy for all our network-related labour costs. Network labour costs includes all internal labour (that is, all head office staff including professional and administrative employees plus field employees), as well as any external labour hired to provide field services such as asset management services. Based on Oxford Economics’ forecast, the EGWWS WPI is set to grow at an average annual rate of 1.1 per cent in real terms over 2025–30, after accounting for average inflation rate of 2.6 per cent (measured as Consumer Price Index (CPI)) over the same period. This is 0.3 percentage points above the same average for the All Industries WPI.[33]
- **External contractors:** The WPI for the Construction sector in NSW is used as a proxy for external contractor labour costs. Oxford Economics has forecast the WPI to grow at an average annual rate of 1.0 per cent in real terms over 2025–30, which is 0.2 percentage points above the same average for the All Industries WPI.[34]

[33] Oxford Economics Australia (2024). Sydney Water: Cost Escalation Forecasts to 2034/35

[34] Oxford Economics Australia (2024). Sydney Water: Cost Escalation Forecasts to 2034/35

- **Energy:** The Electricity Input to the Manufacturing Industries producer price index (PPI) is an index measuring electricity price movements for industrial consumers. This PPI has been selected as a suitable proxy for electricity prices associated with our operations for the coming regulatory period and is forecast to grow by 0.9 per cent in 2025–26 before declining at an average annual rate of –0.6 per cent in 2026–30.[35]
- **Chemicals:** The Australian Basic Chemical Manufacturing PPI has been selected to best represent chemical price movements faced by water utility companies in general. After a volatile couple of years from 2022–2024, Oxford Economics has forecast market prices will likely correct by –13.9 per cent and –0.2 per cent in 2024–25 and 2025–26, respectively. On average, chemical prices are forecast to decrease in real terms by 0.2 per cent each year over 2025–30.

Table 7.7 summarises Oxford Economics' forecast real input price changes over 2024-30 and our final weighted average real cost escalation factor. The **Oxford Economics Australia Labour and Material Cost Escalation Forecast 2024/35 Report** provides more detail on each of the inputs, including historical prices and key drivers for projections.

Table 7.7 Our weighted average real cost escalation factor, based on Oxford Economics' forecast real input price changes over 2024-30

	2024–25	2025–26	2026–27	2027–28	2028–29	2029–30	Weighting
Labour (%)	0.8	1.2	1.1	0.9	1.2	1.3	41%
External contractors (%)	0.2	0.9	0.9	0.8	1.2	1.4	43%
Energy (%)	(1.6)	(1.7)	(2.2)	(3.5)	(3.8)	(2.2)	8%
Chemicals (%)	(13.9)	(0.2)	0.5	(2.1)	0.4	0.7	3.2%
Steel Beams and Sections (%)	(5.3)	(3.0)	(0.2)	0.7	2.8	2.2	1.2%
Steel Pipe & Tube (%)	(4.2)	(3.2)	(0.5)	0.1	2.1	1.6	1.2%
Concrete, Cement & Sand (%)	(0.6)	(0.5)	1.0	1.6	1.7	1.0	1.2%
Polyethylene Pipe Index (%)	(3.5)	(0.3)	(1.6)	(2.7)	(0.4)	(0.9)	1.2%
Weighted average real cost escalation factor	(0.3)	0.7	0.6	0.3	0.8	1.0	100%

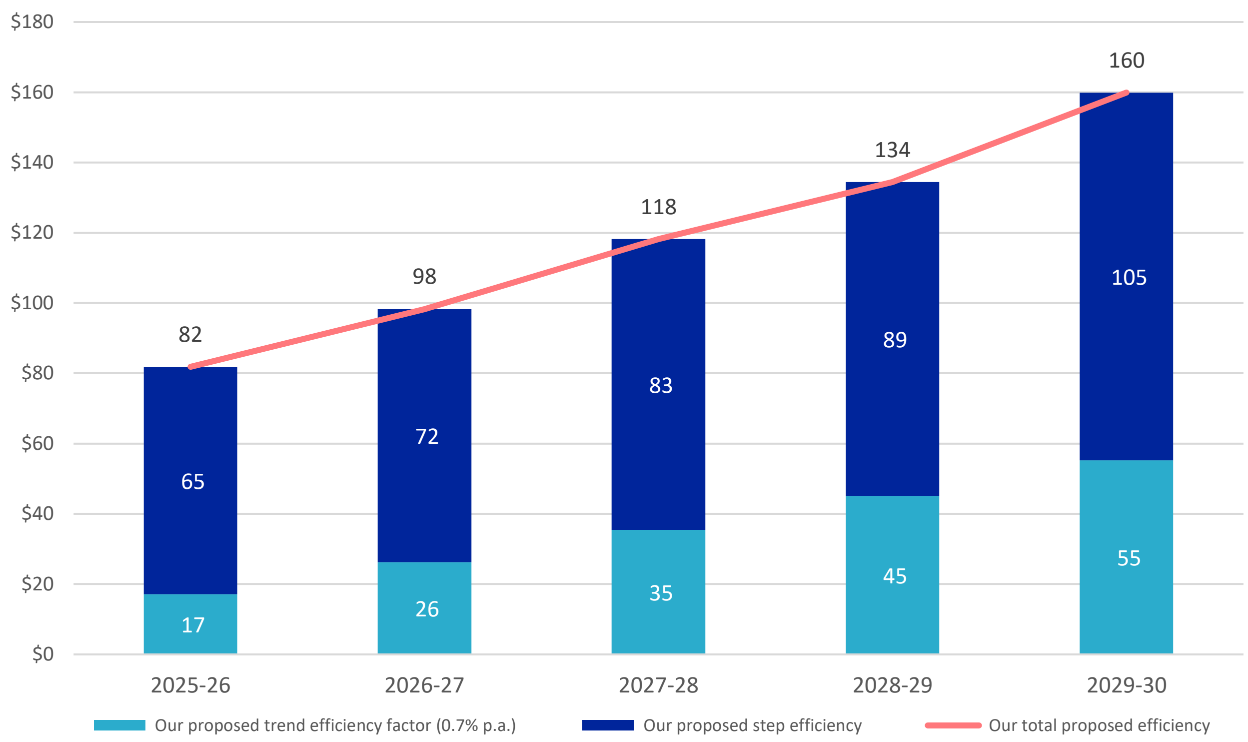
Future efficiency

Our performance to date shows we are a generally efficient organisation, with demonstrable efficiencies achieved in the last determination period and more efficiencies committed in future. Our proposed cost efficiency factor is 0.7 per cent p.a. compounding over the 2025–30 regulatory period, equivalent to an average of $36 million per year.

Over and above our 0.7 per cent p.a. compounding efficiency target, we are also proposing a step efficiency of $413 million in total across 2025–30, as shown in **Figure 7.9**.

[35] Oxford Economics Australia (2024). Sydney Water: Cost Escalation Forecasts to 2034/35

Figure 7.9 Our proposed trend and step efficiencies, over 2025–30 ($24-25, $million)



We have identified key areas to help achieve our efficiency goals, including:

- implementing an integrated field service management platform that minimises delays and construction rework from inefficient scheduling, dispatch or execution
- transforming our workforce to minimise duplicative tasks or work that is not aligned with delivering customers' priorities
- setting a stretch target for our business to identify and drive innovation and currently unrealised efficiencies.

The complete strategy to achieving our efficiency goals is set out in our **Cost Efficiency Strategy**, which details our objectives and plans to achieve them through identified initiatives.

No catch-up efficiencies are proposed because our operating expenditure already benchmarks well against peers as discussed in above.

Our proposed step changes

Step changes are variations in operating expenditure caused by new or changing regulatory requirements and customer outcomes, or from changes in the relationship between operating and capital expenditure.

Over 2025–30, we are proposing step changes of between $73 million to $79 million each year or $384 million in total, in addition to our proposed baseline and trend expenditure. These step changes represent about a 6 per cent increase on our proposed baseline and trend expenditure over the same period as shown in **Figure 7.10**.

These changes relate to meeting new or changing regulatory requirements, supporting customer outcomes, changes to the relationship between capex and opex, new ways of doing things and an additional step efficiency. Over and above the 0.7 per cent p.a. annual compounding efficiency factor embedded in our proposed trend expenditure, we are proposing to deliver a $413 million step efficiency. This will be delivered through a combination of in-flight and planned projects, embedded efficiencies in our maintenance and chemicals plan, and an additional stretch efficiency. This stretch efficiency is a one-off additional efficiency target for 2025–30, which we are challenging ourselves to achieve to drive better value for our customers. **Table 7.8** summarises our key step changes over 2025-30**.**

We discuss these step changes in more detail in the following sections.

Figure 7.10 Our proposed step changes over 2025–30 ($24–25, $million)

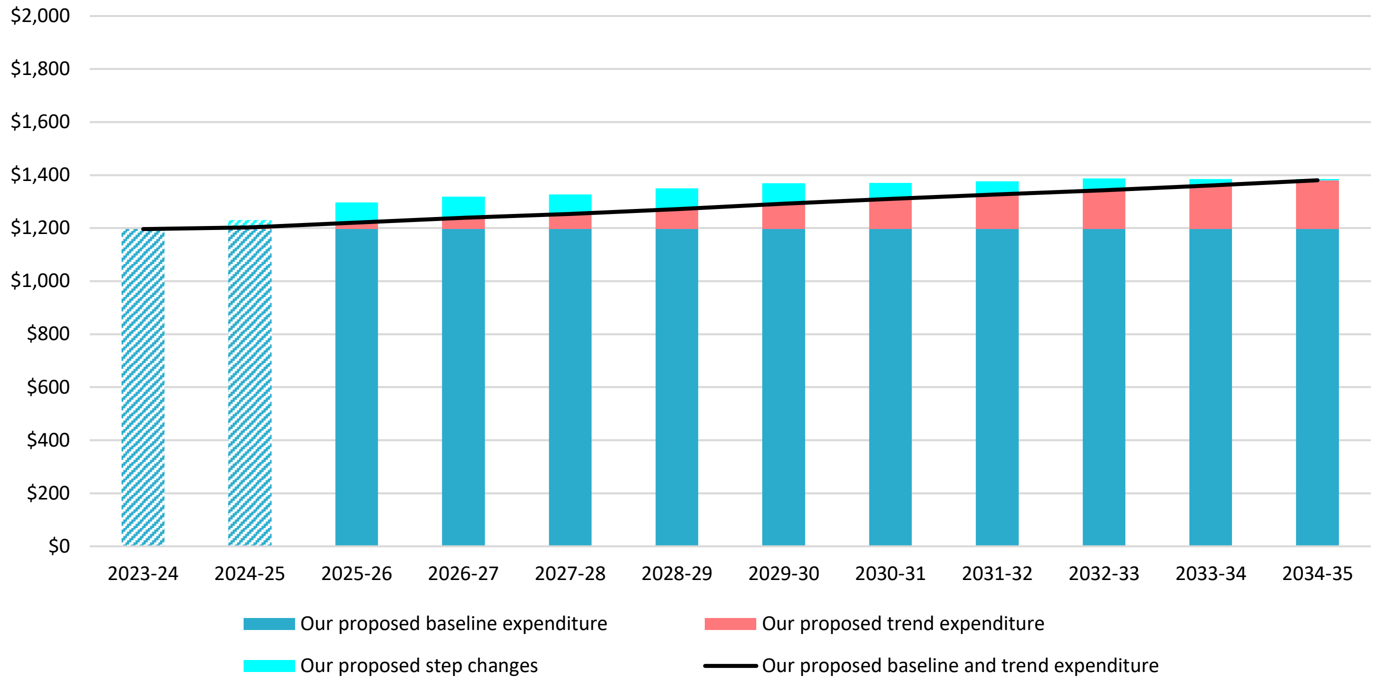


Table 7.8 Our proposed step changes, over 2025–30 ($2024–25 millions)

Area	Step change	2025-26	2026-27	2027-28	2028-29	2029-30	Total
Meeting new or changing regulatory requirements	Compliance with the Hawkesbury-Nepean Nutrient Offset Framework (HNNOF)	11	13	13	16	12	65
	Meeting our *Operating Licence 2024-28* requirements around climate risk assessment and management	2	1	1	1	1	6
	Ensuring the safety of our declared dams under the *Dams Safety Regulation 2019*	0	3	0	0	3	7
	Complying with new NSW Health requirements on water quality testing and monitoring	3	3	3	3	3	14
	Meeting new EPA regulations on biosolids, spoils classification and environmental monitoring	4	4	3	3	3	17
Supporting customer outcomes	Uplift in water network maintenance	14	17	18	18	18	84
	Uplift in wastewater network maintenance	29	28	27	28	28	140
	Stormwater desilting and remediation	4	4	4	4	5	21
New recurrent controllable opex resulting from new capex	Operational costs for our new pre-treatment facilities and assets	7	14	16	15	14	65
	Operations and maintenance costs related to delivering stormwater drainage services in Mamre Road Precinct and Aerotropolis	2	3	7	14	22	47
	Digitalisation	27	34	40	44	48	193
Substitution between capex and opex	IT project opex (propex)	23	11	7	2	9	52
Step efficiency	Additional efficiency target to drive greater customer value	(65)	(72)	(83)	(89)	(105)	(413)
Other step changes	Research and innovation	1	2	1	2	1	8
	Other adjustments	16	15	15	17	15	78
Total		**76**	**79**	**73**	**78**	**78**	384

Meeting new and changing policies and regulatory obligations

Over 2025–30, we are proposing a number of step changes to our baseline operating expenditure to meet new and changing regulatory requirements in areas such as dam safety, water and wastewater quality compliance, wastewater nutrient discharges, and climate risk readiness. Our key proposed step changes relate to meeting the new Hawkesbury–Nepean Nutrient Management Framework (HNNMF), which comes into effect on 1 July 2025, and our new *Operating Licence 2024-2028*, which came into effect on 1 July 2024.

The HNNMF is a regulatory framework to manage nutrients discharged from wastewater treatment plants or water resource recovery facilities (WRRFs) in the Hawkesbury Nepean (HN) River system. We explored a number of capex and opex solutions to reduce the impact of nutrient loads discharged by Sydney Water's WRRFs to meet the requirements of the framework. Offset activities are typically more cost efficient (both upfront and recurrent costs) than treatment assets, especially at well performing treatment plant or where wet weather impacts performance. Over 2025–30, we are therefore forecasting a step increase of around $65 million to carry out a broad baseline of offset activities required to comply with the mandated standards.[36] This will involve a rollout of about 38 equivalent offset activities based on the modelled performance of a pilot project at Camden across the six subzones assigned in the HNNMF, including riverbank stabilisation, rain gardens, and constructed wetlands. In addition, we will also be undertaking Stage 2 Concentration and Load Limit Reviews at four of our WRRFs as mandated by the EPA.

Our new *Operating Licence 2024-2028* also recently introduced requirements around climate risk readiness. In particular, we are required to:

- engage in an ongoing risk assessment and management process consistent with the NSW Government Climate Risk Ready Guide (CRRG) and achieve an 'embedded' level of maturity by 30 June 2027, and demonstrate reasonable progress towards 'advanced' status by 30 June 2028
- publish annual climate-related disclosures consistent with the IFRS S2
- report on net zero progress.

To meet these requirements, we are forecasting an annual increase of $1.1 to $1.5 million to set up our climate risk management program. Initially, the step increase in costs will go towards establishing the framework and governance for the program (for example, improving internal climate change governance, aligning climate risk assessments to the NSW Government's CRRG, and improving water system plan climate change risk assessments). Following that, we anticipate that some costs will go towards continuing this planning work and developing metrics for the evaluation of system climate resilience, as well as supporting program elements such as:

- additional research into climate information, such as catastrophe modelling and local demand impacts
- conducting case studies
- broadening our work with key councils and agencies on key storm water risks from sea level rise and local flooding
- reviewing and auditing our risk management processes
- improving community and economic climate resilience
- undertaking transitional risk assessments.

Finally, there will also be some costs to support the alignment of climate risk assessments to the NSW Government's CRRG and monitoring and evaluation activities (including assurance for action plan and key climate triggers), and the aforementioned program elements.

In addition to the HNNMF and our Operating Licence 2024-2028, we are also forecasting some smaller step changes of:

- an increase of around $3 million every three years to meet dam safety regulations through activities such as major operability testing for our dam valves and dam inspections,
- an average annual increase of $3 million to meet changing NSW Health water quality monitoring requirements through our future and mobile laboratories initiative, with monitoring plans, lab modernisation and biometricians, and

[36] During Our Water, Our Voice, we found that customers were generally supportive of improving the health and amenity of our river systems and reducing pollution. In particular, our homeowning customers were willing to pay up to $12.50 per quarter or $250 over the regulatory period for Sydney Water to improve the health of an additional 80 waterway sites.

- an average annual increase of $3 million to comply with new EPA requirements around biosolids (ie guidelines for monitoring, product and soil testing), spoils classification and the Sydney Water Aquatic Monitoring (SWAM) program, which recently replaced our previous Sewage Treatment System Impact Monitoring Program (STSIMP).

Supporting customer outcomes

During Our Water, Our Voice, we explored customer priorities and expectations around meeting our minimum service levels and obligations. Across some of the top priorities identified by our customers, there was a strong focus on ensuring the resilience and performance of our water and wastewater treatment plants and networks. These priorities included maintaining clean and safe drinking water,[37] minimising the impact of both planned and unplanned outages (i.e. water continuity), and minimising water loss via leaks and breaks.

With an initial understanding of customer priorities, we then engaged with customers on their expectations of service levels and discussed with them the need to significantly increase water bills to respond to our key challenges in later phases of Our Water, Our Voice. We also asked whether customers were willing to pay more than what they are currently paying to fund other investments, in addition to our proposed bill increases over the next ten years to fund and maintain our services at current levels. While many of our customers expressed satisfaction with current minimum service levels and performance, they recognised that increased investment in maintenance over the next decade was required to ensure the resilience and performance of our water and wastewater treatment plants and networks into the future, especially in the face of challenges such as ageing assets and climate change.

We provided additional context around a proposed 36% increase in bills, 5% of which would contribute to increased investment in maintenance to maintain our services at current levels. In terms of additional willingness to pay over and above our proposed bill increase, customers had slightly different valuations, depending on the service standard or attribute discussed. For water continuity, customers indicated that they were only willing to pay more marginally to improve our service level performance and were far more sensitive to a decrease in performance expecting at least a $48 decrease in annual bills. In contrast, for wastewater overflows, customers indicated they were willing to pay almost $40 a year to reduce the risk of experiencing an uncontrolled overflow of wastewater on their property. For water pressure, customers appeared to be more indifferent, only willing to pay an additional $17 for improved performance or to accept a $8 reduction in annual bills for a decline in performance. Across the board, customers generally appeared to support maintaining current performance and placed importance on not letting performance across the different service standards decline any further.

In line with these customer preferences**,** we are proposing an uplift in our maintenance activities to improve the resilience and performance of our water and wastewater treatment plants and networks. As discussed earlier in **Chapter 7,** we have faced a number of challenges with delivering our civil and mechanical/electrical maintenance program over the current determination period, due to movement restrictions and public lockdowns throughout 2020 to 2022. Our maintenance workplan at the start of the current period required work to address performance issues across our water and wastewater treatment plants and networks identified from the previous 2016-20 determination period. While we were able to commence some of this work in the early part of the current period (eg EIP), much of our non-urgent civil and mechanical/electrical maintenance work was delayed and could not be fully delivered due to the COVID-19 pandemic.

In water networks, this saw limited improvement in our performance in areas such as water continuity and leakage compared to the previous 2016–20 determination period. In wastewater networks and treatment plants, we also saw issues in areas such as dry weather overflows, chokes and the performance of our WRRFs against EPL targets.

As the COVID-19 pandemic has come to an end and public health orders have been lifted, we have since revised our maintenance workplans to reinstate the work required to improve the resilience and performance of our water and wastewater networks identified from the previous 2016–20 determination period. Our revised maintenance workplan requires an uplift in maintenance over the next five years, particularly as our assets age and the impacts of climate change also become more frequent and severe.

As such, we are proposing a step change of $84 million to deliver an uplift in maintenance across our water treatment plants and network over 2025-20. This includes:

37 This includes elements of both drinking water quality (that it is clean and safe to use) and water continuity (that when customers or consumers turn on their taps, water is available).

- an annual increase of between $7 million to $11 million to increase our mechanical/electrical maintenance works at our water treatment plants,
- an annual increase of between $1.4 million to $1.9 million to increase our mains to meter work from 4000 units to 12000 units by 2029-30, and
- an average annual increase of $2 million in preventative maintenance costs for our reservoir painting program.

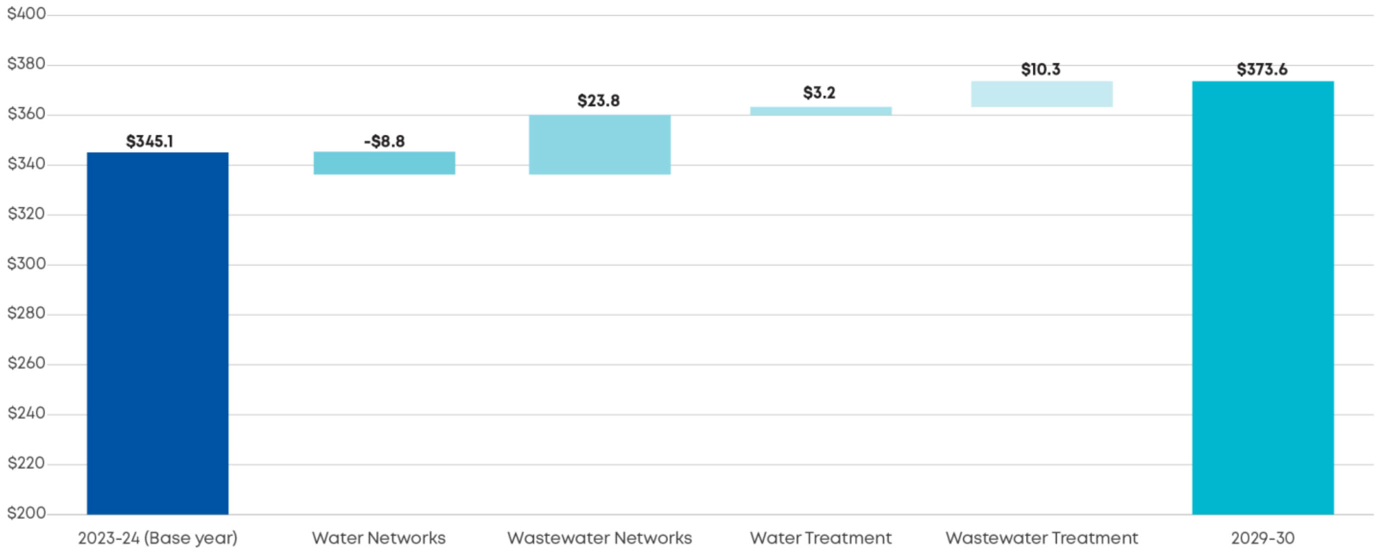
Our proposed water civil maintenance workplan is summarised in **Table 7.9**.

In wastewater, we are proposing a step change of $140 million to deliver an uplift in maintenance across our wastewater treatment plants and network over 2025-20. This includes:

- an annual increase of between $6 million to $15 million to increase our major periodic maintenance and operations and facilities maintenance at our treatment plants to improve the performance of our plants, particularly as we experience large increases in grit to our plants,
- an average annual increase of $1.3 million to increase our vent shaft inspections, maintenance hole inspections and network repairs,
- an annual increase of between $5.6 to $9.2 million to increase our network repairs by an additional 500 to 800 units, desilting works by an additional 7,000 tonnes, CCTV inspections and ventshafts,
- an annual increase of between $2.1 million to $3.2 million to increase our operations and facilities maintenance across our wastewater network to improve the resilience and performance of our network. This includes additional pipe inspections, work on cracks and leaks, landscaping/vegetation, and fire readiness work.
- an annual increase of between $1.5 million to $1.9 million to deliver new maintenance activities across our wastewater network, including work on aquaducts, syphons, minor repairs to our pump stations, vacuum systems, and valves.
- a temporary step change of $8 million in 2025-26, followed by $6 million in 2026-27 and again in 2027-28 to deliver desilting works on the Northern Georges River Sub-main (NGRS).

Our proposed wastewater civil maintenance workplan is summarised in **Table 7.10**.

Figure 7.11 Our proposed water and wastewater maintenance expenditure* over 2025–30, relative to our base year of 2023–24 ($2024–25, $million)



*Note: Our proposed water and wastewater maintenance expenditure, shown in the figure above, includes efficiencies from our in-flight projects, as well as operational efficiencies in our maintenance workplans. In other parts of our Price Proposal such as where we describe our proposed step changes and efficiencies, we have separated our proposed water and wastewater maintenance expenditure from these efficiencies in line with IPART's BTS requirements under the 3Cs framework.

Table 7.9 Our additional planned and reactive water maintenance workplan over 2025–30, relative to our 2023–24 base year actuals

	2023-24 Actuals	2024-25	2025–26	2026–27	2027–28	2028–29	2029–30
Water planned							
Valves and hydrants	28,888	7,441	8,201	8,444	8,628	8,876	9,126
Leak detection (km)	16,095	2,482	2,845	3,031	2,823	3,012	3,203
Reservoir	18,727	4,510	2,881	3,096	3,314	3,533	3,755
Asset painting	8	33	33	33	34	34	35
Dam safety	-	-	–	20	–	–	20
Other	11,530	5,570	3,154	3,240	1,476	1,563	1,652
Water reactive							
Leaks and breaks	22,952	352	544	776	1,011	1,248	1,488
Mains to meter*	40,141	13,909	17,695	18,736	19,450	20,030	20,623
Reactive valves and hydrants	5,357	2,395	2,471	2,549	2,623	2,703	2,783
Road restoration	5,494	(1,521)	(1,681)	(1,436)	(1,396)	(1,355)	(1,313)
Other	16,261	4,981	10,756	11,024	11,297	11,573	11,851

*Note: Our mains to meter maintenance is primarily made up of reactive work. There is a small element of planned work, which has also been included in this line item for brevity.

Table 7.10 Our additional planned and reactive wastewater maintenance workplan over 2025–30, relative to our 2023–24 base year actuals

	2023-24 Actuals	2024-25	2025–26	2026–27	2027–28	2028–29	2029–30
Wastewater planned							
Root cutting (km)	662	233	233	233	233	233	233
Network repair	8,401	(18)	224	310	(81)	7	95
Wastewater desilting and dredging (m^3 & tonnes)	22,940	56,653	56,134	56,725	57,322	57,924	58,533
CCTV inspections (metres)	212,203	72,946	70,671	70,980	71,292	71,607	71,926
Manhole and asset inspection	17,638	20,050	16,953	17,250	17,542	17,875	18,212
Ventshaft	310	417	417	414	(14)	(14)	(14)
Other	2,444	12,337	12,613	12,576	12,444	12,464	12,484
Wastewater reactive							
Clean up	2,884	(1,884)	(1,884)	(1,884)	(1,884)	(1,884)	(1,884)
Chokes	14,619	4,143	4,296	4,485	4,676	4,869	5,064
Breaks	2,703	2,417	804	824	844	864	884
Other	6,840	309	329	400	473	546	620

Leakage management

During Our Water, Our Voice, our customers told us that they see water as a precious, valuable resource. Seeing water gushing, flowing or leaking down the road or in a public space is frustrating and viewed as wasteful. Leakage adds to the city's demand for water, which the GSWS refers to as being at a tipping point with the city's sustainable supply.

Our historical performance has been above the agreed economic level of leakage since 2017 and has exceeded the upper tolerance band for the past two years. Our leak management plan recognises that leakage management is complex and that we need a multifaceted approach to improve our performance. It forms a key component of our Water Conservation Plan, demonstrating our commitment to conservation to our customers.

We aim to reduce leakage towards the economic level, reaching 112 megalitres per day by 2030 by:

- improving response time to stop leaks by at least 20 per cent, supported by use of FLOW, maintaining and effectively targeting of resources and equipment
- inspecting at least 18,500 km of mains and 3,500 km of trunk mains a year (as part of a proactive/active leak detection program)
- improving our proactive leak detection work by increasing the metering and monitoring of our network, including district metering; expanding our sensor and IoT coverage; and leveraging insights from customers' smart meters to locate leaks and respond
- improving the accuracy and assurance around the water balance calculation and our estimate of leakage, enabled by digital technologies, monitoring and analytics
- ongoing investment in asset renewals and maintenance programs to manage the occurrence of leaks and breaks
- investigating opportunities to expand our pressure reduction program.

Our plan also recognises that to improve our performance we will need to:

- balance improving our response times with managing customer continuity service interruptions and wastewater incident management requirements
- overcome challenges such as weather conditions, market conditions, employee safety, the role of third parties and other barriers that may impede our response
- accept that we manage an ageing asset base within a complex urban environment
- accept that there is inherent uncertainty in the location, size and occurrence of leaks and breaks within the network.

Over 2025–30, we are proposing $303 million in operating expenditure to deliver our leakage management plan. Some of the expenditure for these activities, over and above our baseline expenditure, have been included as part of our proposed step change to increase maintenance over 2025-30 described earlier.

Over the next determination period of 2025-30, we are also forecasting an average annual uplift of $4 million to deliver stormwater desilting activities and remediation works. This investment will not only allow us to increase our desilting tonnage from 1,500 tonnes to 3,700 tonnes, but also provide necessary periodic desilting at basins and wetlands and channels to mitigate the risk of flooding across our stormwater network.

Net zero carbon

During Our Water, Our Voice, our customers expressed a willingness to pay to accelerate our net zero carbon commitments. Over 2025–30, we are forecasting to increase our renewable energy generation from 51 GWh in 2023–24 to 62 GWh in 2024–25. We have already built this into some of our standalone capital projects and are looking to deliver our own net zero projects where we find them during the period. Alongside this capital investment, we are also proposing $44 million in opex over the next five years to support our current renewable energy facilities operations and maintenance.

Throughout the next determination period, we will continue to explore how we can most efficiently meet our net zero carbon commitments, noting that customers have already expressed a willingness to pay. This may include considering new power purchase agreements; purchasing high-integrity, ‘removals’ based offsets; looking at opportunities to self-generate our own carbon credits, using available land; and applying appropriate carbon sequestration methods, among other measures. We explore these options in more detail in our *Net Zero Carbon Emissions Management Plan* in the reading room.

More broadly, many utilities across the Australian water industry are looking to better understand fugitive emissions from wastewater treatment processes, which are the primary contributors to Sydney Water’s Scope 1 emissions. These gaps are being investigated as part of an Australian Research Council (ARC) project, which we will join in late 2024, with other Australian utilities also participating to abate or reduce the same type of emissions. We will continue to monitor alternative technologies being explored globally, including by Severn Trent in the UK.

New recurrent opex resulting from prudent and efficient capex

In addition to meeting our regulatory obligations and supporting customer outcomes, we are also proposing step changes to our baseline operating expenditure arising from a number of our new capital projects. This includes new recurrent operating expenditure related to our investment in new raw water pre-treatment facilities and stormwater infrastructure in the Mamre Road and Western Sydney Aerotropolis Precincts, as well as digitalisation.

As a result of raw water quality issues arising from La Niña conditions over the current determination period and drought and bushfires from the last 2016-20 determination period, our water filtration plants have been required to treat raw water above normal operational levels for long periods over the current determination period. We expect that extreme weather events will likely continue into the next determination period.

In response, we are proposing to invest capex to build new pre-treatment facilities and upgrade assets at our Prospect, Nepean, Cascade and Orchard Hills water filtration plants to provide additional treatment of raw water. This investment will ensure we meet our customer priorities around water quality and reliability and continue to comply with the ADWG, even as we continue to face increasingly volatile climate events. With these pre-treatment facilities and assets coming into operation over the next period, we are expecting a step change in our operational costs of $65 million over 2025-30. This step change will start at $7 million from 2025-26, before peaking at $16 million in 2027-28 and coming down to $14 million by the end of the period.

We are also forecasting step changes to our operations and maintenance costs related to the provision of stormwater drainage services in the Mamre Road and Western Sydney Aerotropolis Precincts. The Mamre Road Precinct in Western Sydney is the first precinct to be developed in the Aerotropolis. It consists of 1,020 hectares of land zoned industrial, of which 765 hectares represents the net developable area (NDA). The remaining Aerotropolis precincts cover 7,267 hectares of industrial land surrounding the Nancy-Bird Walton Airport and consist of four separate precincts with a combined NDA of 3,451 hectares. The proposed project involves earthworks on a major scale to create naturalised stormwater channels and waterways. It also requires extensive stormwater capture and harvesting infrastructure in the form of basins and wetlands, and a recycled water system to use the captured stormwater to help meet the government’s waterway health targets for Wianamatta South Creek and achieve a cooler, greener Sydney in what is widely considered a very hot environment. We estimate that the project will generate ongoing operations and maintenance costs of $47 million over 2025-30. Due to the scale and scope of the project and the materiality of the maintenance costs, we have proposed these maintenance costs as a separate step change to our proposed baseline expenditure, rather than as part of our proposed trend expenditure.

We are also investing in a range of programs that are underpinned by digitalisation over 2025–30. These programs include the Optimising Digital Infrastructure (ODI) program, People Experience Program (PxP), Enterprise Service Management (ESM), Field Mobility (Flow), Labs of the Future, Smart Sensors (IoT and Smart Meters), Spatial, Modelling, Digital Twins, Enterprise Asset Management (EAM) and other key business value initiatives. Many of these programs will require an increase in technology costs over the next determination period, in the form of cloud subscription costs, licensing fees, telco and network costs, and additional labour to support new software or processes.

Digitalisation

As described below, most of our step change in controllable opex is due to the demand for digitalisation for business efficiency, to shift from capital to opex expenditure due to a change in the services provided in the digital space, or for risk and compliance management.

- An annual increase of around $15 million for our ODI program will shift us to secure, resilient and modern optimised technology data centres. This is partly offset by a reduction in our capital costs ($31 million) for foundational hardware, and a reduction in internal opex costs ($2 million) through managed service providers. Business case modeling identified a potential 10-year return on investment while delivering on cyber compliance obligations and increased resilience, mitigating key digital foundational risks.
- Our People Experience Program (PxP) aims to make a step change in how we enable an agile, engaged workforce and build people capability through smart, efficient technology and processes. This is a $39 million program that is estimated to deliver $49 million in tangible benefits and $31 million in non-tangible benefits over 10 years. There will be an annual increase of $2 million for licensing and resourcing to support our PxP platform.
- The ESM program will transform the end user experience by delivering a seamless, end-to-end experience for staff. It will provide a unified platform to support multi-workflow processes and intuitive service-based experience across the enterprise. This initiative will replace our current internal Business Connect Portal for Digital, Finance, Procurement, and People and Culture services with a single platform that has self-service functions and automated workflows to enable efficient operation. This initiative is looking to provide up to $24 million in benefits across 10 years with an annual total increase of $0.5 million in licensing.
- The Smart Sensor program (IoT and Smart Meters) will deploy millions of sensors across our customers' properties and the network. The costs for network services and data analytics will increase from $3 million to $10 million over the period. This program will deliver on 'Empowered Customer' and 'Intelligent Asset' outcomes with benefits including early leakage detection, improved asset performance, reduced environment events and proactive maintenance practices.
- Flow is a $48 million program (2023–25) that is estimated to deliver $75 million in benefits over five years through efficiency improvements, avoidance of unproductive work, real-time optimised scheduling and routing, and improved response times. This cloud solution comes with an increase of $2 million in licence and support services.
- Data and analytics (D&A) have emerged as critical tools for organisations seeking to enhance decision-making, operational efficiency and strategic planning. Over the next period, we will increase our consumption and use of data to drive insight-led performance outcomes, including adaptation to and adoption of artificial intelligence and machine learning. D&A capability extends across various decision-making levels, from strategic to operational, enabling timely and accurate responses to emerging challenges and opportunities. D&A facilitates the discovery of new questions and insights. By analysing patterns and trends, we can uncover previously unrecognised opportunities and areas for improvement, fostering innovation. We will see an annual increase of $3 million to $8 million over the period in the costs of data storage, consumption and modeling.
- Based on our organisational strategy and our digitalisation roadmap, we are expecting demand for enterprise-wide improvement initiatives to increased digital cost from $3 million to $4 million over the period. Initiatives to fulfil this demand will follow our internal due diligence processes, ensuring we make prudent and efficient investment decisions.
- Over the previous period we saw our technology suppliers increase their licensing fees. Some companies shifted from on-premises infrastructure to cloud-based services, increasing costs by more than 300 per cent. As such, we are estimating an annual increase of between $2 million and $4 million due to increased licensing fees for Software as a Service (SaaS) across our business.

Substitution between opex and capex

As discussed earlier in **Chapter 6**, we have a number of IT capex projects, which we are shifting towards cloud implementation. This includes projects such as Optimising Digital Infrastructure (ODI) and People Experience Platform (PxP). These cloud implementation costs, which cannot be fully capitalised, generate project opex (propex) costs.

As such, we are forecasting a step change of $52 million to shift some of our IT capital project expenditure towards cloud implementation (from capex to opex) over 2025-30. This is in line with the general trend of the market moving from on-premises digital capability to highly flexible, scalable and resilient cloud services.

Step efficiency

Over and above the 0.7 per cent p.a. annual compounding efficiency factor embedded in our proposed trend expenditure, we are proposing to deliver a $413 million step efficiency. This will be delivered through a combination of in-flight and planned projects, embedded efficiencies in our maintenance and chemicals plan, and an additional stretch efficiency. This stretch efficiency is a one-off additional efficiency target for 2025–30, which we are challenging ourselves to achieve to drive better value for our customers.

These in-flight projects include:

- Flow, which is estimated to deliver $75 million in benefits over five years
- PxP, which is estimated to deliver $44 million over 10 years
- ODI, which will deliver $2 million in opex efficiencies p.a. in addition to $46 million in capex efficiencies over 10 years.

We also have a range of projects in planning, which are expected to deliver further efficiencies. These include:

- Enterprise Service Management (ESM), which will likely deliver $23 million in benefits across 10 years
- Smart Sensors (IoT and Smart Meters), which is expected to deliver environmental impact reduction, improved asset operations, leakage reduction and water conservation
- Digital Twins, which focuses on asset planning and operations, customer connection, outage management and scenario testing
- Labs of the Future, which considers water quality, network management and disinfection, waterways health and wastewater detection.

Other step changes

Finally, we are proposing a smaller step change of $8 million over 2025-30, to effectively support the delivery of research and innovation in areas aligned to the Sydney Water key strategic priorities areas of customer, water quality and environment. Our research and innovation priorities address critical business needs such as reducing leaks and breaks, improving water quality, enhancing environmental performance, and exceeding customer expectations. These innovation priorities also reflect our long-term strategic challenges and opportunity areas relating to significant population growth, promoting water conservation, addressing climate change, and achieving our carbon net zero targets.

In 2019, we developed the Innovation, Research and Deployment plan to focus organisational efforts on advancing knowledge, technologies, and practices that ensure the efficient, sustainable, and resilient management of water resources. In August 2023, we established a Project Control Board and new governance frameworks to support innovation and research project and proposal assessment, prioritisation and visibility across the organisation and therefore an assured return on our research and innovation investment. Additionally, we have developed project prioritisation tool, a Collaborative Framework Agreement with universities, and a return on innovation investment tool.

Currently, Sydney Water R&I investment sits below that of other water utilities across Australia, who are currently on average investing about 0.21% of total revenue in R&D.

Non-controllable opex

Over 2025-30, our non-controllable costs will total approximately $3,216 million, and make up over a third (34.5 per cent) of our total regulatory opex.

Our bulk water costs from WNSW and SDP make up the majority (64 per cent) of our non-controllable costs. Over 2025-30, we are expecting our bulk water purchases from WaterNSW to total $1,717 million. This represents a greater than 40 per cent increase on our annual WNSW bulk water costs in the current determination period and is largely driven by significantly higher availability and usage charges being proposed by WaterNSW. The increase in bulk water charges accounts for some six percentage points of our proposed prices and is driven by key projects such as Warragamba Climate Resilience and Warragamba E-Flows. We note that these costs will be subject to IPART's Final Determination, when IPART sets prices for WaterNSW from 1 July 2025.

For SDP, we are forecasting our bulk water costs to remain relatively stable across the period, ranging between $239 to $246 million each year for both availability and usage charges. This comes to a total of $1,204 million over 2025-30, as shown in **Table 7.11**.

Our forecast SDP bulk water costs assume a baseline volume of 42 GL. We consider a range of inputs and factors when forecasting this baseline volume, including dam levels as set out in the GSWS, and drivers under our Decision Framework for SDP Operation to determine the appropriate operating phase for SDP. These drivers include for example drought and dam spill risk, the likelihood of any emergency response requests and the need for planned maintenance in the future. We consider that our forecast baseline volume of 42 GL represents a minimum level of operation and is consistent with the Decision Framework, as set out in the Network Operator's Licence (NOL) for Sydney Desalination Plant Pty Limited, issued by the Minister for Water under the *Water Industry Competition Act 2006* (NSW).

We note that we are expecting an increase in our SDP bulk water costs towards the end of the next period, with higher availability charges of about $359 million p.a. and usage charges of about $52 million p.a. for an additional 23 GL associated with the expansion of the SDP in 2028-29 and 2029-30. As a measure to improve affordability for customers, however, we are not proposing to include these costs in our 2025-30 revenue requirement. Instead, we propose to true up any actual operating expenditure incurred in relation to the SDP expansion in 2025-30 over the 2030-35 period. This is discussed in more detail in **Chapter 8**.

Table 7.11 Our forecast non-controllable costs over 2025–30 ($24-25, $million)

Non-controllable costs	2025–26	2026–27	2027–28	2028–29	2029–30	Total
Bulk water purchases from WNSW	342	343	344	344	345	1,717
Bulk water purchases from SDP	246	239	239	240	239	1,204
• SDP fixed costs (that is, plant and pipeline service charge)*	208	205	205	205	205	1,026
• SDP usage costs*	38	35	35	36	35	178
Licence fees (EPL)	16	16	16	17	17	82
Council rates and land tax	35	38	42	45	50	210
Total	**639**	**636**	**641**	**646**	**651**	**3,216**

*Note: For 2028–29 and 2029–30, we anticipate there may be additional costs associated with the expansion of SDP, including availability charges of about $359 million p.a. and usage charges of about $52 million p.a. We have not included these costs in our 2025–30 revenue requirements, and instead propose to true-up any actual operating expenditure incurred in relation to the SDP expansion in 2025–30 over the 2030–35 period.

Chapter 8: Revenue

Key message

We are proposing a revenue requirement of $20 billion for 2025-30. This will increase to $25.9 billion over 2030-35. Infrastructure contributions have been reintroduced and contribute $3.9 billion to funding growth capital expenditure (capex) by 2030. This reduces our 2025-30 revenue requirement by $353 million, or around $30, off annual water bills.

Summary

- We propose a revenue requirement of $20.0 billion for 2025–30, and indicatively expect this will increase to $25.9 billion over 2030–35.
- Infrastructure contributions have been reintroduced and contribute $3.9 billion to funding growth capex by 2030. Under IPART's building block method, this revenue reduces our 2025–30 revenue requirement by around $353 million.
- We have included true-ups for our demand volatility adjustment mechanism (DVAM), cost of debt, and some expenditure for the 2024–25 deferral year in our proposed revenue requirement. In total, these increase our proposed revenue requirement by $652 million.
- To help with affordability, we have decided to bear the timing risk of operational costs relating to the SDP expansion that we may incur in 2025–30 and forego the Rouse Hill costs that we did not recover due to ring-fencing funding to date. These reduce our proposed 2025–30 revenue requirement by $580 million.
- In drought conditions, there will be additional costs above our base costs. We propose to recover these additional drought costs through a pass-through mechanism, as while the timing of drought is highly uncertain, the additional costs would be very material.
- We propose that the integrated servicing solution we have adopted in certain growth precincts be treated as least-cost, including all future expenditure in the Rouse Hill Development Area.
- Consistent with IPART's framework for least-cost schemes, the residual cost of all prudent and efficient expenditure, net of developer infrastructure contributions and local customer charges has been included in our proposed revenue requirement to be recovered via postage stamp prices.
- We propose that residual costs for least-cost schemes be allocated to the revenue requirement for wastewater customers. The proposed allocation of costs is based on National Water Initiative and IPART pricing principles.

Key reference materials

APPENDICES

8.1 Infrastructure Contributions
8.2 Integrated Water Cycle Management (IWCM)

READING ROOM

IWCM

Guided by our 3Cs focus principles

CUSTOMER OUTCOMES

Customers felt that it is important that Sydney Water recovers the costs it needs to provide essential services.

BALANCE RISK AND LONG-TERM PERFORMANCE

The revenue requirement is consistent with the risk-cost-performance of the proposed expenditure plan to deliver customers' outcomes.

EQUITABLE AND EFFICIENT COST RECOVERY

We propose the residual costs of least-cost integrated water cycle management be allocated to wastewater customers, to achieve an equal contribution towards the cost of meeting environmental protection outcomes from all customers via their wastewater service charge. This approach is better aligned with National Water Initiative pricing principles than the current allocation.

Our notional revenue requirement

We have used IPART's 'building block' methodology to calculate our regulated business revenue requirement so that we can recover forecast prudent and efficient costs needed to provide services that meet our operating licence and other regulatory requirements. We convert our revenue requirement into tariffs or prices in accordance with the IPART's method of control deemed appropriate for the determination. Below is a diagram summarising the components of our building block.

Figure 8.1: Components of our IPART revenue building block

IPART introduced a series of simplifications to its modelling approach in 2022 as part of its 'How we regulate the water businesses' review. Relevant items relating to this review included:

- Consolidating our Regulated Asset Base (RAB) so that we only have a 'depreciating' and a 'non-depreciating' RAB for each of our services.
- Removing the modelling requirement for discretionary expenditure.
- Simplifying the revenue sharing rules for asset disposals.
- Simplifying the calculation of receivables and 'days of delay' for the working capital allowance.
- Updating the revenue sharing rules for non-regulatory activities.

We have adopted these simplifications in calculating our proposed notional revenue requirement (NRR). The table below shows our proposed revenue requirement by building block from 2024–25 to 2029–30, and our indicative revenue requirement from 2030–31 to 2034–35. These figures do not include any uplift for our proposed pass-through mechanisms, which may increase our revenue or prices during the regulatory period.

Our revenue will be recovered by prices paid by customers for water, wastewater, stormwater, trade waste and other services. All but 2% of our revenue will continue to come from prices for water, wastewater, and stormwater services.

Table 8.1: Notional revenue requirement by building block over 2024–25 to 2029–30 ($24–25, $millions)

	2024–25*	2025–26	2026–27	2027–28	2028–29	2029–30
Core operating expenditure	1,148	1,218	1,249	1,260	1,285	1,310
Bulk water costs	598	719	706	708	711	712
Return on assets	926	1,105	1,191	1,268	1,336	1,403
Regulatory depreciation	574	564	621	676	726	775
Return on working capital	6	17	12	15	16	17
Tax allowance	95	45	45	36	30	34
Adjustment for other revenue**	-15	567	-88	-91	-95	-96
Notional revenue requirement	**3,332**	**4,236**	**3,735**	**3,872**	**4,011**	**4,154**

*Proposed revenue requirement for 2024–25. This is used for the calculation of the deferral year true-up.

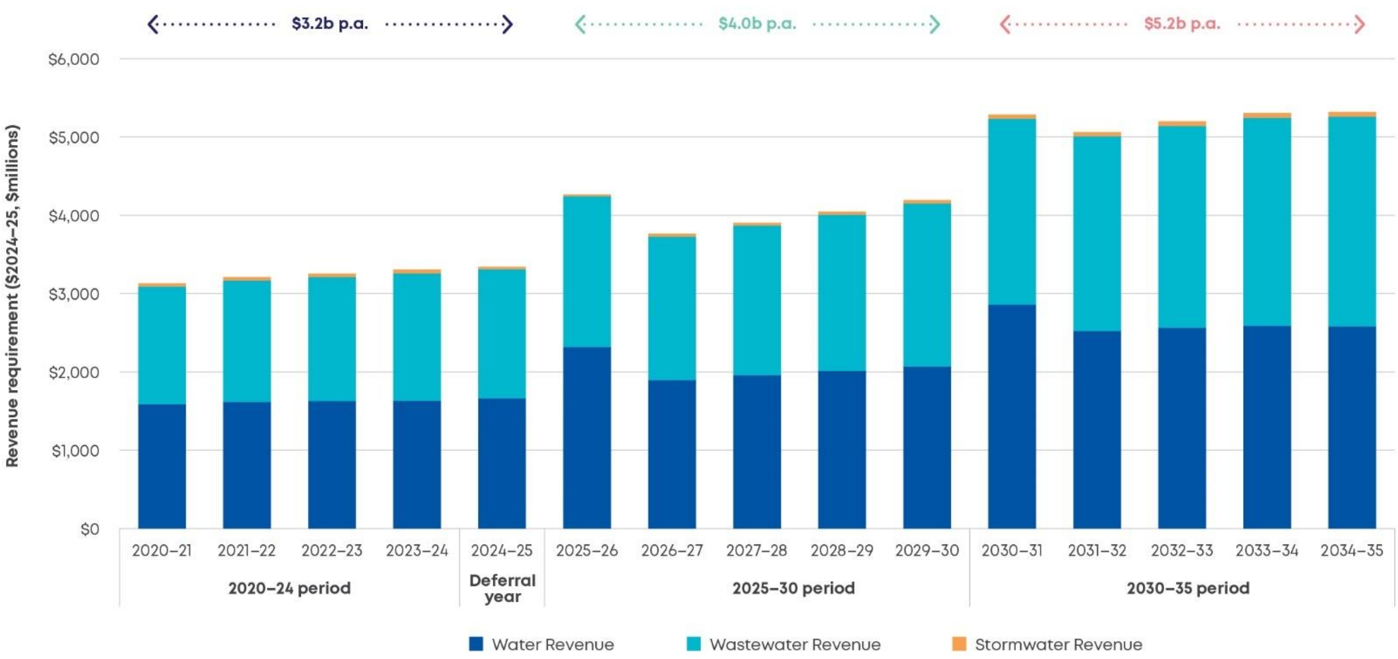
** All true-ups are included in 2025–26 for recovery over the regulatory period. Figures exclude forecast operating expenditure relating to the expansion of the SDP, which we are proposing to recover over 2030-35 as a true-up.

Table 8.2: Indicative notional revenue requirement by building block over 2030–31 to 2034–35 ($24–25, $millions)

	2030–31	2031–32	2032–33	2033–34	2034–35
Core operating expenditure	1,314	1,326	1,340	1,343	1,349
Bulk water costs	931	938	939	935	929
Return on assets	1,793	1,881	1,954	2,011	2,064
Regulatory depreciation	819	871	920	963	941
Return on working capital	28	25	29	31	31
Tax allowance	65	69	72	76	66
Adjustment for other revenue	289	-98	-108	-110	-111
Notional revenue requirement	**5,238**	**5,012**	**5,146**	**5,249**	**5,268**

For 2025–30, we propose a revenue requirement of $20 billion, or an average of $4.0 billion per year. Per year, this is $775 million higher than our 2020–24 determination and $669 million higher than the revenue requirement we forecast for 2024–25. Indicatively, we expect our revenue requirement to increase further to $25.9 billion or $5.2 billion per year on average over 2030–35. This is illustrated in **Figure 8.2**.

Figure 8.2: Efficient revenue requirement by determination period



Drivers of the change in our revenue requirement over 2025–30

There are several drivers for the change in our water and wastewater revenue requirement between the existing 2020 determination and our proposal for 2025–30:

- Higher bulk water purchase costs. This is due to price increases in the 2023 SDP Determination and expected price increases in the upcoming WaterNSW Determination. We also expect to incur operating costs in relation to the SDP expansion; however, we are proposing to not recover it from customers in the 2025–30 period.
- Higher RAB due to a capex overspend over 2020–24, capex in 2024–25 that was not contemplated in existing prices, and a significant capital program over 2025–30. This results in higher regulatory depreciation and return on assets allowances. See **Chapter 6**.
- Higher WACC due to rising interest costs. This results in a higher return on assets allowance. See **Chapter 9**.
- Net higher revenue requirement due to true-ups (DVAM, deferral year and cost of debt).

Changes in our stormwater revenue requirement are primarily driven by:

- Higher RAB driven by a larger stormwater renewals program. See **Chapter 6** for more details.
- Higher WACC due to rising interest costs. This results in a higher return on assets allowance. See **Chapter 9** for more details.

In addition, our 2020–24 stormwater revenue requirement includes costs funded by Rouse Hill drainage charges which were expected to generate an average of $8.2 million of revenue per year. Over 2025–30, we propose that these costs and corresponding revenues are included as part of our wastewater product. Hence, these costs and revenue are not included in the 2025–30 average stormwater NRR. See **Chapter 11**.

The difference between our 2020–24 and 2025–30 revenue requirements are illustrated in the figures below.

Figure 8.3: Change in revenue requirement for water and wastewater, 2020 determination to proposed 2025–30 ($24-25, $millions)

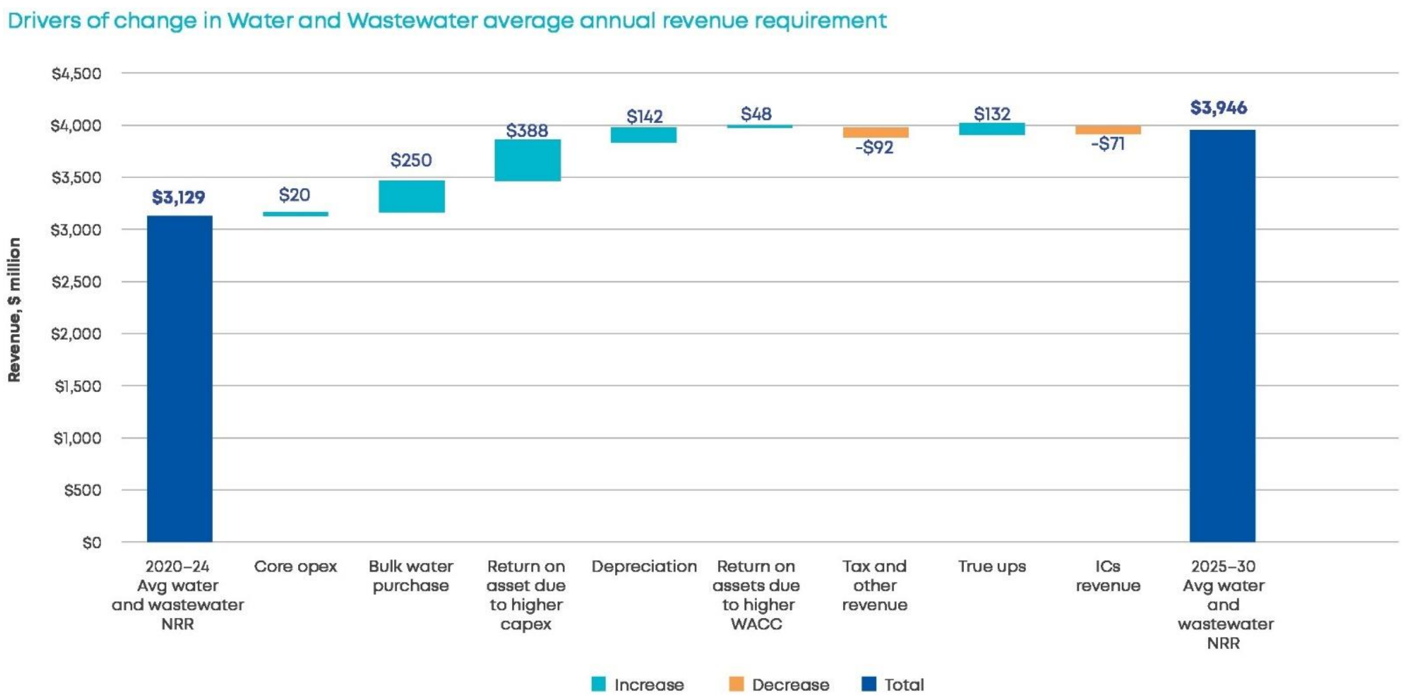
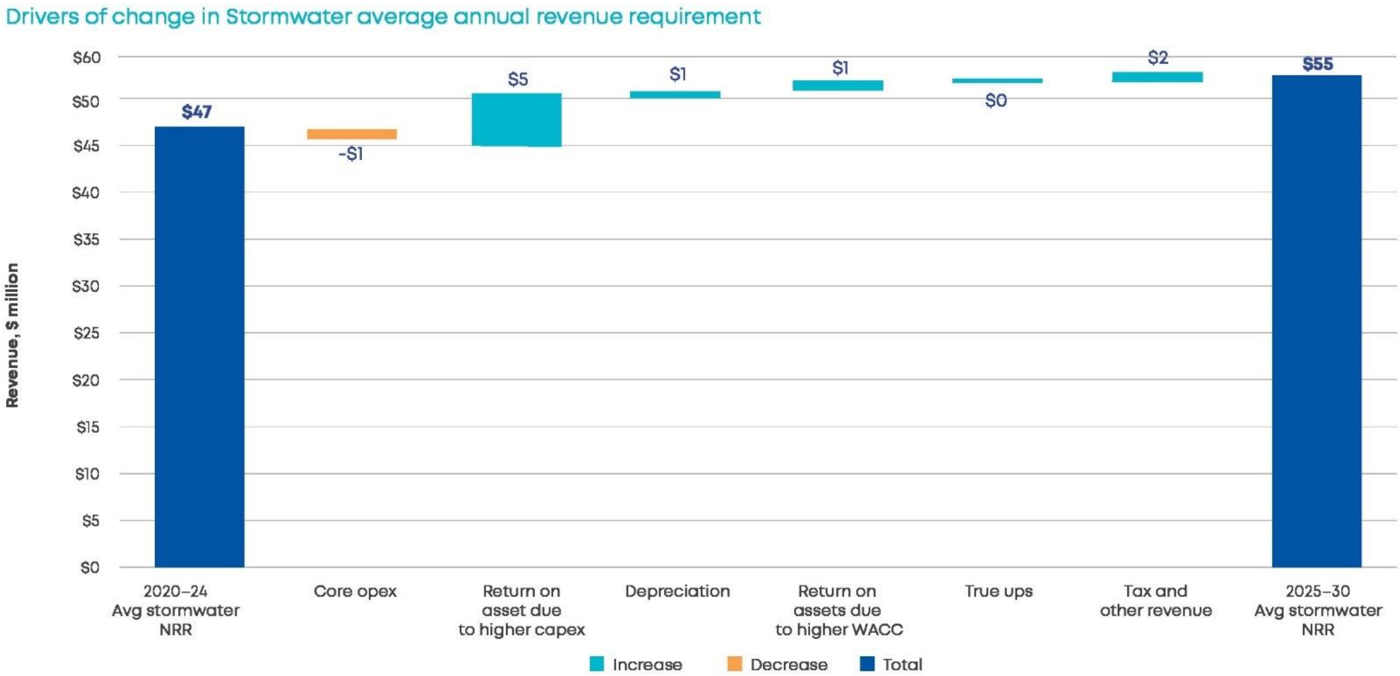


Figure 8.4: Change in revenue requirement for stormwater only, 2020 Determination to proposed 2025–30 ($24-25, $millions)



Our proposed target revenue

To calculate prices, IPART has historically applied a single adjustment at the beginning of the determination period and determined prices to be constant in real terms throughout the period. For the next regulatory period, we propose a price path with a step increase in the first year (2025–26) and constant year-on-year percentage increases during the remainder of the determination period. Our proposed price path demonstrates closer alignment between the annual revenue requirement (ARR) and revenue profile, and seeks to find balance between affordability and financial sustainability. As a result, our proposed target revenue increases year on year, from $3.4 billion in 2025–26 to $4.7 billion in 2029–30. We detail our approach and reasons in **Chapter 12**.

The tables below show our target revenue by year from 2025–30 and 2030–35, respectively. For the 2030–35 period, we have provided indicative figures assuming that a step change in prices occurs at the beginning of 2030–31. These figures and approach to pricing will be updated as part of our pricing proposal for the 2030–35 period.

Table 8.3: Proposed target revenue by product 2025–30 ($24–25, $millions)

	2025-26	2026-27	2027-28	2028-29	2029-30	Total 2025-30
Water revenue	$1,704	$1,849	$2,019	$2,196	$2,394	$10,162
Wastewater revenue*	$1,690	$1,807	$1,932	$2,063	$2,202	$9,694
Stormwater revenue	$42	$48	$55	$63	$71	$279
Total	**$3,437**	**$3,704**	**$4,006**	**$4,322**	**$4,667**	**$20,136**

**Wastewater revenue excludes revenue from trade waste charges.*

Table 8.4: Indicative target revenue by product 2030–35 ($24–25, $millions)

	2030–31	2031–32	2032–33	2033–34	2034–35	Total 2030–35
Water revenue	$2,458	$2,537	$2,614	$2,699	$2,787	$13,096
Wastewater revenue*	$2,298	$2,399	$2,504	$2,613	$2,726	$12,541
Stormwater revenue	$71	$72	$72	$73	$73	$361
Total	**$4,828**	**$5,008**	**$5,191**	**$5,385**	**$5,586**	**$25,998**

**Wastewater revenue excludes revenue from trade waste charges.*

Calculation of building blocks for 2025–30

Operating expenditure allowance

Details on our proposed operating expenditure for water, wastewater and stormwater services are provided in **Chapter 7**. These costs enter our revenue requirement on a 1:1 basis.

One of the main elements of Sydney Water's operating expenditure is the cost paid to the Sydney Water Desalination Plant (SDP). We propose to continue the established cost pass-through mechanism where any variance in the costs associated with operating the existing SDP compared to forecast will be passed on to customers.

We expect we may incur operating expenditure in relation to the expansion of the SDP in 2028–29 and 2029–30. Given uncertainty in the timing of the expansion project, and to support affordability for customers, we propose to not include these costs in our 2025–30 revenue requirement and instead true-up any actual operating expenditure incurred in relation to the SDP expansion in 2025–30 over the 2030–35 period. This results in a $370 million reduction in our proposed 2025–30 revenue requirement.

During extended drought, Sydney Water could also incur other additional operating or capital costs. These are not included in our proposed operating or capital expenditures allowances. Rather, our drought costs will be recovered through our proposed drought uplift on the water usage charge.

The following tables present our forecast operating expenses for the future regulatory period.

Table 8.5: Forecast operating expenditure 2025–30 by service ($24–25, $millions)

	2024–25**	2025–26	2026–27	2027–28	2028–29	2029–30	Total 2025–30
Water core (excl. BOO)	463	510	521	522	525	532	2,610
Wastewater	640	660	680	690	712	729	3,471
Stormwater	14	17	17	18	18	18	88
Total core opex	**1,117**	**1,187**	**1,219**	**1,230**	**1,255**	**1,280**	**6,169**
Bulk water costs (includes Water NSW, SDP and BOO costs)*	598	719	706	708	711	712	3,555
Recycled water (Regulated s16A)	32	31	30	30	30	30	152
Total opex	**1,746**	**1,936**	**1,955**	**1,968**	**1,996**	**2,022**	**9,877**

*Excludes forecast operating expenditure relating to the SDP expansion that we are proposing to true up over 2030-35.
**Operating expenditure included in our deferral year true-up.

Regulatory asset base

Capital expenditure is included in our regulatory asset base (RAB) for recovery over the economic life of the asset (its 'asset life'). This recovery is divided into two parts.

- Regulatory depreciation ('return of assets') recovers the cost of the asset itself over the life of the asset.
- Return on assets relates to recovery of the financing costs of the asset and provides a benchmark rate of return on prudent and efficient capital expenditure.

To calculate these allowances, we have calculated the forecast opening RAB as of 1 July 2025 and rolled forward the RAB to the end of the determination period. To roll forward the RAB, we start with the opening RAB in a year, then we:

- add net capital expenditure (capital expenditure minus post-tax cash contributions) and indexation
- subtract asset disposals and depreciation.

This gives us the closing RAB.

The opening RAB for any year is equal to the closing RAB of the previous year. This has been the method to calculate RAB since 2000 when IPART established the initial RAB (the 'line in the sand').

In July 2023, IPART decided that urban retail water businesses, such as Sydney Water, would adopt a different approach to RAB and asset lives. Consistent with the decision, we have reduced our RAB categories to two per service, namely depreciating and non-depreciating assets. We also propose remaining asset lives for existing assets based on evidence of economic lives and the expected life of capital expenditure each year.

Sydney Water currently has RABs for four services, namely water, wastewater, stormwater and corporate.

The corporate RAB consists of assets that are not directly attributable to any other single product including, for example, property, IT and fleet assets. For pricing purposes, we have allocated the corporate RAB to these other three RABs based on the same proportions as the previous determination. Specifically, 40 per cent is allocated to water, 59 per cent to wastewater, and 1 per cent to stormwater.

Each of these four RABs includes five sub-categories of assets, namely civil, electrical, mechanical, electronic and non-depreciable (CEMELND). Our systems, fixed asset register, and modelling are set up to accommodate these five asset categories. Given that this information is readily available, we consider it appropriate to base the asset lives of the aggregated depreciating RAB, for both new and existing assets, based on this more detailed breakdown.

We propose the asset lives in the tables below which apply the 'weight by depreciation' approach recommended by IPART in its framework review. We first calculate the depreciation using CEMELND asset lives as determined by IPART in the 2020 review, and then apply the weighting by depreciation to calculate these lives. We agree with IPART that this approach to calculating lives is appropriate as it replicates as much as possible the depreciation of the underlying CEMELND RABs.

Aggregating different asset classes into a single RAB can lead to interesting observations at the headline level. For example:

- The expected lives of new depreciating assets can significantly vary year on year or over the regulatory period as the CEMELND mix of assets vary. This explains, for example, why the expected life of new depreciating water assets decreases from 72 years to 64 years between 2028–29 and 2029–30. In 2028–29, 71 per cent of water capital expenditure is on long-lived civil assets. This figure falls to 64 per cent in 2029–30, leading to a significantly lower weighted average asset life.
- Similar reasoning explains why the expected life of new depreciating wastewater assets increases from 42 years to 58 years from 2025–26 to 2029–30, and the expected life of new depreciating corporate assets decreases from 18 years to 13 years from 2025–26 to 2029–30.
- The expected lives of new depreciating assets can be close to or less than the expected lives of existing depreciating assets. This is seen in the below tables in relation to water assets, where existing depreciating assets have a life of 70 years in 2025–26, and new depreciating assets have a life of 71 years in 2025–26. This is because 88 per cent of existing assets at the beginning of 2025–26 are long-lived civil assets, compared to only 66 per cent of new assets in 2025–26. The lower proportion of assets belonging to a long-lived asset class results in the expected life of new assets being lower than that of existing assets.

Table 8.6: Proposed remaining lives of existing depreciating assets at beginning of year (years)

	2025–26
Water	70
Wastewater	41
Stormwater	125
Corporate	9

Table 8.7: Proposed expected lives of new depreciating assets (years)

	2025–26	2026–27	2027–28	2028–29	2029–30
Water	71	71	71	72	64
Wastewater	42	42	49	55	58
Stormwater	150	150	150	150	150
Corporate	18	14	13	13	13

Table 8.8: Assumed CEMELND asset lives (years)

	Civil	Electronic	Mechanical	Electrical
Water	140	15	40	30
Wastewater	90	15	25	25
Stormwater	150	15	25	25
Corporate	68	10	8	10

In the 2016 Determination, IPART changed the regulatory treatment for finance leases to recognise them as assets. As a result, we have four ring-fenced finance leases that have RABs separate to those described above. These are related to assets that are owned and operated by third parties under long-term build, own, operate and transfer (BOOT) performance-based contracts:

- Blue Mountains Wastewater Tunnel
- Macarthur Water Filtration Plant (WFP)
- Woronora and Illawarra WFPs
- Prospect WFP.

In the 2020 Determination, IPART decided that any additional capital expenditure related to finance leases would not be ring-fenced and instead would be included in our primary RABs. The RABs for the above leases will therefore simply continue to depreciate until they are fully depreciated. As there is limited change to these RABs, we have not consolidated these into depreciating and non-depreciating RABs per IPART's simplification, but rather propose to continue to depreciate them based on their original CEMELND allocation.

Hence, we continue to roll forward these existing ring-fenced finance lease RABs based on the asset lives used by IPART in the 2020 Determination. The remaining lives of these leases are shown in the table below.

Table 8.9: Proposed remaining lives of existing finance lease assets as at beginning of 2020–21 (years)

	Civil	Electronic	Mechanical	Electrical
Macarthur (water)	76	10	17	17
Prospect (water)	76	16	17	17
Wyuna (water)	76	17	17	17
Blue Mountains Tunnel (wastewater)	76	–	–	–

Asset disposal

We manage an extensive portfolio of land assets within our fixed asset register (FAR). We categorise these properties as either non-surplus or surplus land assets. Surplus land assets are assets which we own but are not integral to the delivery of our services. We identify these surplus land assets as being available for sale, primarily to be added to the Sydney housing market or dedicated for community use through an extensive governance program.

From asset disposals up to 2024–25, we have adopted IPART's 2018 Disposal Policy,[38] which dictates the following.

- For disposal of significant operational pre-'line in the sand' assets, the estimated value to be deducted from the RAB is based on the ratio of the RAB to the depreciated replacement cost (DRC) of Sydney Water's assets at the time the RAB was established, multiplied by the net sale value of the asset which is the gross sales value, net of sale and remediation costs. The ratio specified by IPART in the 2016 Determination was 42 per cent.
- If the business can make a convincing case that the asset was clearly non-operational, then IPART will not deduct the RAB for that asset sale, on an exception basis.
- For the disposal of assets that are significant post-'line in the sand', the estimated regulatory value will be based on a 'best estimate' indexed depreciated and indexed original costs.

However, IPART simplified their Disposal Policy in 2023 as part of their new regulatory framework. Under their simplified Disposal Policy:

- The value to be deducted from the RAB will be 50 per cent revenue from disposals (net of selling and rehabilitation costs and capital gains tax).39 Our modelling of land disposals from 2025–26 onwards is based on this approach.
- IPART may consider exceptions on a case-by-case basis if there are demonstrated reasons for doing so and subject to the materiality of the impact on the business's RAB, revenue requirement and prices.
- Routine write-offs and write-downs are not required to be adjusted in the RAB.
- Currently, Sydney Water is on track to sell up to $81 million (gross sales proceeds in nominal $) of surplus land from 2019–20 to 2024–25. Of this $81 million:
    - $23.4 million ($nominal) relates to operational pre-line in the sand assets.
    - $40.0 million ($nominal) relates to a property that is non-operational as at the line in the sand and not deductible from the RAB. (Details to substantiate the exclusion of this sale from RAB adjustments can be made available upon request.)
    - $17.7 million ($nominal) relates to post-'line in the sand' assets.

[38] IPART, Asset Disposal Policy, February 2018.
[39] IPART, Water Regulation Handbook, July 2023, page 96.

Table 8.10: Property disposal for 2020–25 (nominal, $millions)

$ millions (nominal)	2019–20	2020–21	2021–22	2022–23	2023–24	2024–25
Significant pre-2000 non-operational						
Gross sales proceeds	–	–	–	–	–	40.0
Net sales value (no customer sharing)	–	–	–	–	–	38.0
Significant pre-2000 operational						
Gross sales proceeds	2.1	–	8.8	0.9	2.3	9.1
Net sales value	2.0	–	8.1	0.9	2.2	8.7
Value to be deducted from RAB (42% net proceeds)	0.8	–	3.4	0.4	0.9	3.6
Significant post-'line in sand' assets						
Gross sales proceeds	0.2	–	1.6	0.0	–	15.9
Net sales value	0.2	–	1.3	0.0	–	14.7
Value to be deducted from RAB (indexed historical cost)	0.0	–	0.2	0.0	–	1.9
Value to be deducted from RAB	0.0	–	0.2	0.0	–	1.9
Total value to be deducted from RAB	**0.8**	**–**	**3.6**	**0.4**	**0.9**	**5.5**

Table 8.10 shows a total of $11 million ($nominal) over 2020–25 that we propose to be deducted from the RAB in relation to asset disposals. To derive these RAB adjustments, we have applied the applicable methodologies from IPART's 2018 Disposal Policy.

For the 2025–30 period, we plan to sell an additional $143.2 million (gross sales proceeds in $2024–25) of surplus land. Included in this is a general forecast for property disposal of $51 million, or around $10 million per year (in $2024–25), which do not yet have a detailed disposal program. However, we assume some of our operational assets will become surplus and available for sale.

Table 8.11 shows a total of $55.1 million ($2024–25) over 2025–30 that we propose to be deducted from the RAB in relation to asset disposals (refer also to **Table 8.15**). To derive these RAB adjustments, we have applied the applicable methodologies from IPART's simplified 2023 Disposal Policy.

Table 8.11: Property disposals over 2025-30 ($24–25, $millions)

$million ($2024–25)	2025–26	2026–27	2027–28	2028–29	2029–30
Gross sales proceeds	32.6	24.9	43.4	37.9	4.3
Net sales value (pre-deducting capital gains tax)	31.0	23.7	41.2	36.1	4.1
Net sales value (post-deducting capital gains tax)	23.2	21.2	33.2	29.5	3.1
Value to be deducted from RAB (50% sharing)	11.6	10.6	16.6	14.7	1.6
Total value to be deducted from RAB	**11.6**	**10.6**	**16.6**	**14.7**	**1.6**

Cash contributions

Cash contributions that we receive from third parties towards our capital expenditure, such as government grants, are netted off capital expenditure and do not enter the RAB. This ensures that our customers do not pay a return on assets or regulatory depreciation for capital expenditure that we have already funded from other sources.

We would normally pay tax on the cash contributions that we receive from third parties. To enable the notional recovery of this tax, we have applied IPART's method to deduct the cash contributions net of tax from our forecast capital expenditure. This effectively capitalises the tax impact on capital contributions into the RAB.

Historical capital cash contributions

Up until 2008, the main source of cash capital contributions for Sydney Water was from developer charges. From 17 December 2008 to 30 June 2024, the NSW Government set water and sewerage developer charges to zero for Sydney Water. As a result, the amounts to be deducted from capital expenditure due to cash capital contributions are very minor and one-off in nature. We have reported cash contributions totalling $2.5 million ($nominal) across the 2019–20 to 2023–24 period in the AIR.

Future capital cash contributions

From 1 July 2024, infrastructure contributions from developers will be reintroduced. The infrastructure contributions will be capped at 25 per cent of the full charge in 2024–25, and 50 per cent in 2025–26, with full infrastructure contributions from 1 July 2026. We forecast that we will receive $3,787 million in revenue from infrastructure contributions over the next determination period (see **Table 8.12**). Aside from the infrastructure contributions, we have not forecast any other cash contributions to be deducted from the RAB.

Table 8.12: Forecast pre-tax capital cash contributions ($24–25, $millions)

	2024–25	2025–26	2026–27	2027–28	2028–29	2029–30	Total 2024–30
Water	17	32	68	67	112	168	464
Wastewater*	111	391	619	759	745	827	3,451
Stormwater	0	0	0	0	0	0	0
Total all products	128	423	687	826	857	994	3,915

*All infrastructure contributions related to the Mamre Road project are included in wastewater as they represent payment for waterway health-related infrastructure

Our forecast for capital cash contributions reflects the set of infrastructure contribution prices calculated using IPART's regulated pricing methodology and registered by IPART in December 2023. The set of registered infrastructure contribution prices included four drinking water prices and 13 wastewater prices that vary depending on the location of development (see *Appendix 8.1: Infrastructure contributions*).

Importantly, the total revenue we receive from infrastructure contributions in any given five-year period is unlikely to exactly equal the total amount we have invested in new infrastructure during that same period. For example, the revenue forecast of $3,787 million for 2025–30 is significantly less than the forecast of $9,475 million in growth-related capital investment over the same period. There are several reasons for this, including the following.

- The cost of building infrastructure is incurred up-front, but revenue from infrastructure contributions is only collected as individual developments occur. Each development only pays part of the total cost for the wider region, and it may take 10 to 20 years before all development in a region has occurred and all infrastructure contributions have been collected.
- IPART's pricing method shares growth servicing costs between developers and the broader customer base depending on whether development is occurring in a low- or high-cost region. This approach means that the infrastructure contribution price in some regions can be very low, or even zero, despite material investment to serve growth. We estimate this feature of IPART's methodology means around $7.8 billion of future wastewater capital investment between 2022 and 2032 (the forecast period used to set infrastructure contribution prices) is not recovered from developers via cash contributions and instead must be recovered via customer bills from both existing and new customer connections. For drinking water, the equivalent figure is $2.2 billion of capital investment in new assets that are needed to serve growth.

In addition, the 2025–30 period is affected by the staged reintroduction of infrastructure contributions, with price discounts applying in the first few years to help the market transition to the new charges. The discounts mean Sydney Water has foregone around $534 million in potential infrastructure contribution revenue that would have helped recover part of the costs of growth investments in the 2025–30 period.

Forecast opening RAB as of 1 July 2025

The opening RAB for the next determination period (starting from 1 July 2025) was established by rolling forward the RAB, with the following further adjustments.

- A reallocation of opening RABs between stormwater-mechanical and stormwater-civil of $0.74 million is to remove a negative opening RAB from stormwater-mechanical and is consistent with the approach IPART took in 2020. There is no net change to the total opening RAB as a result.
- Inclusion of $90 million in the water RAB and $395 million in the wastewater RAB in relation to Rouse Hill historical infrastructure contribution errors.
- Inclusion of $6 million in the water RAB and $22 million in the wastewater RAB for our avoided cost claim for the Sydney Science Park.
- Inclusion of $140 million in the wastewater RAB for unrecovered Blue Mountains Tunnel finance lease payments between 1990 and 2016.
  - The RAB was rolled forward using:
    - Actual capex, cash contributions, and disposals up to and including 2023–24 and forecast capex for 2024–25.
    - The depreciation that IPART allowed in our current prices up to and including 2023–24, updated for actual CPI. In 2024–25, we have used depreciation equal to 2023–24 in nominal terms. This is consistent with IPART precedent and reflects that prices in 2024–25 were set equal to 2023–24 prices in nominal terms.
    - Indexation assuming actual CPI up to and including 2023–24, and forecast CPI of 3.0 per cent (Refinitiv Mean Consensus Inflation forecast as at 18 January 2024 advised by IPART) for 2024–25.

The opening RAB for 2025–26, excluding finance leases, is $29.2 billion. The ring-fenced finance lease RABs have an opening value of $546 million in 2025–26.

Table 8.13: RAB roll forward to 2025–26 – excluding finance leases (nominal, $millions)

	2019–20	2020–21	2021–22	2022–23	2023–24	2024–25
Opening asset value	17,525	17,942	19,122	21,014	23,345	25,845
Plus: Capital expenditure (gross of cash contribution)	818	886	1,160	1,552	2,145	2,697
Minus: Post-tax cash contributions	1	1	0	0	-	90
Minus: Asset disposals	1	-	4	0	1	6
Minus: Depreciation	345	404	466	528	572	572
Plus: Inflationary gain	-54	699	1,202	1,307	928	814
Closing asset value	17,942	19,122	21,014	23,345	25,845	28,689
Plus: Adjustment for least cost schemes	-	-	-	-	-	513
Adjusted closing asset value	17,942	19,122	21,014	23,345	25,845	29,202

Table 8.14: RAB roll forward to 2025–26 – finance leases (nominal, $millions)

	2019–20	2020–21	2021–22	2022–23	2023–24	2024–25
Opening asset value	499	487	496	515	534	542
Plus: Capital expenditure (gross of cash contribution)	-	-	-	-	-	-
Minus: Post-tax cash contributions	-	-	-	-	-	-
Minus: Asset disposals	-	-	-	-	-	-
Minus: Depreciation	10	10	11	12	12	12
Plus: Inflationary gain	1	19	30	31	20	16
Closing Asset value	487	496	515	534	542	546
Plus: Adjustment for least cost schemes	-	-	-	-	-	-
Adjusted closing asset value	487	496	515	534	542	546

Forecast closing RAB rolled forward to the end of 2025–30

We continue to roll forward the RAB to the end of 2029–30 to calculate proposed regulatory depreciation and return on asset allowances for the 2025–30 period. Forecast capital expenditure and infrastructure contributions are explored in more detail in **Chapter 6** and *Appendix 8: Infrastructure contributions* respectively. Forecast asset disposals and asset lives used for the roll-forward are described in the sections above. The tables below show the RAB roll forward to 1 July 2030 for both our primary RAB and our finance lease RAB.

Table 8.15: RAB roll forward to 2029–30 – excluding finance leases (nominal, $millions)

	2025–26	2026–27	2027–28	2028–29	2029–30
Opening asset value	29,202	31,653	33,983	35,986	37,843
Plus: Capital expenditure (gross of cash contribution)	3,320	3,441	3,273	3,198	3,329
Minus: Post-tax cash contributions	296	481	578	600	696
Minus: Asset disposals	12	11	17	15	2
Minus: Depreciation	562	619	676	727	776
Plus: Inflationary gain	-	-	-	-	-
Closing Asset value	31,653	33,983	35,986	37,843	39,699

Table 8.16: RAB roll-forward to 2029–30 – finance leases (nominal, $millions)

	2025–26	2026–27	2027–28	2028–29	2029–30
Opening asset value	546	533	521	508	496
Plus: Capital expenditure (gross of cash contribution)	-	-	-	-	-
Minus: Post-tax cash contributions	-	-	-	-	-
Minus: Asset disposals	-	-	-	-	-
Minus: Depreciation	13	13	13	13	13
Plus: Inflationary gain	-	-	-	-	-
Closing Asset value	533	521	508	496	483

Regulatory depreciation allowance

We calculate regulatory depreciation (that is, a return of assets) using a straight-line methodology and the approach to asset lives. This is consistent with the approach used in IPART's previous price determinations.

The tables below present our proposed regulatory depreciation allowance over 2024–25 to 2029–30.

Table 8.17: Proposed regulatory depreciation allowance over 2024–25 to 2029–30 (nominal, $millions)

	2024–25	2025–26	2026–27	2027–28	2028–29	2029–30
Water	184	167	188	211	233	253
Wastewater	384	392	427	458	486	514
Stormwater	6	6	6	7	7	8
Total	**574**	**564**	**621**	**676**	**726**	**775**

Returns on asset and return on capital

We have calculated the proposed allowance for a return on assets using IPART's standard approach, multiplying the rate of return by the sum of the opening RAB and half the net capital expenditure less half the disposals in each year of the period. The appropriate rate of return on our RAB is an important variable in setting our notional revenue requirement. To calculate our revenue requirement, we have used a real post-tax weighted average cost of capital (WACC) of:

- 3.4 per cent in 2024–25
- 3.6 per cent in 2025–26 to 2029–30
- 4.4 per cent from 2030–31 to 2034–35.

See **Chapter 9** for more details on our proposed WACC.

The tables below present our proposed return on assets allowance over 2024–25 to 2029–30.

Table 8.18: Proposed return on assets allowance over 2024–25 to 2029–30 ($24–25, $millions)

	2024–25	2025–26	2026–27	2027–28	2028–29	2029–30
Water	292	350	392	435	475	508
Wastewater	614	732	774	806	833	865
Stormwater	20	23	25	27	28	30
Total	926	1,105	1,191	1,268	1,336	1,403

Tax allowance (allowance for tax obligations)

In the 2012 Determination, IPART adopted a post-tax framework using a separate building block to calculate the tax allowance. This framework is not intended to recover Sydney Water's actual tax liability. Instead, it enables Sydney Water to recover the explicit notional allowance for tax to which a comparable commercial business would be subject. This conveys the message that Sydney Water should only incur the amount of tax allowance if it were operating in a competitive market. Sydney Water has adopted the framework for calculating the tax allowance for this proposal.

Table 8.19: Elements of Sydney Water's proposed year-on-year tax allowance (nominal, $millions)

Tax allowance	2025–26	2026–27	2027–28	2028–29	2029–30
Income					
Regulated notional revenue (excluding tax)	3,718	3,978	4,241	4,516	4,793
Non-cash contributions (AFOC)	239	245	251	258	264
Non-cash contributions (AFOC) holding costs	-20	-	-	-	-
Total income	3,937	4,223	4,492	4,773	5,058
Expenditure					
Operating expenditure	1,987	2,058	2,126	2,212	2,299
Interest expense allowance	1,010	1,112	1,216	1,315	1,416
Tax depreciation	782	890	1,017	1,131	1,209
Total expenses	3,778	4,061	4,358	4,658	4,924
Accumulated tax losses	-	-	-	-	-
Taxable income after tax losses	158	162	134	115	134
Total tax allowance with gamma = 0.25	46	47	39	33	39
Tax allowance ($2024–25)	**45**	**45**	**36**	**30**	**34**

Our approach for key 'income elements', including non-cash contributions/asset free of charge (AFOC) is as follows:

- The 'annual revenue requirement before tax' figures are converted to nominal terms for tax block calculations.
- For our AFOC forecast for 2025–30, we continue to use the historical average approach as applied by IPART in past 2016 and 2020 Determinations. For the regulatory tax allowance calculation, this average value is then indexed annually over the determination period. **Table 8.20** sets out Sydney Water's 5-year actuals for 2019–20 to 2023–24 for the forecast.

Sydney Water's AFOC actuals for 2020–21 to 2023–24 extracted from the AIR were below IPART's allowed values, by around $28 million ($2024–25) on average per annum. With a rate of return of 4.2% (which is the pre-tax WACC used in the 2020 Determination), we have subtracted around $20 million holding costs to 2025–26 for tax allowance calculation purposes (see **Table 8.20**). This treatment is in line with IPART's decision in 2016 and 2020 to allow for a pass-through of AFOC holding costs to account for the AFOC differences between forecast and actuals.

Table 8.20: Asset free of charge (AFOC) actuals and forecast ($24–25, $millions)

Asset free of charge (AFOC) actuals and forecast	2019–20	2020–21	2021–22	2022–23	2023–24	2024–25	2025–26	2026–27	2027–28	2028–29	2029–30
IPART forecast in the 2020 Determination		283	234	234	234						
Sydney Water actuals/forecast	288	239	209	221	204	213	232	232	232	232	232
Difference		-44	-26	-13	-30						
Holding cost pass through		-10	-5	-2	-3						

Our approach for other 'expenditure elements' used in the tax block calculations are discussed below:

- Interest expense allowance – A notional capital structure of 60:40 (debt:equity) is applied to the average of opening and closing RAB each year. The interest expense used in the regulatory tax block calculation is lower than the actual interest paid by Sydney Water over the 2025–35 period due to higher leverage ~67:33 (debt: equity) in the capital structure of accounting books resulting from treatment of finance lease and RoU assets. The capital structure differences outweigh the impact of average effective interest costs in accounting books. The interest rates in accounting books align with interest rates in regulatory books for the first pricing period (2025–30); however, they are slightly lower in the second pricing period (2030–35).
- Tax depreciation – Since July 2012, Sydney Water has adopted the diminishing value method to front load tax depreciation as well as to adopt shorter useful lives set out in the effective life of depreciating assets ruling for all new assets. The impact of this move under the current regulatory framework is that higher tax depreciation can be claimed upfront. This lowers the regulatory tax allowance in earlier years but increases it in later years. While the tax legislation allows the selection of the diminishing value method for new assets, it does not allow for the adjustment of the depreciation method for existing assets. Useful lives of existing assets can only be changed if the use of those assets changes.

Our tax depreciation forecast excludes assets and capital expenditure related to water filtration plant finance leases. We cannot claim tax depreciation on these assets as Sydney Water neither owns nor controls these assets. We can only start claiming depreciation for tax when the assets are transferred to us at the end of their leases.

By continuing to use the methodology above, we forecast tax depreciation for the next determination to increase from $782 million in 2025–26 to $1,209 million in 2029–30. This is, on average, $376 million higher than our 2024–25 tax depreciation in nominal terms.

We have assumed a gamma value (the value currently used by IPART in the tax allowance calculation to adjust for franking credits) of 0.25. It is also published in IPART's latest market update. The figure was also determined by the Australian Competition Tribunal decision in 2011. A higher gamma results in a lower tax allowance.

Working capital allowance

The allowance for return on working capital represents the holding cost of our net current assets. In calculating the amount for this proposal, we have applied the Working Capital Allowance policy as released by IPART in November 2018[40] and adopted IPART's modelling simplifications on working capital as outlined in its handbook.[41] **Table 8.21** shows the elements that we used in the calculation and estimate of return on working capital to be added to the ARR.

[40] IPART, Working Capital Allowance – Policy Paper, November 2018.

[41] IPART, IPART Water Regulation Handbook, July 2023

Table 8.21 Calculation and estimate of return on working capital to be added to the ARR ($24-25, $thousands)

Elements of working capital allowance	2025–26	2026–27	2027–28	2028–29	2029–30
Receivable	586,321	503,594	521,774	539,846	557,205
Payable	407,669	403,988	383,305	377,598	382,595
Inventory	42,076	42,076	42,076	42,076	42,076
Prepayments	62,340	62,340	62,340	62,340	62,340
Net working capital	283,068	204,022	242,884	266,664	279,026
Rate of return (nominal post-tax WACC)	6.3%	6.3%	6.3%	6.3%	6.3%
Return on working capital (mid-year)	17,297	12,467	14,841	16,294	17,050

Consistent with the IPART formula, our proposed working capital allowance is calculated as the sum of receivables minus payables plus inventory plus prepayments. The rationale and analysis of key variables that support the proposal are explained below.

The estimated allowance is a return of the required net working capital, calculated using a nominal post-tax WACC of 6.3 per cent. This nominal WACC is derived from a real post-tax WACC of 3.6 per cent, the WACC that we use in our 2020–24 pricing proposal. Further details of our proposed WACC can be found in **Chapter 9**.

Receivables

The formula for calculating receivables for a water business is:

$$Receivables = \frac{50\% \times net\ number\ of\ days\ billed\ in\ \boldsymbol{arrears} + \boldsymbol{days\ delay}\ before\ payment}{365\ days} \times annual\ revenue$$

Where the net number of days billed in arrears is calculated as:

$$\begin{pmatrix} Net\ number \\ of\ days\ billed \\ in\ arrears \end{pmatrix} = \begin{pmatrix} days\ fixed\ charges \\ in\ \boldsymbol{arrears} \\ -\ days\ fixed\ charges \\ in\ \boldsymbol{advance} \end{pmatrix} \times \begin{pmatrix} \%\ revenue \\ from\ fixed \\ charges \end{pmatrix} + \begin{pmatrix} days\ usage \\ charges\ in \\ arrears \end{pmatrix} \times \begin{pmatrix} \%\ revenue \\ from\ usage \\ charges \end{pmatrix}$$

We welcome IPART's updated simplified method from its 2023 handbook for calculating receivables which has allowed:

- the number of days billed in arrears to be based on half the net number of days in the billing cycle (rather than having regard to actual business practice) for which services are billed in arrears. As our standard billing cycle has 91 days, the number of days billed in arrears (and by default the number of days billed in advance) will be 45.5 days
- efficient 'days of delay' set to the number of days between the invoice date and the due date as they appear on the bill of a standard customer (rather than between the last day of the billing cycle and receipt of payments having regards to actual business practice). Our standard number of 'days of delay' is 21 days.

Applying the above parameters in the updated receivable formula, we estimate that the total receivables in the five years of next determination period (as shown in **Table 8.21**) is about $2,709 million ($2024–25), or an average of $542 million each year in real terms.

Payables

IPART has retained its methodology of accounting for payables within the working capital allowance calculation. We continue to measure payables in days of operating expenditure plus net capital expenditure and use 30 days as the number of days. This aligns with Sydney Water's business practices, where trade accounts payables and accrued expenses at Sydney Water (other than for interest on loans) are normally settled within 30 days. We estimate that the total payables in the next determination period (as shown in **Table 8.21**), is about $1,955 million ($2024–25) or an average of $391 million each year in real terms.

Inventory

IPART's policy on inventory remains the same as outlined in its 2018 Working Capital Policy. It dictates that inventory is measured as a fixed dollar value that remains unchanged in real terms over the determination period. This value will be determined with reference to the business' actual recent historical inventory and/or other relevant information. We propose $42.1 million each year as our forward inventory level in our submission. This is considerably more than the $16.6 million ($2019–20) or $20.6 million ($2024–25) that IPART allowed for the 2020 Determination period. As our capital investment program increases, we are required to hold more spare parts, pumps and other rotables on hand to ensure continuity of service across an expanded asset base.

Prepayments

Prepayments reflect the difference between supplier prepayments (expenses paid prior to receipt of input) and customer prepayments (revenue received prior to provision of service). In this context, our proposed estimate relates to supplier prepayments as customer prepayments do not generally occur. We have included a proposed $62.3 million prepayment per year in our working capital calculation as the prudent and efficient amount for Sydney Water prepayment to suppliers. This is considerably more than the prepayment of $9.5 million ($2019–20) or $11.9 million ($2024–25) that IPART allowed for the 2020–24 determination period. We will increase our investment in digital spending for cloud services. This spending will progressively replace our traditional on-premise digital capital investment. The cloud spending will require additional software as a service cost which will need to be prepaid, including for software maintenance. Digital spend will also increase partially in line with the increase in our headcount which will require more user licences to be paid upfront.

Revenue adjustments and other revenue

Prior to setting prices, we take into account revenue from other sources and revenue adjustments that can be offset against our regulated costs. These costs are not required to be recovered from retail customers, as they are recovered from other sources. The revenue adjustments we have included are:

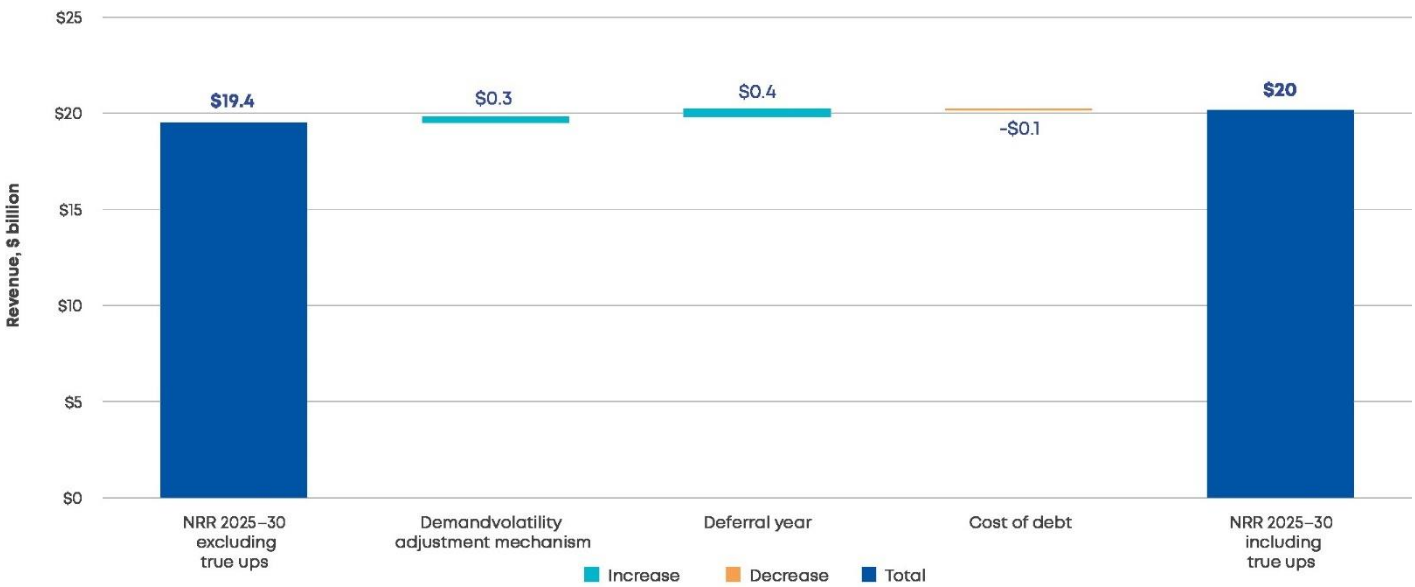
- Revenue from trade waste, waste safe, and ancillary service charges. This revenue is received from a set of charges that are calculated independently of the building block model (BMM), and hence do not need to be recovered via retail customer charges. These charges relate to ancillary and miscellaneous services to customers, and services provided to commercial and industrial customers with trade waste agreements. See **Chapter 11** for more details on these charges.
- Non-regulated income. Non-regulated revenue is income that is generated from unregulated sources leveraging off regulated assets. In line with IPART's handbook, we share 50 per cent of profits generated with customers – approximately $13.4 million over 2025-30 (post sharing). This estimate is based on our current forecasts of unregulated revenue over 2025–30. See AIR-SIR for an itemised breakdown.
- Section 16A recycled water revenue. We include the operating costs of two recycled water schemes (Rosehill-Camellia and St Marys) in our revenue requirement for water. We deduct the revenue we receive from these schemes so that we only recover the efficient costs of these projects.
- Least cost servicing for Rouse Hill, Mamre Road and the Aerotropolis. We have included the forecast capital and operating expenditures related to these schemes as part of our calculation of regulated revenue requirement for inclusion in wastewater charges. Accordingly, we also deduct expected revenue from these schemes from our wastewater revenue requirement. For our IWCM funding proposal, this includes all future recycled water usage revenue, and nominal stormwater (flood protection) charges paid by connected customers in Rouse Hill,[42] Mamre Road and the Aerotropolis.

[42] This includes properties that pay stormwater charges in Kellyville.

Proposed approach to true-ups in revenue

The revenue we calculate above includes revenue adjustments from existing and proposed true-up mechanisms considering outcomes over 2020–25. The figure below shows that these contribute a total of $652 million to our notional revenue requirement. The sections below describe the true-up mechanisms and the outcomes each adjustment is based on.

Figure 8.5: Notional revenue requirement before and after true-ups ($24-25, $billions)



Demand volatility adjustment mechanism

The current demand volatility adjustment mechanism (DVAM) was implemented by IPART on a one-year lagged basis to address variation in water sales from the demand forecasts of the final determination. The mechanism allows for variations in water sales revenue of ±5 per cent over the 2020 Determination Period to be returned to customers or Sydney Water.

Actual water sales for the 2019–20 to 2022–23 years extracted from the AIR were, on average, 9.0 per cent below their corresponding forecasts allowed by IPART. As these results are greater than −5 per cent on average, compared to the demand forecasts for 2020 Determination, it will trigger DVAM to return revenue from our customers.

Table 8.22: Comparison of forecast and actual water sales

	2019–20	2020–21	2021–22	2022–23	2023–24 (forecast)	Total
IPART decision water sales (ML)	491,627	509,569	515,941	522,241	530,118	2,569,495
Sydney Water actual (ML)	473,139	466,578	450,608	465,000	487,476	2,342,801
Variance (%)	−3.8	−8.4	−12.7	−11.0	−8.0%	−8.8

Note: Water sales includes both drinking water, unfiltered water, top up and deemed unmetered water sales.

Although actual water sales for 2023–24 will not be available in time for the 2024 price proposal due to the timing of our quarterly billing cycle, we plan to communicate the data to IPART when they become available after the 30 September 2024 price submission date. We also propose that any remaining years in this determination (that is, 2024–25) that are not covered in our DVAM calculation, will be trued-up in the following 2030 Determination period. Any revenues returned to or from customers should be in NPV-neutral terms.[43]

Our latest calculations show that a true-up of the 2019–20 to 2022–23 years under DVAM will result in a return of revenue back to Sydney Water of $254 million ($2024–25) including holding costs to compensate it for 82 GL of lost water sales beyond the five per cent dead band. However, when we factor in forecast lost water sales for 2023–24 which was 16 GL beyond the five per cent dead band, our DVAM adjustment calculations shows us that we should be able to recover up to $301 million ($2024–25) including holding costs in the 2030 Determination period. For more discussion on our proposed DVAM, refer to **Chapter 12**.

Cost of debt true-up

The WACC applied to set our prices over 2020–24 was based on IPART's 2018 WACC methodology. This methodology requires the benchmark cost of debt included in our WACC to be updated each year of the determination period. For Sydney Water, IPART decided that any changes to the cost of debt would be accumulated over the determination period and be passed through to customers in the following period via an NPV-neutral true-up to the revenue requirement.

Like the DVAM, we consider that it is practical for this true-up to consider the outcomes for an additional year in line with the one-year deferral IPART granted to our price review. As shown in the table below, the actual benchmark cost of debt fell in 2021–22 and 2022–23 compared to the determination and then increased in 2023–24. The net result is that we will return $70 million ($2024–25) to customers due to the cost of debt true-up.

Table 8.23: Cost of debt true-up ($24–25)

	2020–21	2021–22	2022–23	2023–24
Determined real cost of debt (%)	2.20	2.20	2.20	2.20
Actual benchmark real cost of debt (%)	2.20	1.90	2.00	2.30
Variance (%)	0.00	−0.30	−0.20	0.10
Determined mid-year RAB ($millions)	25,345	25,345	25,345	25,345
Cost of debt true-up (incl. holding costs) ($millions)	0.0	−52.1	-33.6	16.3

Deferral year 2024–25

In September 2020, IPART commenced a review of its regulatory framework for NSW regulated water businesses. Due to the timing of this review, it was agreed between IPART and water businesses that the round of price reviews scheduled to commence in July 2023 would be deferred for one year so that the results of the reform could be considered.

In July 2022, IPART decided to maintain prices for the regulatory period 2024–25 in nominal terms and agreed (in principle) to consider a revenue true-up in the next regulatory period (2025–30). Specifically, under the provision of the 2020 Determination, prices in 2024–25 would be equal to 2023–24 prices in nominal terms.

As part of this arrangement, IPART provided a letter to the water businesses stating that 'we agree that customers and utilities should not be worse off because of this extension'. Since then, IPART has implemented true-ups for the deferral year of the 2023 WaterNSW (Murray to Broken Hill Pipeline) Determination and the 2023 Sydney Desalination Plant (SDP) Determination.

We have used the 2023 SDP Determination (released in June 2023) as a precedent for our 2024–25 true-up model. Specifically, we estimate a revenue requirement for the deferral year and then compare it to actual forecast revenue. We have calculated a true-up for the deferral year of $433 million. This includes losses in revenue due to holding prices constant in nominal terms, reduced water demand, and updated efficient costs. For more details, please refer to the reading room.

[43] We note that this mechanism can be used to adjust Sydney Water's revenue requirement in subsequent determination periods if the difference between actual and determined water sales exceeds a dead band of ±5 per cent.

Table 8.24: Deferral year true-up ($24–25, $millions)

	2024–25 revenue from charges	2024–25 updated revenue requirement	True-up (incl. holding costs)
Water	1,445	1,649	209
Wastewater	1,421	1,637	220
Stormwater	43	46	4
Total	**2,908**	**3,332**	**433**

Other regulatory adjustments

This section discusses adjustments to the Regulatory Asset Base (RAB) and Annual Revenue Requirement (ARR). IPART makes one-off adjustments to our RAB and ARR to account for costs, revenue and incentives which have not otherwise been considered. These include:

- **Calculation errors.** When errors in previous calculations of customer bills have been discovered, IPART has adjusted the RAB to ensure customers do not pay more than the prudent and efficient costs to deliver their services and water utilities can recover the efficient costs to deliver those services.
- **Avoided costs**. This is when assets which are 'unregulated' (ring-fenced and excluded from regulated price setting) have been used to deliver benefits to regulated customers. The avoided cost is added to the RAB such that regulated customers only pay for the least cost to deliver their essential services and the entity or customers who rely on the unregulated assets pay for the remaining (marginal) costs associated with the unregulated services. In 2019, IPART developed a framework to allow 100 per cent avoided cost claims for 'least-cost' schemes.
- **Grading rewards and penalties**. These rewards and penalties are part of IPART's new 3Cs framework.

For calculation errors and avoided costs, IPART would adjust the opening RAB in the first year of the price path and has included all costs and revenue to calculate the adjustments. For least-cost schemes, IPART assesses the claim and then funds 100 per cent of prudent and efficient costs as regulated expenditure going forward. Under IPART's 3Cs framework, incentive rewards and penalties would be applied directly to the ARR.

To support our least-cost IWCM services, we also propose reallocating waterway health costs associated with both growth and existing programs to regulated wastewater rather than local stormwater and recycled water bills. This is in response to customer preference for postage stamp prices for stormwater, and shared bill impact for growth and waterway health. The shared cost is net of developer contributions and connected customer payments for recycled water use and flood protection services. More details are provided in **Chapter 11** and *Appendix 8.2: Integrated Water Cycle Management (IWCM).*

RAB adjustments

Rouse Hill infrastructure contribution RAB allocation errors ($485 million)

All stormwater and recycled water (and some water and wastewater) infrastructure delivered in the Rouse Hill Development area was ring-fenced from regulated bill setting while other assets were funded by Sydney Water and added to the RAB. During internal investigations in 2010, Sydney Water discovered that IPART's pricing models had subtracted **all** Rouse Hill infrastructure contributions from regulated RABs. That is, not just the contributions for regulated assets which cost had been added to the RAB, but also those contributions made for ring-fenced assets, even though the RABs did not include the cost of those assets.

The allocation error claim covers all contribution errors made between 1 July 2000 and 30 June 2009 and has been estimated at $90 million and $395 million ($2024–25) for water and wastewater respectively. Our detailed proposal is provided in *Appendix 8.2: Integrated Water Cycle Management (IWCM)*.

Blue Mountains Tunnel Finance Lease ($140 million)

The Blue Mountains Sewage Transfer Scheme was part of a program to improve water quality in the Blue Mountains in the 1990s. It involved the construction and operation of a 39 km tunnel to transport wastewater from the upper Blue Mountains area to the treatment plant at Winmalee.

When the BOOT agreement was signed in 1993, the BMT was recorded as a finance lease asset in Sydney Water's balance sheet. The creation of this asset in the balance sheet resulted in a corresponding liability to fund the acquisition of the asset. The liability has also gone down with the periodic payments made under the BOOT arrangement.

Payments made over the initial 35-year term of the agreement are maintenance and inspection costs, and availability charges (finance lease payments) comprising principal repayments and interest payments.

These maintenance and inspection costs are recorded in Sydney Water's regulatory accounts as operating costs. As a result, this expenditure has been recovered through the annual revenue requirement.

However, Sydney Water has not recovered finance lease charges. During the 2008 Determination period, Sydney Water paid interest charges on the outstanding liability of $36 million. Over the same period, we also made a principal repayment of $6.2 million. These expenses appear as neither operating costs nor capital costs in Sydney Water's accounts and therefore were not identified as a regulatory cost in successive pricing proposals and determinations.

Figure 8.6: Blue Mountain tunnel costs ($millions)

	2008-09	2009-10	2010-11	2011-12	Total
Blue Mountains Tunnel costs included in current determination					
Inspection / operations / maintenance	0.26	0.27	0.28	0.29	1.10
Actual Blue Mountains Tunnel costs					
Principal payments	1.42	1.47	1.59	1.69	6.17
Interest payments	8.38	8.84	9.20	9.54	35.96
Inspection / operations / maintenance payments	0.52	0.31	0.60	0.53	1.96
Total	10.32	10.62	11.39	11.76	44.09
Cost recovery / under recovery in current determination period	**-10.59**	**-10.89**	**-11.66**	**-12.05**	**-45.19**

Avoided cost estimates

Rouse Hill least-cost servicing – unfunded stormwater and recycled water ($229 million not claimed at this time)

As part of our proposal, that services at Rouse Hill are least-cost integrated water cycle management (IWCM), we calculated prudent and efficient but as yet unfunded expenditure associated with delivering stormwater and recycled water services, which are currently ring-fenced. The present value of historic unfunded expenditure is $229 million ($2024–25). Given the material impact an adjustment of this size would have on customer bills, Sydney Water does not propose an associated RAB adjustment should be made at this time. Rather, we provide this information for full transparency of our efficient costs to deliver all essential water services in the Rouse Hill area.

Sydney Science Park avoided cost claim ($28 million)

Sydney Water is working collaboratively with Celestino Pty Ltd to provide sustainable and resilient water services to Sydney Science Park at Luddenham. Sydney Science Park spans 288 hectares and is a key development in Western Sydney's Aerotropolis Precinct. Water servicing will adopt an IWCM approach with a third pipe to meet demand for recycled water for non-drinking purposes and a low-pressure wastewater system to reduce storage and treatment infrastructure costs. The total costs associated with this approach are higher than the least-cost, acceptable risk approach, so we have ring-fenced these to ensure that customer bills are not subsidising the higher costs.

Funding arrangements with Celestino were part of an unregulated or Negotiated Services Agreement. In summary, the unavoidable costs of water and wastewater servicing would be funded by Sydney Water and recovered via regulated customer prices, and the additional costs of an enhanced servicing option with recycled water would be funded by Celestino. This is broadly consistent with IPART's cost recovery frameworks; however, the negotiated agreement provided additional flexibility regarding the timing of payments and related matters.

The lowest capital cost to deliver services in this area between 2020 and 2030 is $5.9 million and $21.7 million for water and wastewater respectively (PV $2024–25). Our proposal is that these costs be added to the respective RABs, while all costs relating to the higher-cost servicing solution would continue to be ring-fenced from regulated prices.

At our next review of prices, we propose to submit the next claim for the base case costs expected between 2030 and 2035. This way, the RAB will more closely reflect how customers would have paid for the least cost to deliver services in the area compared to the case had we submitted a single claim for the entire project in this proposal inclusive of the present value of all least-cost opex and capex over 30 years.

All other costs proposed to be funded in the regulated annual revenue requirement (opex and tax on assets free of charge) have also been proposed at base case levels (that is, they do not include any of the higher operational, renewals and AFOC

costs associated with the negotiated services).

IPART's 2019 Recycled Water Determination – avoided cost net of revenue foregone

In IPART's 2019 Recycled Water Determination, IPART clarified that both avoided costs and avoided revenue (revenue foregone) must be considered in recycled water pricing, stating:

> *Otherwise, developers or customers would face higher charges for potable water services under the recycled water servicing solution compared with the traditional servicing solution and would therefore be worse off with the recycled water scheme.*

Sydney Water agrees with this finding, and we propose a robust and practical way to estimate drinking water revenue foregone for inclusion in both regulated and recycled water pricing. An accurate estimate of drinking water revenue foregone must consider the interaction between drinking water demand and relevant government policies and planning requirements which affect drinking water demand. We propose that, by using long-run marginal cost (LRMC) based estimates, we avoid the need to estimate demand volumes affected by BASIX and other government policies and thereby streamline drinking water avoided cost calculation for pricing purposes.

Shared bill impact of least-cost IWCM infrastructure

In 2015, we began engaging with customers on the waterway health outcome our stormwater systems provide. At that time, we found there was very low general knowledge of which entities managed stormwater, who paid for these services, how much was paid and what outcomes stormwater systems provided. In the initial engagement in 2015, customers had mixed views about how stormwater services should be paid for, reflecting the confusion about what these systems provide. This same result was evident in the Our Water, Our Voice customer engagement program (2022–24) in that there were again mixed views on how stormwater services should be paid for but strong support for the outcome of waterway health.

However, in 2015, we went on to conduct in-depth panel sessions which demonstrated that once customers understood that stormwater systems protect waterway health, they were clear they think stormwater prices should not change based on location nor which entity provides the service.[44] That is, there was a strong preference for everyone across Sydney to pay the same amount for stormwater regardless of where they live. The reasons given for this preference were as follows.

- Essential infrastructure such as stormwater should not work on a 'user pays' basis. Rather, it should be paid for equally by all – similar to health, public transport and education.
- Everyone has to use different infrastructure, including stormwater, in different locations at different times and everyone should contribute equally to this in the same way they do for other essential infrastructure.
- People move in and out of different areas, so equal charging removes the element of luck of where you live.
- Everyone has to contribute to the future liveability of Greater Sydney; stormwater infrastructure is an important part of this and financial contribution to its provision should be shared equally across the city.
- Participants expressed a desire for a simpler, more streamlined system of stormwater infrastructure provision and for charges that are more transparent, would enable greater accountability, and would be more efficient by reducing intergovernmental duplication and administration costs.

The last of these reasons – the need for simpler, more efficient provision of infrastructure and charging – is also echoed in the GSWS Priority 4: Our waterways and landscapes are healthy. Sydney Water considers that equitable charging for stormwater services will remove one of the funding barriers to the implementation of Priority 4, in the plan for a new, more streamlined and better-coordinated model for stormwater governance and stormwater management controls. Equitable, secure and stable funding will enable improvements to be made to waterway health where they are needed most, for the benefit of all customers.

Our Water, Our Voice engagement found a shift in community perceptions towards more future-focussed, preventative and community benefit-related values associated with water services. In Phase 1, customers' four highest priorities in relation to water services were:

- maintaining clean and safe drinking water
- ensuring bills remain affordable via cost management, payment plans and avoiding future cost spikes
- maintaining clean, safe waterways and water recreation areas by reducing pollution
- building infrastructure for water recycling and/or desalination for drought resilience.

The adoption of least-cost servicing supports customers' second highest priority for affordable bills so that they only pay for the most efficient way for us to deliver services. Furthermore, the key outcome that least-cost IWCM servicing delivers is to maintain clean and safe waterways and water recreation areas by reducing pollution and degradation (customers' third highest priority). In addition, it also increases the opportunity for water recycling which contributes to drought resilience, customers' fourth-highest priority. As such, the services we provide and propose to expand at our IWCM schemes are strongly supported by the evidence gathered in Phase 1.

Phase 3 of Our Water, Our Voice revealed further evidence of customer support for least-cost IWCM servicing. For example, when asked about the preferred service levels customers wanted during the next five years, customers indicated that a preference for:

- **Healthy waterways:** Most customers prefer an improvement to current service levels and support a moderate increase in the service level in exchange for a modest bill increase.
- **Swim access, safety, and pollution prevention:** Most customers prefer to maintain the current service levels without a bill increase, or a modest bill increase and moderate improvement.
- **Creating cool, green landscapes:** Customers prefer that Sydney Water take action to improve our levels of service, with an understanding that this may increase prices. Preferences include investment in stormwater and recycled water for non-drinking purposes.
- **Resilience of our water supply:** Customers prefer service levels to be maintained as they understand that maintaining services into the future will incur a bill increase. Customers told us the cost of improving service levels was too high.

[44] University of Technology Sydney: Centre for Local Government, 2015 Stormwater customer research: Research prepared for Sydney Water

The above evidence strongly supports implementation of least-cost IWCM servicing as this will contribute to healthier waterways, swim access, safety and pollution prevention, help create cool, green landscapes, and improve the resilience of our water supply in a cost-effective way.

Least-cost IWCM services are the most efficient way to deliver the essential services our customers need. As such, we have not specifically asked customers if they are willing to pay more for these services because these services are mandatory, not discretionary. However, it is important to note that during Phase 4, we did find customers expressed a willingness to pay for an increase in water sourced from recycling and for improved waterway health. Even though customers understood they would already likely see an underlying 36 per cent bill increase for essential water services when IPART next reviews Sydney Water's prices, they voiced strong willingness to pay an additional $27.20 per quarter (10 per cent more) for improved healthy waterways and increased water recycling.

Although least-cost IWCM services are prudent and efficient essential services, this recent demonstration of additional willingness to pay provides important context for how highly customers value the outcomes delivered by IWCM servicing.

Sydney Water estimates the postage stamp price bill impact to fully fund all existing and future mandatory IWCM infrastructure that delivers healthy waterways (at Rouse Hill, Bingara/Wilton and Mamre Road and Aerotropolis) would be closer to two per cent[45] Importantly, this bill impact is far smaller than the total contribution customers pay to protect waterway health from growth-related pollution.[46] That is, the current proposal ensures all efficient costs are allocated according to NWI pricing principles; it is not a proposal for a new service for which customers must demonstrate willingness to pay.

In Phase 5, Sydney Water investigated the preferred performance, risk, and associated cost profiles customers are willing to accept and the trade-offs customers apply when deciding between these levels. In relation to Sydney Water's efforts to prevent pollution, customers preferred a medium level of performance, risk and cost. This preference included:

- **Performance**: There are over 100 stormwater devices, frequently maintained, removing up to 1,500 m^3 of litter and debris from stormwater.
- **Risk**: Some swim sites are not safe for swimming after periods of heavy rainfall but more than 85 per cent of Beachwatch and Harbourwatch sites are good or very good. There is no major change in the rating of urban waterways across Sydney in the short term and some specific sites may gradually get better.
- **Cost**: Between $15 and $20 per quarter (on top of the $90 that an average customer now pays on their bill to prevent pollution).

Based on customer priorities, we have allocated all growth and existing program costs related to waterway health to the wastewater building block as this allows:

- efficient and equitable sharing of the net impact of the cost to provide essential services
- postage stamp prices for flood protection costs going forward
- prices set net of infrastructure contributions and connected customer benefits according to National Water Initiative (NWI) pricing principles.

[45] Estimated bill impact net of infrastructure contributions and connected customer charges.

[46] Sydney Water estimates that, since 2008 when the NSW Government set infrastructure contributions to zero, growth-related costs have increased average customer bills by around $200 per year. As described in the following section, the recent reintroducucution of infrastructure contributions should address this issue going forward.

Mitigating the impact of our revenue requirement on affordability

Sydney Desalination Plant expansion costs

As mentioned in the operating allowance section above, we are expecting to incur additional bulk water costs beginning in 2028-29 related to the expansion of the SDP. We propose to not recover these forecast costs in the 2025–30 period and instead recover any actual operating expenditure in 2025–30 relating to the SDP expansion, plus holding costs, as a true-up over the 2030–35 period. This will provide customers with additional time to adjust to bill increases and given the uncertainty in the timing of the project, ensure that customers do not pay for costs that do not materialise. The table below presents our expected operating costs over 2025–30 in relation to the SDP expansion. We estimate that excluding the SDP expansion operating expenditure will reduce water residential customer bills by approximately $30 per year on average over 2025–30.

Table 8.25: SDP expansion bulk water costs not recovered over 2025–30 ($24–25, $millions)

	2025–26	2026–27	2027–28	2028–29	2029–30	Total 2025–30
SDPE bulk water costs not recovered*	0	0	0	185	185	370

**The above expected SDP expansion costs for 2028-29 and 2029-30 are not included in our proposed operating cost allowance and are excluded from the AIR and SIR*

Development forecast for infrastructure contribution revenue

Infrastructure contributions are levied on a development at the time Sydney Water approves each connection to our systems. The total amount payable by any given development depends on the number of equivalent tenements (ETs) in that development and the registered IC price ($/ET) in the relevant Development Servicing Plan (DSP) for that location. In most cases, a development will need both water and wastewater services, which means that two separate IC payments would be required.

The infrastructure contribution revenue forecast is subject to a high degree of uncertainty:

- The total amount payable by any given development is very dependent on the exact form of that development, which we do not know in advance.
- The rate of development is largely determined by the market, and the location and timing of development may change over time for a variety of reasons.

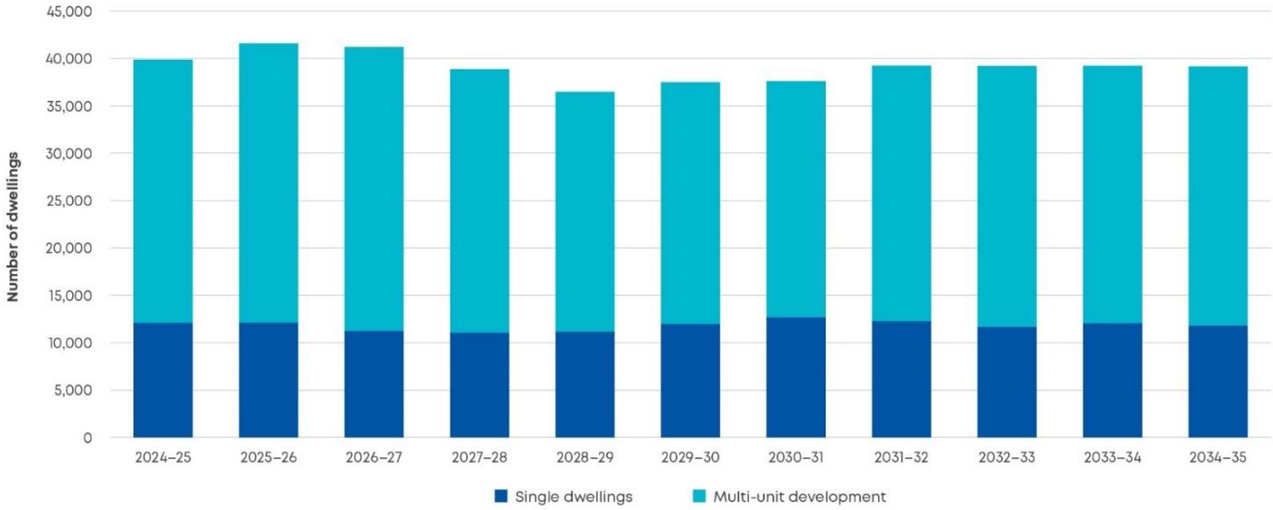
As discussed in **Chapter 3**, the NSW Government has signed up to ambitious targets under the National Housing Accord for the creation of 377,000 well-located homes across NSW by 2029, with longer-term targets still to be announced. Just under 265,000 of the new homes needed by 2029 will be in Sydney's Local Government Areas (LGAs), with a mix of infill and greenfield development. More than 50,000 new homes would be needed every year to meet the Sydney targets, significantly above the largest number of annual new connections that Sydney Water has ever experienced (which was around 36,000). As set out in **Chapter 10**, our demand forecast assumes around 30,000 to 32,000 new dwellings out to 2028, dropping to around 28,000 a year (+/− 500) on average thereafter.

If our forecast of infrastructure contribution revenue is set too low, customer bills will necessarily be higher to ensure that Sydney Water can fully recover our costs. In addition, if actual development is above the level assumed in the forecast, this may result in a windfall gain to Sydney Water. In other words, customers would bear a greater share of development risk if forecast infrastructure contribution revenue were set too low, particularly if there is upside potential in future rates of development. Conversely, if our revenue forecast is set too high and the expected revenue does not occur, Sydney Water may not have sufficient revenue to fund the provision of essential services.

The development profile we have used to estimate infrastructure contribution revenue attempts to find a reasonable middle-ground that shares risk appropriately between Sydney Water and our customers. The adopted dwelling forecast is shown in **Figure 8.7**, and is around 8,000 to 10,000 dwellings per year higher than the figures that underpin our demand forecast, but also around 10,000 dwellings a year less than the level of development needed to meet the Housing Accord targets.

Consistent with our demand forecasts in **Chapter 10**, multi-unit developments make up the largest component of the overall forecast, with rising rates of development initially before stabilising in later years. The key difference is that our IC revenue forecast assumes an overall higher rate of development in the coming period, which reflects some of the upside risk due to the National Housing Accord targets.

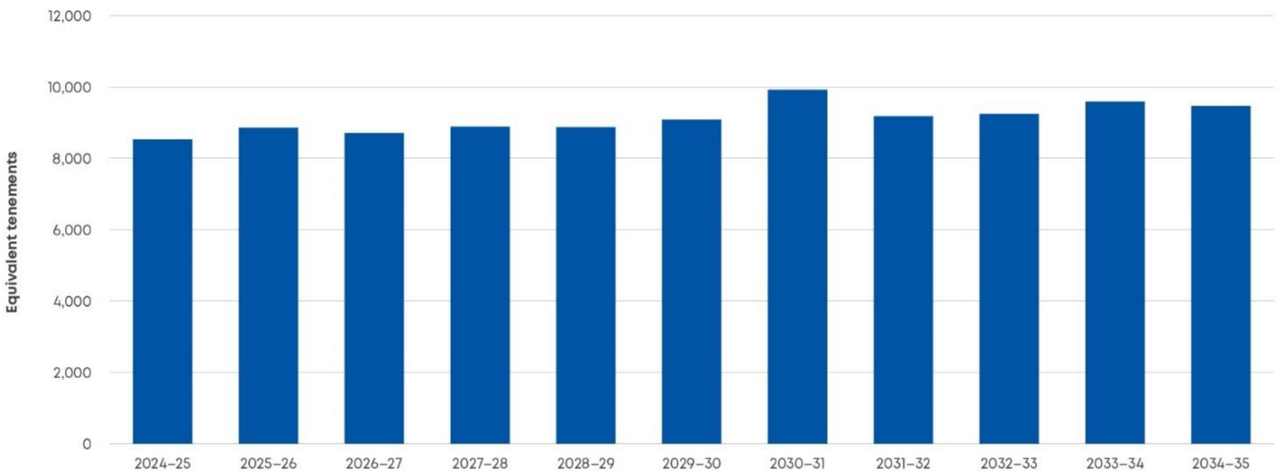
Figure 8.7: Forecast residential dwellings supporting the infrastructure contribution revenue forecast



8.8 shows the increase in non-residential developments over the forecast period, converted to equivalent tenements. The forecast shows a modest rising trend across the period. Although the non-residential ET forecast could potentially be converted to a volumetric forecast of extra water or wastewater demand, this would not be directly comparable with the demand forecasts in **Chapter 10** as the latter would reflect the conversion of non-residential land to residential which may result in negative demand growth in some years. For the purposes of estimating infrastructure contribution revenue, however, what matters is the gross estimate of extra demand.

In the case of stormwater, the infrastructure contribution forecast reflects the anticipated rates of development across the Initial Aerotropolis Precincts and our preliminary estimate of the infrastructure contribution prices that will apply in each precinct. We intend to formally exhibit Development Servicing Plans for these areas in late 2024 and into 2025, and estimates may therefore vary as IPART works through the retail price determination process.

Figure 8.8: Forecast non-residential equivalent tenements supporting the infrastructure contribution revenue forecast

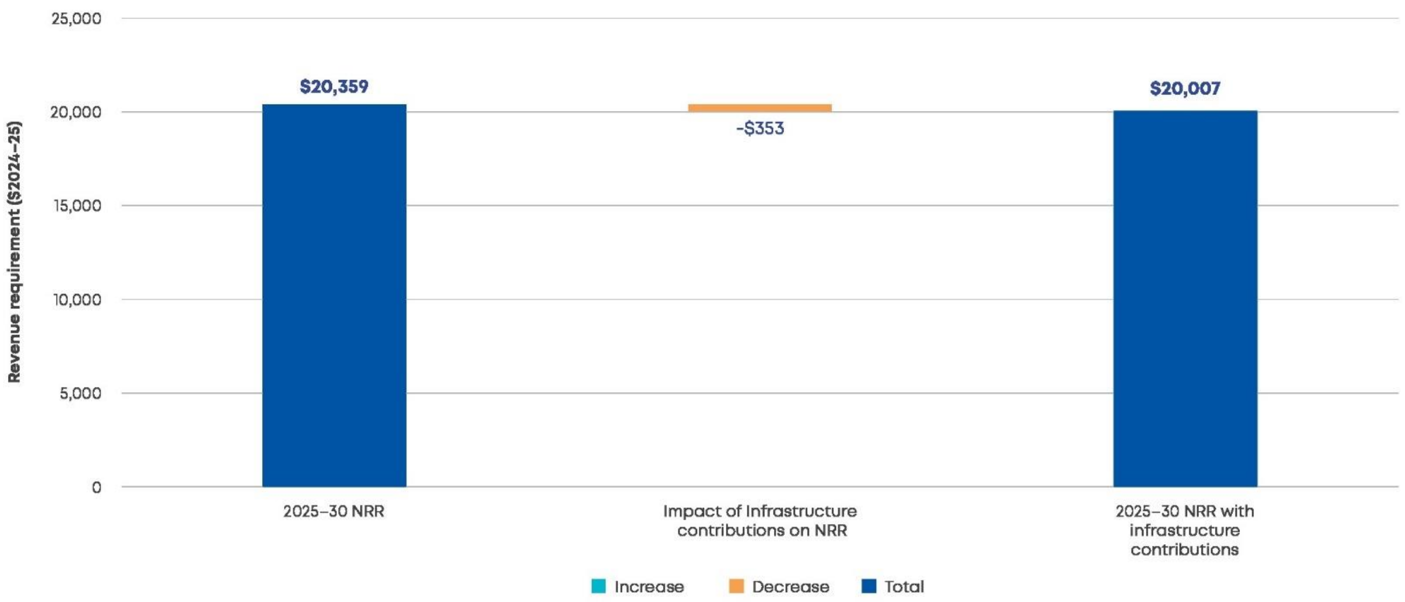


Impact of infrastructure contributions on the notional revenue requirement

All prudent and efficient growth-related capital expenditure is added to the RAB as costs are incurred, and this will flow through into our revenue requirement and our regulated prices. As development occurs over time, individual developers will pay their infrastructure contribution and this can be deducted from the RAB as they are received.

However, infrastructure contribution revenue is considered taxable income, and we must pay tax at the corporate tax rate. For example, for every $100 in infrastructure contribution revenue we receive, we must pay $30 in tax on that income. Under IPART's cost recovery framework, this tax liability is funded via the RAB and will be recovered in regulated prices. This means, for example, that every $100 in infrastructure contribution revenue will only reduce the RAB by $70. This is known as the 'net of tax' approach. In addition, the reduction in the notional revenue requirement each year is only around 10% of the IC revenue we receive, as IC revenue only acts to reduce the return on and return of asset components.

Figure 8.9: Notional revenue requirement (2025–30) with and without infrastructure contributions ($24-25, $millions)



Phase in of Ordinary Developer Contributions for least-cost Rouse Hill infrastructure

IPART's approach in its 2019 Determination for Recycled Water developer contributions is that when schemes form part of the least-cost means of providing essential water, wastewater and/or stormwater services to a new development, they should be funded on an equivalent basis as traditional network servicing solutions. At the time, the government's zero developer charges for water, wastewater and stormwater applied. As such, the determination noted that the 2018 Determination would apply to least cost schemes except where the government policy to apply zero developer charges is in place.

As discussed above, the government has directed a phased approach to reintroduce water and wastewater developer contributions. However, the contributions for greenfield stormwater in our newly declared catchments in Mamre Road and the Aerotropolis were exempted. This was in consideration that stormwater contributions for greenfield infrastructure levied by councils were not subject to the zero-charge policy, so developers would have expected to pay these charges.

We consider it would be a perverse outcome if our proposed removal of ring-fencing of Rouse Hill recycled water infrastructure resulted in a lower charge being applied to the recycled water infrastructure that all developers in the past have paid for and would expect to pay in the future.

We expect this could be achieved by IPART issuing a clarifying note that the removal of ring-fencing at Rouse Hill will not remove the liability for developers to continue to pay for their share of the costs of the recycled infrastructure. That is:

- Up until 1 July 2025, 100% of the existing recycled water DSP will apply.
- Between 1 July 2024 and 1 July 2026, developers will pay both the existing recycled water DSP and the phased Norwest wastewater DSP charges (according to the government's phase-in for those charges) as the phased wastewater DSP does not cover least-cost recycled water infrastructure.
- Before 1 July 2026, Sydney Water must review and register the Norwest wastewater DSP so it covers all growth-related least-cost wastewater and recycled water infrastructure.

Removing the Rouse Hill Land Charge

Customers in Rouse Hill also currently pay the Rouse Hill Land Charge if they have recently connected to our services. This charge was introduced because the NSW Government set stormwater developer contributions to zero in 2008, so some developments contributed while others had not. The Land Charge was set by IPART so that all properties paid an equal contribution to the stormwater infrastructure that was needed to service the new development. This is further discussed in **Chapter 11**.

The current charge is just under $2,000 and is paid over five years in equal quarterly amounts. With infrastructure contributions being phased back in, we propose the land charge paid by customers will no longer be needed once developers begin to pay contributions for the stormwater infrastructure at Rouse Hill. Removal of the land charge and transition to infrastructure contributions will support Rouse Hill pricing to align with that across Greater Sydney where customers only pay costs net of infrastructure contributions paid by developers.

Sydney Water anticipates being able to register a revised Rouse Hill stormwater DSP with IPART prior to 1 July 2026. Given some properties will begin to make their 20 payments just before the DSP is registered, it is likely there will be some properties still paying land charges in 2030.

Premier's referral for a specific efficiency review of cost and cost allocation

For the first time, we face the challenge that a large portion of our growth expenditure and funding allocation is being assessed by IPART outside of this price review. In March 2024, The Minister for Water, Rose Jackson MLC, with approval from the NSW Premier, engaged IPART to conduct a review to determine Sydney Water's efficient costs and allocation of those costs between developers, taxpayers and others to deliver stormwater drainage services in the Mamre Road Precinct. Although the terms of this review only relate to the first precinct in this growth area, the findings would set the precedent for the remaining growth in this area which represents over $1.6 billion in expenditure and $2.5 billion in revenue over the 2025–30 regulatory period. We will not know the outcome of this review before submitting this proposal.

This referral was made under Section 9 of the *IPART Act (1992)* with the terms of reference are that IPART is to provide advice on:

- the efficient costs of providing stormwater drainage services within the Mamre Road Precinct
- the efficient allocation of those costs between developers, taxpayers and others.

IPART is to provide a report containing its advice to the Secretary of the Department of Climate Change, Energy, the Environment and Water (DCCEEW) within six months of receiving final terms of reference. This is not standard practice, as IPART generally assesses Sydney Water's efficient costs and allocation of those costs during their standard price review processes. Sydney Water has also been instructed not to exhibit the Mamre Road DSP (for IWCM infrastructure contributions) until IPART has finalised its review. Sydney Water anticipates the earliest this may occur is close to when we must submit our regular price proposal in September 2024. As such, we will endeavour to incorporate IPART's findings into this proposal. This may be limited to noting its status, given timing constraints. We will, however, be able to include IPART's findings in the exhibition of the draft Mamre Road DSP, which will enable this to be registered with IPART, to allow commencement of the charges in 2025.

Proposed revenue after proposed cost pass-throughs

The revenue from charges in **Table 8.3** assumes that we seek no additional revenue within the period due to cost pass-throughs. We are proposing to continue three cost pass-throughs that we may need to uplift our prices and hence revenue for:

- Sydney Desalination Plant – potentially $54.9 million per year (on top of base assumption already in operating expenses)
- Shoalhaven Transfer – potentially $47.9 million per year
- Drought Non-Bulk Costs – potentially $52.3 million per year (on top of baseline water conservation activities).

This additional revenue will be recovered when drought measures are triggered. We propose that the Shoalhaven Transfer costs are recovered via the existing WNSW adjustment (to our water service charge) mechanism. Incremental drought-related Sydney Desalination Plant costs and other non-bulk costs mentioned above are to be recovered through our proposed drought price. See **Chapter 11** for more information regarding these pass-throughs.

The table below presents how cost pass-throughs may affect our revenue from charges if they are triggered.

Table 8.26: Proposed target revenue over 2025-30 including estimated pass-throughs ($24-25, $millions)

	2025–26	2026–27	2027–28	2028–29	2029–30
Base revenue from usage and service charges	3,437	3,704	4,006	4,322	4,667
Revenue from existing SDP and Shoalhaven pass through mechanism	155	155	155	155	155
Indicative revenue from usage and service charges	3,592	3,859	4,161	4,477	4,822

Chapter 9: Financeability

Key message

We aim to balance customer affordability and long-term financial viability. We forecast Sydney Water will maintain its credit rating metrics in the target range to achieve an implied investment grade rating. Higher gearing, capital investment, and reliance on infrastructure contributions increase volatility and risk. We assume a minimal weighted average cost of capital increase to 3.6 per cent for 2025 to 2030, and 4.4 per cent for 2030 to 2035.

Summary

- To ensure that Sydney Water can serve its customers, it must remain a financially viable business.
- Sydney Water has experienced difficult operating conditions during the 2020–25 determination period, including adverse weather and volatile interest rates. However, we maintained our capital position within our targets of implied investment grade credit rating metrics. In 2020–24, the gearing was lower than what is forecasted for 2025–30.
- We may not meet all IPART financeability tests in the early years of the 2025–30 determination, but expect that these can be managed throughout the term. We forecast higher gearing levels than in prior years and this, combined with higher capital investment and reliance on the large infrastructure contributions revenue stream, introduces additional volatility and risk.
- We forecast that we will maintain our credit rating metrics in the target range to achieve a minimum implied investment grade credit rating.
- We are assuming a minimal increase in the weighted average cost of capital (WACC) to 3.6 per cent for 2025–30 and then a larger increase to 4.4 per cent for 2030–35. This is based on the historical path of long-term interest and capital rates and a five-year trailing average for the short-term cost of debt (reducing the WACC).
- Revenue from the reintroduction of infrastructure contributions is an important element of Sydney Water's funding, but it is not designed to match the level of capital investment in the same period. Because we only receive revenue from this source as developers seek to connect new lots to our network, the reintroduction of infrastructure contributions introduces greater volatility to our total revenue.
- We have identified risks and impacts to our operations including higher capital expenditure, customer affordability concerns, water security issues, revenue volatility, and socio-political factors.

Key reference materials

APPENDICES

Nil

READING ROOM

Nil

Guided by our 3Cs focus principles

CUSTOMER OUTCOMES

Our proposal addresses bill affordability in a high-cost environment by balancing cost, risk and performance.

BALANCE RISK AND LONG-TERM PERFORMANCE

We may not meet all of IPART's financeability tests in the early years of the determination but consider these can be managed over the term of the determination appropriately.

EQUITABLE AND EFFICIENT COST RECOVERY

By under-recovering in early years, the price path is assisting with equitable cost recovery.

Financeability testing in a regulated environment

According to the Sydney Water Act, one of our organisation's main objectives is to operate as a successful business. It is also in the long-term interests of our customers that we remain financeable so we can continue to deliver our services efficiently and provide the outcomes our customers value.

As a State-Owned Corporation (SOC), it is necessary for the revenues authorised by IPART to be sufficient for the efficient operation of the business and to ensure we can continue to provide reliable services to customers. In our context, it means we can meet our financial obligations and invest what is needed to deliver for customers.

If we cannot do this because we are financially constrained, then customers or taxpayers will bear the cost. This may result in an inability to make the investments needed to provide the level of service that customers value today or into the future.

The goal of a financeability test is to verify that revenue allowances are sufficient for an efficient business to meet its financial obligations during the upcoming regulatory period.

Frontier Economics[47] has provided some context on two suitable tests to address the risk of a lack of financeability. These two tests are the application of IPART's 'benchmark' test and 'actual' test (real) for determining financeability:

- If a regulated business fails the benchmark test, it implies that the revenue allowance is too low to cover the debt obligation that the regulator deems efficient.
- If a regulated business fails the actual test but passes the benchmark test, it indicates that the business lacks financial resilience, due to its own financing decisions.

The financeability testing provided in this chapter is based on regulatory and statutory financial information.

Financial performance for 2020–24

Our financial position over the 2020–24 period has been challenged by difficult trading conditions. However, we have been able to maintain reasonable cash flow metrics (see the IPART actual financeability metrics in **Table 9.1**). The funds from operations (FFO) / debt fell below target and the gearing level increased during the period but stayed at levels well below the IPART benchmark limit of 70 per cent. Considering the various metrics, we were able to maintain our credit rating metrics within the target range, to achieve a minimum implied investment grade credit rating.

Table 9.1: 2020–24 IPART actual financeability test results (1–year)

Ratio	Target	2020–21	2021–22	2022–23	2023–24
Interest coverage (x)	>1.8	2.8	3.2	2.7	2.5
FFO/debt (%)	>6	5.8	6.1	4.3	6.3
Gearing (%)	<70	52.1	53.1	54.5	54.0

Over the 2020–24 period, our financial performance was affected by the following factors:

- **Lower revenue** driven by lower volumes of water sales from:
  - lower population and dwelling growth due to COVID-19 border closures.
  - prolonged extreme wet weather events (La Niña).
- **Higher interest rates and finance charges**: The Reserve Bank of Australia (RBA) progressively increased the cash rate from 0.10 per cent in April 2022 to 4.35 per cent in November 2023. This had a significant impact on borrowing costs for Sydney Water, with the debt cost for 2023–24 around 4.88 per cent compared to the IPART debt cost allowance of 4.55 per cent for 2020–24.
- **Increased gearing** of the balance sheet: Sydney Water undertook significant capital expenditure, which required new borrowings over the 2020–24 period as shown below.

[47] Frontier Economics, Sep 2023, *Regulatory financeability tests: early or late warning systems?*, < https://www.frontier-economics.com.au/regulatory-financeability-tests>

Table 9.2: Borrowings over the 2020–24 period as shown below (nominal, $thousands)

2020–21	2021–22	2022–23	2023–24
993,606	803,838	1,045,783	1,245,828

- Our total regulatory operating expenditure (opex) during this period was $6,794 million, representing a 0.5 per cent slight decrease to the $6,825 million IPART allowance for the determination period. Our capital expenditure (capex) was forecast to exceed the IPART determination target by 6 per cent.

Financeability forecast for 2025–35

As discussed in **Chapter 11**, the bill impact for a water and wastewater customer consuming 200kL per year is an increase of 18 per cent in 2025–26 followed by 6.8 per cent every year for the remainder of the determination period. This is an average bill increase of approximately $226 in the first year, and $111 every year until 2029–30. This staged price path, compared to a total first-year price rise (‘P0’) of 34.7 per cent, reduces the revenue to Sydney Water in the first years of the determination period and increases our debt levels. We consider that we can manage the funding of the business within reasonable risk limits over this period, particularly as we recover the funding on a net present value over the five years. However, we will not meet all the actual IPART financeability tests in those early years.

We expect that we will be able to maintain our actual credit rating assessment at or above our target investment grade implied rating level but that this may be at lower levels in some years, particularly if we face adverse conditions. If the current conditions continue, we do not expect a need for any financeability adjustment by IPART over the 2025–30 determination period. However, any changes to the existing climatic conditions and current financial market conditions may cause further implications to our forecast financial sustainability. During periods of high market volatility (such as an economic downturn), important variables like the components of the weighted average cost of capital (WACC) can move far from historic average values. To better capture market conditions, there is a possibility that greater weights should be given to current measurements in such periods. However, if market conditions change rapidly, there is also a risk that current estimates are more unreliable than historic average estimates, suggesting greater weight needs to be given to the historic measurements in volatile periods. All these factors need to be carefully considered for WACC determination in volatile periods.

As explored in **Chapter 6**, we are proposing a significant increase in the level of capital investment, particularly of growth capital investment. The funding of this increase is being eased by the reintroduction of infrastructure contributions; however, the bulk of this is still funded by our increased levels of debt. The phased reintroduction of infrastructure contributions means that in the 2025–30 determination period the funding element from infrastructure contributions will be relatively low compared to the corresponding growth capital investment, resulting in higher leverage compared with the 2020–24 determination period. Infrastructure contributions are 16 per cent of growth capital investment in 2025–26, and average 29 per cent over the determination period.

Sydney Water’s financeability using IPART’s financeability test

The results of IPART’s financeability tests based on our proposed staged price path are illustrated in **Table 9.3** and **Table 9.4**. As expected, there are relatively minor breaches in IPART’s metrics in the ‘actual’ test in the early years of the determination which are recovered in later years. When assessing Sydney Water’s financeability using IPART’s methodology, we find that:

- Our modelling assumes a WACC of 3.5 per cent for 2024–25, 3.6 per cent for 2025-30 and 4.4 per cent for 2030–35.
- Under the actual test, FFO/debt falls under the target for 2024–25 and 2025-26 due to our lower initial prices, lower infrastructure contribution and higher borrowings required to finance our future capital investment activities, which is required to accommodate our rapidly growing population and essential infrastructure needs. The interest coverage metrics remain near or above target, and our gearing ratios increase over the 60 per cent level, but remain below benchmark limits, thus we consider that our overall position remains generally consistent with IPART’s target levels.
- Under the benchmark test, our real interest coverage and real FFO / Debt ratios remain well above target for most of 2025–30. Our gearing ratio remains well below benchmark limits.

- The key difference between IPART actual and benchmark financeability test results is the cost-of-debt assumptions. Benchmark results are calculated using pre-tax real cost of debt and notional debt whereas actual test results are calculated using IPART's approach with the actual cost of debt and actual leverage.

As outlined in **Chapter 1** and **Chapter 2**, keeping water bills affordable is one of our customers' main priorities. We have carefully tested and analysed different price scenarios to ensure affordability for customers. Financeability results are based on a chosen scenario which targets bill affordability and moderate annual price adjustments over the 2025–30 determination period.

Table 9.3: IPART actual financeability test results (1–year)

Ratio	Target	24–25	25–26	26–27	27–28	28–29	29–30	30–31	31–32	32–33	33–34	34–35
Interest coverage (x)	>1.8	1.7	2.0	2.2	2.2	2.1	2.1	2.1	2.0	2.1	2.0	2.1
FFO/debt (%)	>6	3.6	5.6	6.3	6.7	6.6	7.3	7.1	6.7	6.9	6.5	7.3
Gearing (%)	<70	56.7	60.0	62.7	64.1	64.7	64.7	64.6	64.4	63.9	63.1	61.6

Table 9.4: IPART benchmark financeability test results (1–year)

Ratio	Target	24–25	25–26	26–27	27–28	28–29	29–30	30–31	31–32	32–33	33–34	34–35
Real interest coverage (x)	>2.2	3.4	4.1	4.9	5.4	5.6	6.1	4.1	4.1	4.0	3.8	4.0
Real FFO/debt (%)	>7	5.4	8.1	10.0	11.2	12.0	13.2	11.1	10.9	10.8	10.0	10.5
Gearing (%)	<70	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0

Shareholder support

Maintaining our credit rating is a government requirement and relies on the government's support to allow us to maintain appropriate and agreed financial settings. This includes engaging NSW Government in the development of our annual Statement of Corporate Intent (SCI), which is our 10-year business plan submitted annually. The annual development of the SCI enables Sydney Water to discuss the forecast finance metrics and, if required, amend all aspects of the organisation's financial plan, funding and returns to the Shareholder. We do not consider that a Shareholder contribution will be required with our proposed prices, but this could differ with alternative price paths.

Other constraints and risks

Sydney Water operates in a complex but transparent and stable regulatory framework, and we expect adequate financial performance. Visibility of cash flow and revenue over the 2020–24 determination period was provided with transparency, with regulated revenue forming around 90 per cent of our total revenue.

To ensure a financially sustainable future, we have identified the following risks and impacts to our operations:

Water security and business operation risk: Sydney Water provides water and wastewater services to over five million people across Greater Sydney. Water security concerns have grown in recent years as our current water demand exceeds the forecast sustainable system yield and due to a rise in weather-related risks such as El Niño, La Niña, droughts, floods, storms, and bushfires as per the GSWS.

Revenue risk: Sydney Water's revenues are exposed to volumetric water consumption (around 43 per cent of 2023-24 revenues were generated from customer usage charges). This risk has been minimised through IPART's demand volatility adjustment mechanism, allowing adjustment to over or under recovery in revenues from a variance in water sales volumes.

Infrastructure contributions revenue risk: Infrastructure contributions form a significant proportion of Sydney Water revenues; however, they are only received when a Section 73 development certificate is obtained by a developer over the relevant land. Sydney Water have forecast our expected timing for this development and receipt of revenues however, there is a risk that the timing may be slower or faster than forecasted.

Default risk: The NSW Government provides all Sydney Water's long-term financing, so it seems unlikely that a default would occur. However, according to Fitch, a default would significantly affect the cost or availability of financing for the state or other government-related entities. There are other NSW Government owned utilities, and a default for one would likely have repercussions for other state-owned companies. As debt increases in upcoming regulatory periods, Sydney Water intends to, and has managed, its opex and capex within regulatory-approved guidelines.

Socio-political impact: Sydney Water has very strong connection to the NSW Government, given the high degree of government oversight of the company's operations, investments and financing strategies, and the full ownership by the NSW Government. Sydney Water's long-term finance is provided entirely by NSW Treasury Corporation, the state's borrowing authority. To match the objectives of the business with its own, the NSW Government may also issue directives.

Forecast weighted average cost of capital

Our regulated WACC underpins the revenue we should expect to recover from our customers. We update estimates of the WACC that IPART uses to set our return on assets in future regulatory periods, using forecasts of financial market conditions in the first quarter of every calendar year. This enables us to incorporate our best estimate of future prices and bill impacts into business planning.

Table 9.5 provides the WACCs we have used in our modelling for this price proposal. Our results are 3.6 per cent in 2025–30, and 4.4 per cent in 2030–35. Both rely on a five-year trailing average for the short-term cost of debt (reducing the WACC for the 2025–30 period). Key parameters were updated as inputs into IPART's method:

- **Risk-free rate**
- **Implied debt margin**
- **Current market risk premium:** IPART's estimate of the market risk premium as at July 2023. Latest biannual market update by IPART
- **Inflation:** IPART's methodology only requires the one-year-ahead forecast of the WACC at the time of Determination. For 2025–26, we forecast 2.8 per cent inflation. For 2030–31, we forecast 2.5 per cent, a return to the mid-point of the RBA's target range.

Table 9.5: Weighted average cost of capital assumption 2025–35

Measure	2025–30	2030–35
Nominal vanilla (post-tax nominal) WACC (%)	6.2	7.0
Post-tax real WACC (%)	3.6	4.4
Pre-tax nominal WACC (%)	7.1	8.0
Pre-tax real WACC point estimate (%)	4.4	5.4

Chapter 10: Customer numbers and demand

Key message

We expect the number of residential customers we service to grow by an average annual rate of 1.4 per cent.

Drinking water demand is forecast to be 546 GL in 2024–25 and decrease to 542 GL in 2025–26. It is then forecast to increase by 2 GL the next year before increasing by about 5 GL/year for the following three years to 559 GL in 2029–30.

Summary

- Trends in customer numbers and demand for the 2020–2024 period have had a lasting impact on the forecasts in this price proposal. COVID-19 and subsequent labour shortages resulted in less housing construction than predicted. Combined with the wet weather conditions that dominated the current period, this resulted in lower demand than expected. For more detail on how these events have impacted the current price proposal, see *Appendix 10: Customer numbers and demand forecasting*.
- The correlation between customer numbers, demand, capital expenditure (indirectly) and operating expenditure (directly) is strong. Customer numbers drive our fixed revenue and have input into demand forecasting. Similarly, demand drives our water usage revenue. Our customer numbers and demand forecasts also inform our infrastructure program in our Long Term Capital and Operational Plan (LTCOP) and operating expenses.
- The NSW Government's Greater Sydney Water Strategy (GSWS) establishes the direction for urban water management in Greater Sydney and supports an approach to build a resilient and reliable water supply, including targets for reducing the amount of water used by customers over the next decade.
- Our customers have helped us make the most of our existing water assets and supply by changing their behaviours and attitudes towards water, which is helping us meet our GSWS water conservation targets.
- The main drivers of the demand forecast are customer growth, the proposed increase in the water usage price and forecast savings due to water conservation activities and water recycling.

Key reference materials

APPENDICES

10.1 Customer numbers and demand forecasting model

READING ROOM

Demand projections (released April,2024)
Customer numbers projections
Modelling output tables
DPHI 2022 Illawara & Population Growth
Bureau of Meteorology (BOM) Gridded Weather Data

Guided by our 3Cs focus principles

CUSTOMER OUTCOMES

Forecasting customer growth and demand is essential for planning to meet customer outcomes.

BALANCE RISK AND LONG-TERM PERFORMANCE

We apply best practice forecasting techniques and balance assumptions in the context of risk and performance.

EQUITABLE AND EFFICIENT COST RECOVERY

Customer number and demand forecasts are key drivers for financial modelling.

Customer numbers

Customer numbers during 2020–24 are trending lower than the 2020 Determination forecast across all products, with 2023–24 reflecting the lowest residential customer growth. Factors contributing to the variations include COVID-19 and subsequent supply chain issues, and climatic events that impacted residential growth. These factors have had a lasting impact on the 2025–30 forecast. A full analysis of the factors that impacted the customer numbers forecast in the 2020–25 price proposal can be found in *Appendix 10-1: Customer numbers and demand forecasting*.

How we count customers

Customer numbers can be counted in various ways. In the 'Customer numbers' section, we generally refer to customers by the way they are charged for water and wastewater services. This differs for residential and non-residential customers.

Residential customer numbers refer to the number of dwellings connected to a service (not meters). Each residential dwelling pays a full meter charge, or an equivalent charge if they don't have an individual meter. For example, a residential block of 10 units sharing a single meter is counted as 10 residential customers.

Non-residential customer numbers refer to the number and size of meters. Non-residential customers pay a proportion of the meter charge, determined by how many non-residential customers are being served by that meter. Using the example above, a non-residential unit block with one meter and 10 units would be counted as one non-residential customer since each of these non-residential customers would only pay one tenth of the meter or service charge.

In the 'Water Demand' section, we do not use the number of meters as a proxy for the number of customers. When forecasting water demand, our concern is with how much water is used in each dwelling rather than how the customers are charged. Applying the unit block example to forecasting water demand, a residential block of 10 units with one meter would be counted as 10 residential dwellings and a non-residential block of 10 units sharing one meter would be counted as 10 non-residential dwellings (units).

Customer numbers for 2024–35

Methodology

The proposed 2024–35 forecast has been prepared using the methodology described for the 2020–24 forecast with the following exceptions:

- The input data was updated to the latest available sources at the time of development, including the NSW Department of Planning, Housing and Infrastructure's (DPHI's) 2022 Sydney Housing Supply Forecast (SHSF) medium growth scenario,[48] DPHI's May 2022 local government area (LGA) implied dwelling demand for the Illawarra,[49] 2022–23 Sydney Water dwelling actuals, and the population data sources outlined below.
- The population projection generally uses the Australian Bureau of Statistics' (ABS's) 2022 Estimated Regional Population (ERP) as the starting point for the forecast, and then uses the DPHI's 2022 population growth projections to project future population growth at an LGA level. However, when the DPHI 2022 population growth was compared to the ERP, the first two years were too low and resulted in negative population growth. As a result, the Centre for Population Growth (CfP) projections were used for the first two forecast years, with the DPHI population projection adopted from year 3 of the forecast onwards. It is noted that ABS 2023 ERP at LGA level was published in late March 2024. Due to the release of the data later than the required date for processing this submission, the 2022 ERP data was used. Sydney Water has assessed the differences between the 2023 CfP projection and the 2023 ERP, noting that the 2023 ERP is generally higher than the 2023 CfP projection used. The 2023 ERP will be reviewed when assessing future updates to growth projections.
- The forecast in this submission extends into the medium term (10–15 years), whereby differences occur in the way growth is projected. For the first 10 years, the dwelling projections reflect the 2022 SHSF. For the following five years, greenfield precincts are identified and 2022 SHSF projections are used for these precincts until year 15. For infill areas, occupancy rates are used in combination with the population projections to determine implied dwellings from year 11 onwards.

Assumptions

The 2024–35 forecast is based on the following assumptions:

- DPHI's 2022 SHSF is used as the basis for dwelling growth over the 2025–35 submission period. Dwelling growth increases in the last year of the 2020–24 period, then increases further up until 2026–27 and then remains relatively steady for the remaining forecast period.
- Most future dwellings will be multi-unit (for example, apartment buildings).
- All growth will be metered either individually or have a shared meter; no unmetered growth; that is, no increase in the number of unmetered properties.
- Greenfield growth will continue to occur as planned.
- The integrated forecast across all products holds true (our forecast accounts for whether new dwellings are likely to take water, wastewater, and stormwater, depending on their location), and that growth does not occur in unexpected locations or amounts (which could alter the mix of product take-up).
- No growth in unserved areas for residential water and wastewater customers.
- No growth in flats and mixed developments – these are temporary types until strata titled.
- All known *Water Industry Competition Act 2006* (WICA)[50] sites that are currently developing have been accounted for – that is, for development sites likely to be serviced by a private utility, we may only supply certain services.
- There are no tariff restructures that will impact the existing base number of customers served.

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[48] The 2022 SHSF was approved for publication in mid 2023.

[49] 2022 NSW CPA LGA ASGS 2020 Projections https://www.planning.nsw.gov.au/sites/default/files/2023-05/2022-nsw-cpa-lga-asgs-2020-projections.xlsx [accessed Oct 2023]

[50] This encompasses demand from third-party entities that sell water to customers, typically sourcing their drinking water supply from Sydney Water while also offering an alternative non–drinking water supply.

Customer numbers forecast for 2024–35

We expect residential growth to remain relatively steady over the forecast period, with an average annual growth of 1.4 per cent. This aligns with the combined SHSF and Illawarra implied dwelling demand average annual growth rate. For residential customers, we are forecasting an average annual dwelling growth of:

- 29,000 with a water service
- 28,000 with a wastewater service
- 7,250 with a stormwater service.

For non-residential customers, we are forecasting an average annual growth of:

- around 1,250 meters per year for water services
- around 630 meters per year for wastewater services
- around 300 additional customers per year with stormwater services.

Detailed forecasts are provided in tables 10.1 and 10.2.

Water

The number of residential water customers is forecast to increase by 315,000 between 2025 and 2035. The number of non-residential property meters is forecast to increase by a little under 14,000.

Table 10.1 Water customers 2024–35 (residential and non-residential)

Water customers	2023–24	2024–25	2025–26	2026–27	2027–28	2028–29	2029–30	2030–31	2031–32	2032–33	2033–34	2034–35
Sydney Water forecast												
Residential customers	2,020,542	2,049,669	2,079,248	2,110,802	2,142,058	2,170,274	2,197,519	2,225,251	2,253,507	2,281,323	2,309,220	2,335,968
Non-residential customers	121,011	122,016	123,021	124,026	125,031	126,036	127,041	128,046	129,051	130,056	131,061	132,066
Non-residential meters	104,462	105,745	107,047	108,435	109,812	111,055	112,255	113,477	114,722	115,948	117,176	118,353
Total customers*	2,144,697	2,174,865	2,205,485	2,238,080	2,270,377	2,299,634	2,327,920	2,356,693	2,385,990	2,414,847	2,443,785	2,471,574
Forecast growth (#)		30,168	30,620	32,595	32,297	29,257	28,286	28,773	29,297	28,857	28,938	27,789
Forecast growth (%)		1.4	1.4	1.5	1.4	1.3	1.2	1.2	1.2	1.2	1.2	1.1

*Excludes unmetered properties

Wastewater

The number of wastewater residential customers is forecast to increase by 313,000 from 2025–35 inclusive. The number of non-residential property meters is forecast to increase by a little under 7,000.

Table 10.2 Wastewater customers 2024–35 (residential and non-residential)

Wastewater customers	2023-24	2024–25	2025–26	2026–27	2027–28	2028–29	2029–30	2030–31	2031–32	2032–33	2033–34	2034–35
Sydney Water forecast												
Residential customers	1,985,360	2,014,355	2,043,774	2,074,562	2,105,413	2,133,472	2,160,560	2,188,137	2,216,237	2,243,897	2,271,638	2,298,330
Non-residential customers	117,620	118,354	119,088	119,822	120,556	121,290	122,024	122,758	123,492	124,226	124,960	125,694
Non-residential meters	86,046	86,682	87,328	88,017	88,700	89,317	89,913	90,519	91,137	91,745	92,354	92,938
Total customers*	2,106,124	2,135,889	2,166,078	2,197,636	2,229,257	2,258,086	2,285,944	2,314,291	2,343,161	2,371,591	2,400,102	2,427,564
Forecast growth (#)		29,765	30,189	31,558	31,621	28,829	27,858	28,347	28,870	28,430	28,511	27,462
Forecast growth (%)		1.4	1.4	1.5	1.4	1.3	1.2	1.2	1.2	1.2	1.2	1.1

*Excludes vacant land and unmetered properties

Stormwater

The number of residential customers with a stormwater service is forecast to grow by around 80,000 from 2025–35 inclusive. The number of non-residential customers is forecast to increase by around 3,400.

Table 10.3 Stormwater customers 2024-35 (residential and non-residential)

Stormwater customers	2023–24	2024–25	2025–26	2026–27	2027–28	2028–29	2029–30	2030–31	2031–32	2032–33	2033–34	2034–35
Sydney Water forecast												
Residential customers	562,614	571,138	579,782	588,960	597,699	604,450	610,443	616,644	622,851	629,074	635,850	642,715
Non-residential customers	51,717	52,023	52,329	52,635	52,941	53,247	53,553	53,859	54,165	54,471	54,777	55,083
Total customers*	614,331	623,161	632,111	641,595	650,640	657,697	663,996	670,503	677,016	683,545	690,627	697,798
Forecast growth (#)		8,830	8,950	9,483	9,045	7,057	6,300	6,507	6,512	6,529	7,082	7,171
Forecast growth (%)		1.4	1.4	1.5	1.4	1.1	1.0	1.0	1.0	1.0	1.0	1.0

*Includes vacant and exempt properties. Excludes Rouse Hill and Mamre/Aerotropolis Stormwater.

Forecast comparison to historical trends

Residential comparison

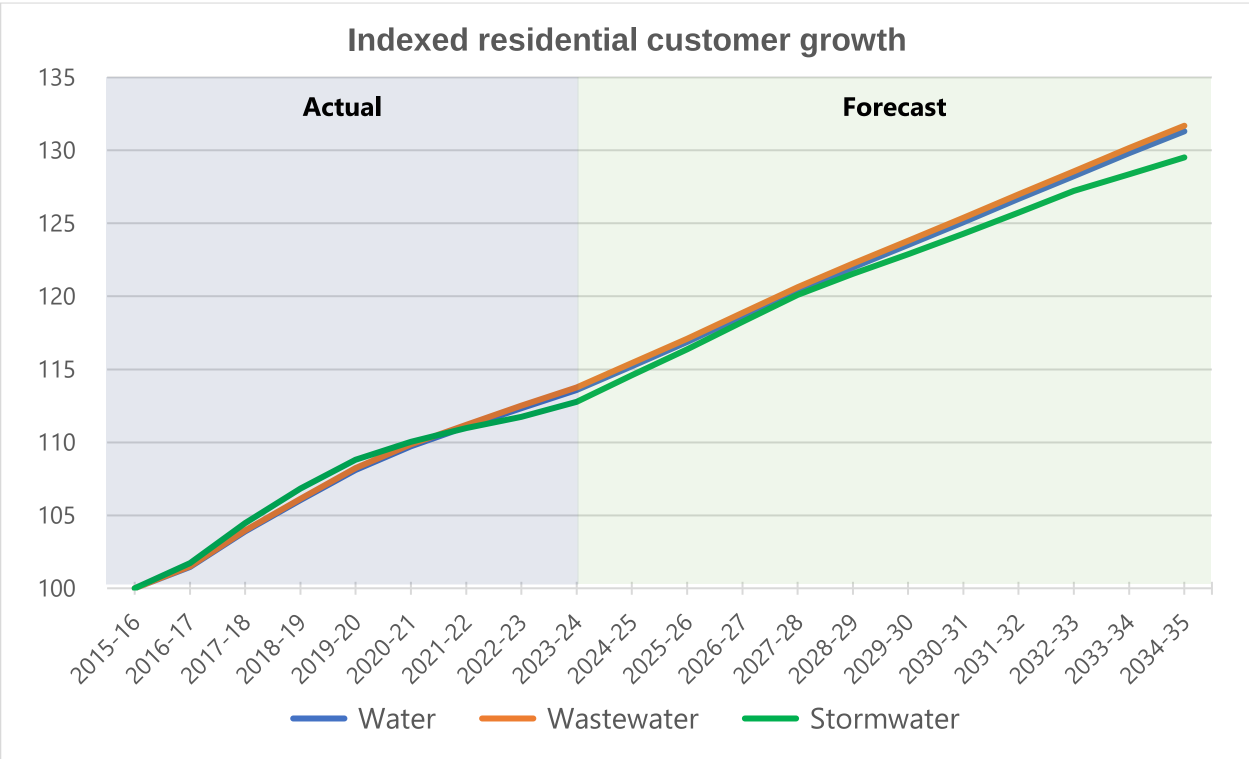
Dwelling growth in recent years was adversely impacted by COVID-19 and ensuing supply chain issues, leading to a 10-year low in dwelling completions. Prior to this, Sydney experienced historically high dwelling completions, with net completion data recording a high of over 40,000 dwellings per year in 2017–18 and 2018–19 (see Figure 10.2). Both the historical high and proceeding COVID-19 impacts have made it difficult to compare residential growth forecasts to recent historical trends. Despite this, the forecast for residential water and wastewater customers generally aligns with long-term historical trends (see Figure 10.1).

Subdued stormwater growth observed in the 2021–23 period (see Figure 10.1) may be partly attributed to the downturn in multi-unit dwelling construction, experienced because of structural issues in apartment buildings and intense media scrutiny. Sydney Water's stormwater catchments are generally located in inner city and eastern/middle ring suburbs, which forecast a high proportion of multi-unit dwellings. Subdued growth in stormwater services is anticipated to normalise in the next regulatory period. This aligns with the NSW Government objective to increase dwelling availability in infill areas.

Forecast dwelling growth for the Rouse Hill stormwater catchment is around 1,250 a year, in line with the historical average from 2015–16. This growth is expected to continue throughout the forecast period.

The Aerotropolis stormwater catchment is anticipated to have residential dwellings from 2025–26. Growth is initially expected to begin more slowly, before increasing in the later part of the forecast period. On average, this new stormwater catchment is forecast to have an average annual growth of 175 dwellings.

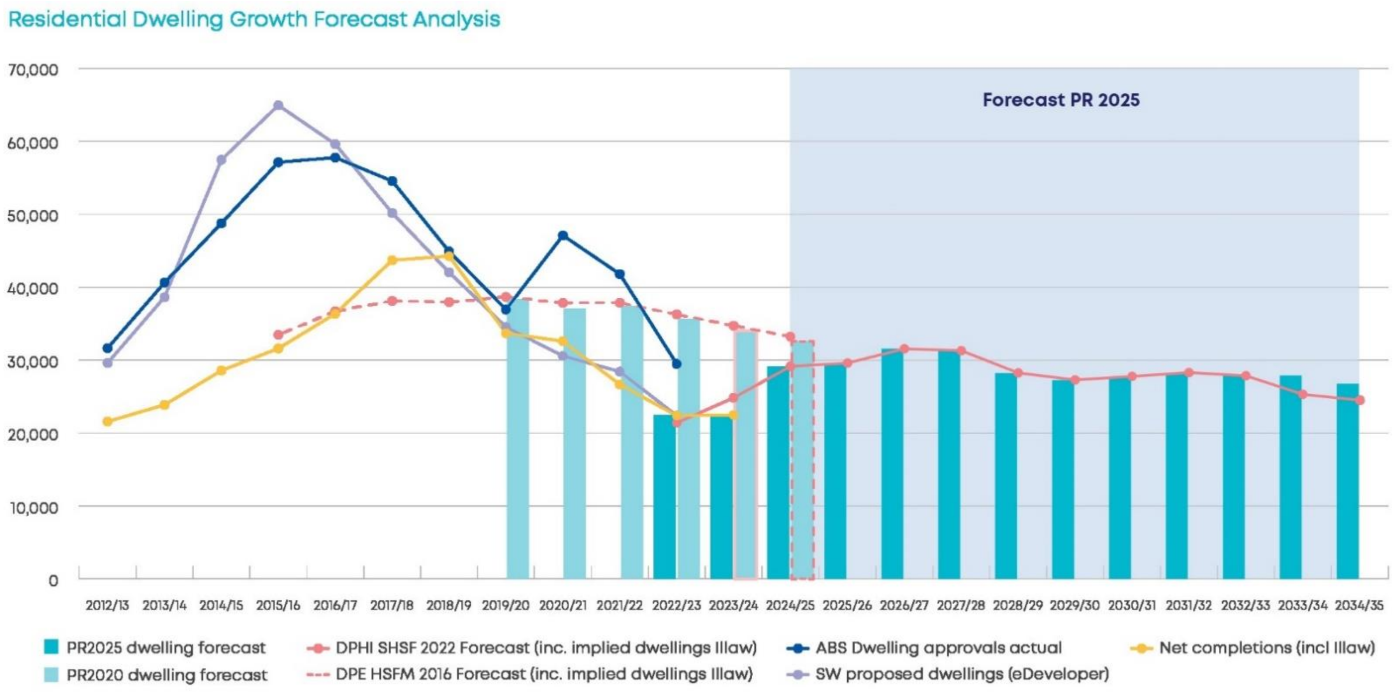
Figure 10.1 Indexed residential customer growth for water, wastewater, and stormwater.



The residential forecast is aligned with the DPHI SHSF 2022, which features lower growth than the NSW Department of Planning and Environment (DPE) HSFM[51] 2016 (see Figure 10.2). The last two years of the forecast submission show slightly higher growth than the 2022 SHSF, due to the conversion of population projections into implied dwellings using occupancy rates as detailed above..

[51] Housing Supply Forecast Model (includes Greater Sydney and Illawarra region)

Figure 10.2 Historic residential growth forecasts, actuals and future indicators



The DPHI 2022 SHSF is approved for use by the NSW Government Common Planning Assumptions Group (CPAG). Historically, the 2022 SHSF has performed well, achieving a high level of accuracy when compared to completions. This forecast is established to guide government and agencies on future growth to facilitate a coordinated delivery of housing and infrastructure across the board.

The 2022 SHSF supports a modest recovery in dwelling completions occurring from 2023–24, indicating that the lows experienced during the pandemic are unlikely to continue. Below are some of the external conditions that coincided during the development of the 2022 SHSF which maintained the view that the extraordinary conditions experienced during the pandemic were easing:

- In 2022, over 95 per cent of the eligible NSW population was vaccinated against COVID-19, with vaccines readily available for boosters. Contact tracing and mandatory mask rules were no longer required, and business was returning to normal.
- International and interstate borders had re-opened and freedom of movement was restored.

Although underlying demand for housing is strong, elements such as labour shortages and supply chain issues, combined with high interest rates means that a return to peak completions experienced prior to COVID-19 in the short term remains tentative. In May 2024, the RBA reiterated that construction costs and ongoing labour capacity constraints continue to impact housing supply.[52] High-profile infrastructure projects like Western Sydney Airport are competing with the residential construction industry for key tradespeople, further amplifying labour shortages. The combination of high interest rates, increased construction costs and construction delays have all contributed to a reduction in buyer sentiment. This is reflected in the decline in dwelling investment, stabilised sales of house and land packages at low levels and continued low demand for off-the-plan apartments.[53] These economic conditions are anticipated to impact housing supply into the forecast period.

Non-residential comparison

Forecasting non-residential growth is inherently more difficult than forecasting residential growth, due to the relatively smaller number of non-residential properties in comparison to residential properties. Determining a common measure also remains challenging despite consideration of a variety of factors like floor space, vacancy rates, employment numbers or jobs, hectares of

[52] Statement on Monetary Policy – May 2024 https://www.rba.gov.au/publications/smp/2024/may/economic-conditions.html#2-2-domestic-economic-activity [accessed July 2024]

[53] Statement on Monetary Policy – May 2024 https://www.rba.gov.au/publications/smp/2024/may/box-a-insights-from-liaison.html [accessed July 2024]

various sector types, profit and revenue projections. None of these fit the requirement of number of properties or meter forecasts currently used in our forecasting methodology.

The opportunity to develop a common metric and projection for non-residential growth is under consideration for future development and in agreement with the Common Planning Assumptions Group (CPAG).

Future growth forecasts in non-residential property numbers rely heavily on historical trends of number of property meter connections, development approvals and proposed developments. Meter size is mainly considered for water and wastewater services as rate charges vary based on the property's meter size. Land size is used to forecast growth to inform stormwater service charges.

Non-residential growth forecasts rely on historical trends. Recent historical trends have been significantly impacted by two main factors, including:

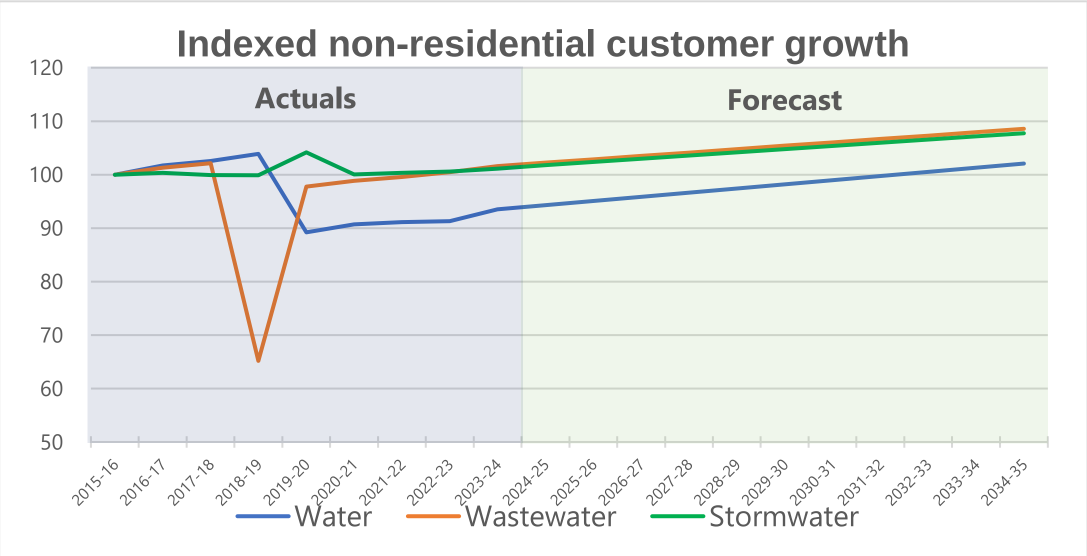
- the 2018–19 migration to the new SAP billing system and data cleansing which resulted in variations in reported non-residential numbers, leading to lows and highs in the data (see **Figure 10.3**)
- the 2020–23 pandemic period, which significantly impacted non-residential growth due to lockdowns that enforced business closures and mandated remote working arrangements.[54]

According to a statement on monetary policy by the Reserve Bank of Australia (RBA) in August 2021, the increased remote working during the pandemic that contributed to a sharp fall in demand for office space is likely to weigh on office demand in the longer term. Although office construction is expected to decline, the outlook remains to be very uncertain. The RBA also noted that while increased online shopping supported industrial property demand and construction, the retail property demand has declined[55].

The easing of COVID-19 restrictions and a return to normal business operation is anticipated to result in a recovery for non-residential growth. This return to pre-pandemic growth, as well as the variability resulting from the 2018–19 system migration has meant that the recent historical trends have not been incorporated into the current non-residential customer forecast. Historical trends from before these events were used instead as a basis for the current non-residential customer forecast. This is reflected in a normalised trend for the forecast period from 2025–35 in line with historical averages prior to the system migration and COVID-19 influences.

The non-residential water and wastewater meter forecast is proportional to the residential dwelling forecast, and hence the modest recovery anticipated in the 2022 SHSF explained above has generally resulted in a higher non-residential meter forecast than the 2020–23 COVID-impacted years.

Figure 10.3 Indexed non-residential customer growth for water, wastewater and stormwater.



[54] Media Release 14/12/2021: More than 40 per cent of Australians worked from home https://www.abs.gov.au/media-centre/media-releases/more-40-cent-australians-worked-home [accessed May 2024]

[55] Statement on Monetary Policy – August 2021 https://www.rba.gov.au/publications/smp/2021/aug/box-b-covid-19-and-commercial-property-in-australia.html [accessed May 2024]

Water demand forecast

Like the customer numbers forecast in the 2020–2024 Determination, several factors impacted demand that resulted in a significantly lower actual demand than forecast. These include water restrictions (June 2019 – November 2020) and their lasting effect; COVID-19, including its impact on population growth; and relatively cool and wet weather conditions for the first three years. Over the four years from 2020–21 to 2023–24, total demand was 7.7 per cent lower than forecast. This net variation in total demand understates the impact on revenue because this net effect includes a positive contribution from leakage, which does not contribute to water sales revenue. In terms of revenue water – that is, the component of total demand that determines water sales revenue – demand was about 10.2 per cent lower than forecast. A full analysis of the factors that impacted the demand forecast in the 2020–24 price proposal can be found in *Appendix 10-1: Customer numbers and demand forecasting*.

Water demand forecast 2024–35

Table 10.4 presents our forecast for filtered and unfiltered water demand for 2024–25 to 2034–35. Forecast demand 2024–35 (ML)

Demand component	2024–25	2025–26	2026–27	2027–28	2028–29	2029–30	2030–31	2031–32	2032–33	2033–34	2034–35
Billed metered demand											
Residential	364,566	363,892	365,575	371,350	374,483	378,645	378,942	380,785	380,621	381,505	382,485
Non-residential	115,629	114,502	115,974	116,933	117,643	118,875	116,630	116,448	116,792	117,369	118,000
Unfiltered	1,399	1,399	1,399	1,403	1,399	1,399	1,399	1,403	1,399	1,399	1,399
Total billed metered	481,593	479,792	482,948	489,685	493,524	498,919	496,971	498,635	498,811	500,272	501,884
Billed unmetered, non-revenue and recycled top-up	64,517	62,644	61,428	60,990	60,773	60,160	59,777	59,225	58,759	58,072	57,746
Total[a]	546,111	542,436	544,376	550,675	554,298	559,079	556,748	557,860	557,571	558,344	559,630

a: Totals may differ from sum of components due to rounding

Demand is forecast to be 546 GL in 2024–25 and to decrease to 542 GL in 2025–26 and 544 GL in 2026–27. It is then forecast to increase by about 5 GL/year for the following three years, to 559 GL in 2029–30, the final year of the price review. The main drivers of the forecast pattern are customer growth, the proposed increase in the water usage price and forecast savings due to water conservation activities (see Water Conservation Plan, reading room Chapter 6) and water recycling.

The forecast decrease in demand in 2025–26 is due to the proposed increase in the water usage price which more than offsets the growth in demand due to customer growth. The relatively small increase between 2025–26 and 2026–27 is due to the lag effect of this price increase – it takes about two years for the full effect to materialise. The increase in the following years is the net effect of the increase due to customer growth and forecast water savings.

Looking beyond the current price review period, demand is forecast to decrease in 2030–31 due to an increase in water savings, in particular the coming online of a large recycling project, after which it is forecast to increase to about 560 GL by 2034–35. The next section discusses the key drivers, assumptions and inputs that determine the forecast in more detail.

Key assumptions and inputs underlying the forecast for 2024–35

Dwelling and population growth

The dwelling and population growth forecasts that have been used as input to produce the demand forecast are discussed in section 1 of this chapter.

Water usage price

The real water usage price is assumed to stay constant until 2024–25 and then increase to $3.01 per kilolitre (kL) (dollars of 2023–24) in 2025–26 and then stay at this level for the remainder of the forecast period. $3.01 (dollars of 2023–24) is the estimate of the long run marginal cost of water at the time this forecast was prepared. It represents an increase in the real water price of 12.7 per cent compared to current (2023–24) levels.

Leakage

The forecast assumes leakage will decrease from about 130 megalitres per day (MLD) in 2023–24 to about 105 MLD by 2034–35 and stay at that level thereafter. The basis of the leakage forecast is discussed in **Chapter 14**.

KEY ASSUMPTIONS AND INPUTS

- Dwelling and population growth
- Water usage price
- Leakage
- Lasting impacts of restrictions and COVID-19
- Demand management measures and water conservation
- Weather

Lasting impacts of restrictions and COVID-19

The residential and non-residential demand models have been calibrated to demand in the 2022–23 financial year. This was the most recent year for which complete consumption data was available at the time the forecast models were prepared. It is assumed that any bounce back from the impact of restrictions and COVID-19 was complete by 2022–23 and that there will be no further bounce back.

Analysis carried out for 2012 price review showed that following the lifting of the 2003–09 restrictions, demand had fully adjusted after about five quarters.[56] The 2019–20 restrictions were lifted in December 2020. At the start of 2022–23, six quarters had elapsed since the lifting of restrictions. As a result, it is reasonable to assume demand had fully adjusted by then and that there will be no further bounce back from restrictions than is evident in the 2022–23 demand.

The last COVID lockdown finished about October 2021. This means that by the end of 2022–23 businesses and employees had had more than one and a half year to settle into post-COVID work practices. The new non-residential model allows for and captures the bounce back that occurred during this period. However, it is assumed that businesses had fully adjusted to post COVID practices by the end of that one and a half year period and that there will be no further bounce back. Note that the assumption relates to bounce back of average (per capita) demand. Total non-residential demand will still grow in line with population growth.

Demand management measures and water conservation

The forecast generated by the residential and non-residential model includes the effect of demand management and water conservation activities implemented up to 2022–23 but does not include the decrease in demand from these activities beyond that.[57] To include the impact of future water conservation activities in the forecast, we deduct the forecast savings from these activities from the 'base' forecast generated by the model. The forecast savings are shown in Table 10.5. See **Chapter 14** for more details. The savings are based on the detail in the *Water Conservation Plan*, adjusted downwards to account for a level of uncertainty around customer behaviour, program delivery and overlapping benefits of different programs.

[56] Sydney Water's submission to IPART's Review of prices for Sydney Water Corporation' water, sewerage, stormwater and other services. Sydney Water, 16 September 2011. Appendix 15.

[57] The residential forecast from 2030-31 onward is generated using the long term residential model which does include the impact of some programs other than BASIX. Also, some of the forecast savings prior to 2030-31 are estimated with the help of the long term model.

Table 10.5 Forecast savings from water conservation programs (ML)

	2024–25	2025–26	2026–27	2027–28	2028–29	2029–30	2030–31	2031–32	2032–33	2033–34	2034–35
Residential											
Estimated in long term model	63	225	380	530	666	720	1,582	1,757	1,922	2,089	2,251
Other residential	37	346	894	1,580	2,246	2,815	3,603	4,429	5,184	5,979	6,699
Non-residential	38	300	667	1,113	1,529	1,771	2,195	2,620	2,838	3,178	3,461

Weather

The forecast assumes average weather conditions will apply. Average weather conditions have not been based on historical data. In the presence of climate change, averages based on historical data may not be representative of current average conditions. Instead, average conditions have been based on the NARCliM climate projections for NSW to incorporate the impacts of climate change on average conditions.

NARCliM provides an ensemble of projections for different models and different downscaling approaches. The demand forecast is based on average weather across the whole ensemble of NARCliM 1.0 and 1.5 projections. In particular, 24 forecast are generated, one for average weather according to each of the 24 climate projections produced by NARCliM 1.0 and 1.5. The final forecast is the average of those 24 forecasts. More detail on the range of forecasts that was produced can be found in Appendix 10-1.

Modelling approach

The demand forecasting model is a bottom-up model. Separate models are used to forecast the different components of total demand, which are then combined into a forecast of total demand. The components of total demand are based on the components of the water balance.

This section provides a high-level overview of the models used to forecast residential and non-residential demand, which together represent close to 90 per cent of total demand. A more detailed description can be found in Appendix 10-1. The basis of the leakage forecast, which represents about 9 per cent of total demand, is described in Chapter14. For a description of the approach taken to forecast the remaining, minor components of demand, see Appendix 10-1.

Residential model – short-term

Demand by residential properties represents about 67 per cent of total demand. Residential demand up to 2029–30 is forecast using the short-term residential model, demand from 2030–31 using the long-term residential model. This section describes the short-term model, the next section the long-term model.

The residential demand forecasting model builds on a method used in a 2011 study of the residential price elasticity of demand by Sydney Water and Dr Vasilis Sarafidis, then lecturer in econometrics at the University of Sydney.[58]The approach was first used to build the forecasting model for the 2012 price review. IPART organised a public workshop at the time of the 2012 price review where Sydney Water presented the model to invited modelling experts and other stakeholders. The new model was considered best practice[59]. An updated version of the model was reviewed as part of the efficiency review for 2020 price review IPART's consultants concluded that the model represents 'best practice' and is 'a well-researched and robust tool for medium term forecasting'.[60]

The models were updated in 2014 in preparation for the 2016 price review and were again updated in 2018 for the 2020 review. The updated models use the same fundamental approach as used for the 2012 review. The updates were limited to minor adjustments to the segmentation and re-estimation of the regression models using more recent data. A partial update was carried out for the 2025 price review to allow for the shift in demand due to the 2019–20 water restrictions and COVID-19 – see *Appendix 10-1: Customer numbers and demand forecasting* to this chapter for more detail.

The basis for the short-term residential model are econometric (panel regression) models of average quarterly demand for about 30 residential segments. The segments are based on factors such as dwelling type (such as single dwelling and strata unit), BASIX status (pre- or post-BASIX), lot size, tenure (owner occupied or rented) and availability of a reticulated recycled water supply in addition to drinking water.

The explanatory variables included in the models are season, weather variables (various measures of maximum temperature, rainfall and evaporation) and the water usage price. The model coefficients were last estimated in 2018 in preparation for 2020 price proposal. We have updated the models for 2025 price proposal by re-estimating the constant term only to capture the shift in demand due to the lasting impact of restrictions and COVID-19.

The models are used to forecast average demand by segment by inserting the assumed prices and weather conditions. The forecast average demands are then multiplied by the forecast of the number of dwellings to forecast total demand by segment.

Residential model – long-term

An end use model, which estimates total residential demand as the sum of water consumption in different end uses,[61] is used in the longer term (from 2030–31) to capture effects like improved water efficiency in household appliances and changes in household size. The end use model is applied to two segments of residential dwellings (single and multi) in each delivery system. Demand for indoor end uses is based on a stock model, which simulates the shifts between different levels of efficiency in appliances, behaviour

[58] B. Abrams, S. Kumaradevan, F. Spaninks and V. Sarafidis. An Econometric Assessment of Pricing Sydney's Residential Water Use. The Economic Record, Vol. 88, No. 280, March 2012, pp 89–105.

[59] Review of prices for Sydney Water Corporation's water, sewerage, stormwater drainage and other services; From 1 July 2012 to 30 June 2016; Water – Final Report. IPART, June 2012.

[60] Atkins. Sydney Water Corporation Expenditure and Demand Forecast Review. Final Report. 5 February 2020, p 12.

[61] Washing machines, toilets, showers, dishwashers, outdoor and leaks

parameters estimated from high-resolution metering of a sample of customers, and average household size. Initial outdoor demand is estimated as the balance of these demands and the average demand estimated by the econometric models for each segment.

Demands are estimated as source-agnostic demands, and then split into drinking water demand and demand supplied by other sources based on the current and expected future prevalence of rainwater tanks, dual reticulation, and similar schemes in pre- and post-BASIX dwellings in each segment. As well as providing the primary forecast of residential demand beyond 2030, the end use model enables modelling of some of the water conservation activities and provides demand outputs other than the drinking water demand totals used in long-term planning processes.

Non-residential model

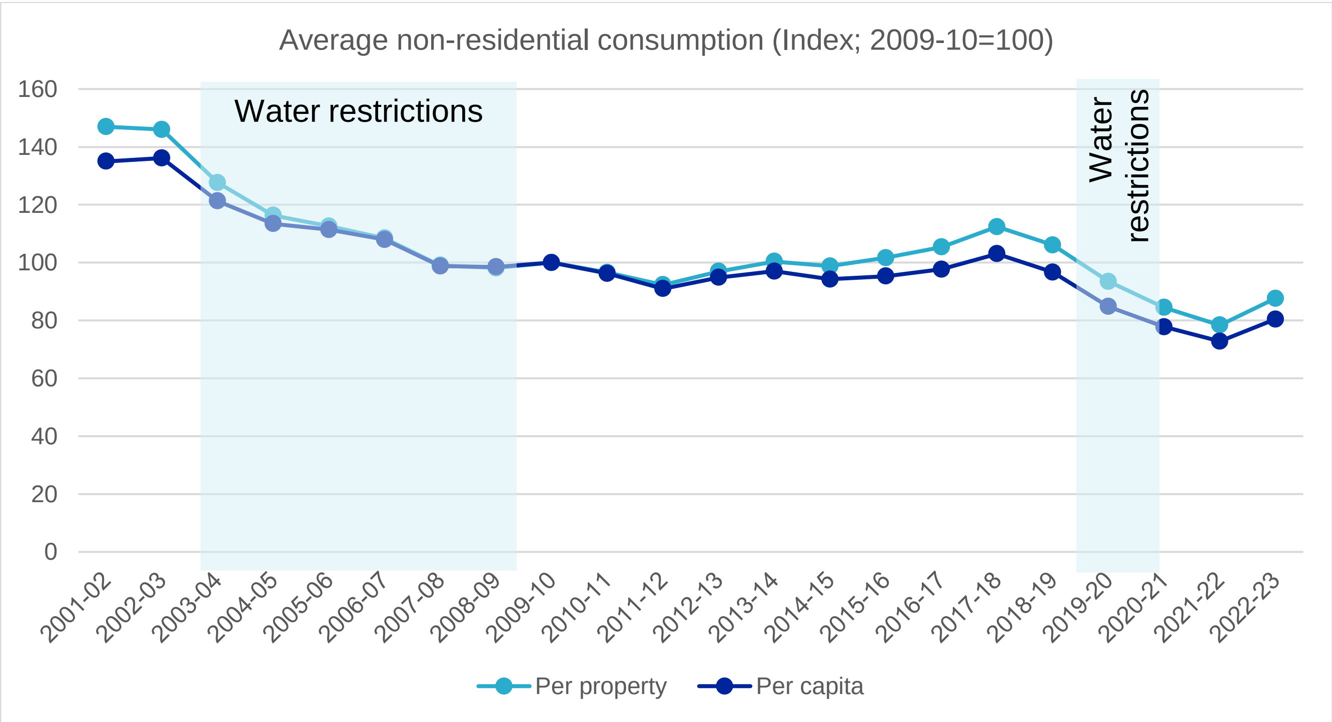
Demand by non-residential properties represents about 21–22 per cent of total demand. The percentage non-residential demand has been on a long-term downward trend from about 30 per cent in the early 1990s.

A new model of non-residential demand has been developed for 2025 price review. Like the previous model, it is based on a time series regression model. However, where the previous model was based on regression models of average demand per property, the new model is based on a regression model of non-residential demand per capita. That is, non-residential demand divided by the resident population of the area supplied by Sydney Water. Per capita demand is much more stable than per property demand and therefore provides a more stable and easily deployable basis for forecasting.

Figure 10.4 shows average non-residential consumption per property and per capita, excluding the top six non-residential customers. To allow comparison of stability of these measures they have both been converted to index figures where 2009–10 = 100. Both measures exhibit a strong downward trend during periods of structural changes such as the 2003–09 water restrictions and the 2019–20 restrictions. Outside these periods with large structural shocks, per capita demand is a much more stable measure than per property demand.

Per property demand shows a clear upward trend in the period between the two periods of restrictions. However, this trend is absent or much less clear for per capita demand. While the pattern in per capita demand during this period can be almost fully explained by weather patterns, weather patterns can only partly explain the pattern in per property demand.[62]

Figure 10.4 Average non-residential consumption (excluding top six)



[62] Explain in terms of-the extent to which a regression model using weather variables as explanatory variables can reproduce the observed pattern – see the Appendix to this chapter.

As the exact cause of the trend in per property demand is unknown, it provides a less stable and more arbitrary basis for forecasting than per capita demand. We can estimate a model that quantifies the trend as a function of time. However, forecasting using this model would require us to make assumptions about whether this trend will continue and, if so, whether this will be at the same pace and for how long. Without a solid quantitative understanding of the underlying causes of the observed trend, such assumptions can become arbitrary. Given the absence of a strong trend in per capita demand, using a model of per capita demand as the basis for forecasting means such assumptions are not required or are much less consequential. For this reason, we have chosen to prepare a new forecasting model for non-residential demand based on per capita demand.

The new model is based on a combined seasonal decomposition and time series regression model of monthly per capita non-residential demand from July 2011 to June 2023. The explanatory variables besides season include weather variables and price. The impact of the 2019–20 water restrictions and COVID-19 are captured using a set of indicator variables.

The previous non-residential model did not include price as an explanatory variable. To include the effect of price changes in the forecast we applied an estimate of the price elasticity of non-residential water demand to the outputs from the model. No estimates of the price elasticity of non-residential demand were available for Sydney Water's area of operations and we based our estimate on published estimates for other jurisdictions. As the new model includes price it is no longer necessary to rely on these non-Sydney specific estimates. The non-residential price elasticity inherent in the new model is -0.17, which means that a one per cent increase in price is estimated to result in an 0.17 per cent decrease in demand. Or, conversely, a one per cent decrease in price is estimated to result in an 0.17 per cent increase in demand.[63]

The model has been estimated using data up to and including 2022–23. For forecasting, we assume that non-residential per capita demand has stabilised at the 2022–23 level (with appropriate corrections for the impact of other factors, in particular weather), the first full financial year post COVID-19 related lockdowns. The model is then used to forecast per capita demand by inserting average weather conditions (based on the NARCliM projections) and the assumed price path. This is then multiplied by the forecast population to arrive at total non-residential demand.

Model performance

As the model by necessity relies on the most recently available data up to 2022–23 for coefficient estimation and calibration there is only limited data available to test the out-of-sample performance of the model. Below we compare the performance of the model over the first three quarters of 2023–24.

Table 10.6 compares total demand for the first three quarters of 2023–24 (July 2023 to March 2024) with two model predictions for the same period: one prepared by running the model with average weather conditions and another prepared by running the model with the actual, observed weather conditions during this period.

Table 10.6 Actual and predicted demand for Q1–3 2023–24 (Jul 2023–Mar 2024; ML)

Actual	Model prediction – average weather		Model prediction – actual weather	
	Prediction	Difference	Prediction	Difference
419,594	413,662	-5,932 / -1.4%	418,560	-1,034 / -0.2%

The model prediction using average weather underestimates actual demand by about 1.4 per cent. However, when we run the model with the actual weather conditions the difference between actual and model prediction is reduced to 0.2 per cent only. Provided actual weather conditions are known, the model can closely predict demand.

[63] The previously used estimate was –0.264. As explained this was an average of published estimates for other jurisdictions; that is, non-Sydney specific. While different, the new estimate of –0.17 is within the range of published estimates.

Key sensitivities

This section quantifies the sensitivity of the demand forecast to some of the key inputs and assumptions; that is, weather conditions, customer growth and the water usage price. We do not discuss sensitivity to forecast savings from water conservation, recycling and leakage reduction. The sensitivity of the forecast to these factors follows directly from the forecast savings which are discussed elsewhere.

KEY SENSITIVITIES

- Climate change projections
- Weather
- Customer growth
- Price

Climate change projections

Climate change means historical averages are likely to provide biased estimates of what constitutes current average weather conditions. We therefore rely on the NARCliM climate change projections to define average weather. NARCliM 1.0 and 1.5 produced a total of 24 climate projections giving us 24 projections of average weather. A demand forecast was generated for each of these 24 projections and the final forecast is the average of these 24 forecasts.

The spread in the 24 forecasts relative to the final forecast is -1.7 per cent to +1.6 per cent. This range excludes one projection which resulted in an extremely low forecast and was considered an extreme outlier. This spread provides a measure of the uncertainty in the demand forecast due to uncertainty in the climate change projections.

It is important to note that this is not the same as sensitivity to weather fluctuations discussed below. It is a measure of the uncertainty in the forecast under average weather conditions that is due to uncertainty in the climate change projections that are used to define those average conditions. The uncertainty due to weather is a measure of the potential year-to-year variations around the forecast under average conditions due to year-to-year fluctuations in the actual weather from the average weather.

Weather

Water consumption is sensitive to weather conditions. Demand in a relatively hot and dry year will be higher than demand in a relatively cool and wet year. The forecasting model includes weather variables and can predict demand for a specific set of weather conditions. However, it is impossible to forecast the weather accurately for the next six years to 2029–30. Therefore, average weather conditions are used in the model when forecasting demand.

This means that in most years demand is likely to be somewhat higher or lower than forecast, as no year is exactly average. To test the sensitivity of the forecast to weather conditions, we used the model to generate forecasts for several weather scenarios based on observed historical weather and the NARCliM projections. This analysis shows that in any one year, demand could be up to 4.6 per cent lower or 4.8 per cent higher than the forecast for that year based on average weather conditions.

These are maximum variations, reflecting an extremely wet, cool year and an extremely dry, hot year. In most years, we would expect a smaller variation. While weather variations can result in significant variations to the forecast under average weather in a particular year, over a number of years the positive and negative variations will likely start to average out. For example, analysis carried out for one NARCliM projection showed that three quarters of the weather scenarios for 2025–30 that were analysed resulted in a demand forecast for this period that is within +/- 1.5 per cent of the demand forecast for this period based on average weather every year.

Customer growth

To test sensitivity of the demand forecast to the dwelling growth forecast we ran the model with an extra 10,000 dwellings growth each year. It was assumed that this additional growth was split between single and multi-residential dwellings in the same proportion as used in the base forecast.

This showed that every 10,000 extra dwellings add about 1.7GL to annual demand. If all these 10,000 extra dwellings are multi-residential dwellings this would add about 1.4 GL to annual demand.

Price

Water demand is relatively insensitive to the water usage price. The price elasticity of residential water demand as estimated using the short term residential model is -0.23 and -0.07 for single and multi-residential dwellings, respectively. The estimated price elasticity of non-residential demand is -0.17.[64]

These elasticities mean that every 1 per cent increase (decrease) in the water usage price is estimated to result in:

- an 0.23 per cent decrease (increase) in water demand by single residential dwellings
- an 0.07 per cent decrease (increase) in water demand by multi-residential dwellings
- an 0.17 per cent decrease (increase) in demand by non-residential dwellings.

Water demand is price inelastic: the estimated percentage change in demand due to a change in price is, in absolute terms, less than the percentage change in price.

Our demand forecast is based on the proposed increase in the water usage price to $3.01 (dollars of 2023–24) in 2025–26. This price increase is estimated to reduce annual demand by about 11 GL by 2029–30. This was estimated by comparing the forecast with the proposed price increase with a forecast which kept the real price constant.

This analysis allows us to express the sensitivity of the forecast to price in absolute terms instead of the relative terms used by the price elasticity metric. Every 10 cents increase (decrease) in the water usage price (dollars of 2023–24) is estimated to decrease (increase) annual water demand by about 3.4 GL.

[64] See the Appendix to this chapter for more detail on how the demand elasticity can be estimated using the models.

Chargeable wastewater forecast

Most non-residential properties are liable for a wastewater usage charge in addition to the fixed wastewater service charge. This wastewater usage charge is based on the volume of wastewater discharged above a certain free allowance, called the chargeable wastewater volume. The discharge is generally not directly metered but based on the metered water consumption multiplied by a discharge factor:

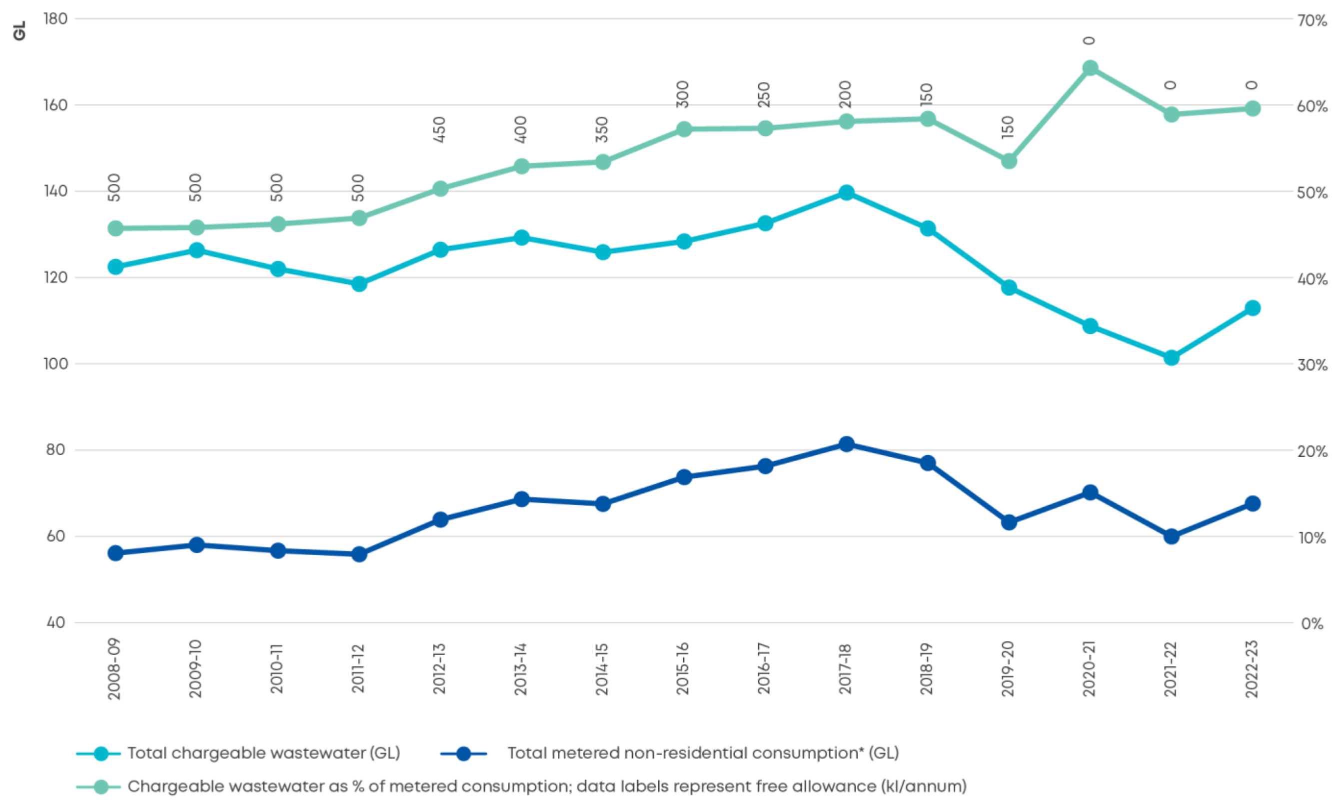
chargeable wastewater volume = (metered consumption x discharge factor) – free allowance.

The discharge factor varies between properties although for the majority, it equals a default value of 0.78. For purposes of calculating the chargeable wastewater volume, metered consumption includes both drinking and recycled water.

Between 2011–12 and 2020–21 the free allowance was gradually reduced from 500 kl/year to zero. To forecast the impact of the reduction in the free allowance, a large simulation model was required because the free allowance in combination with the varying discharge factor and some further complexities introduces strong non-linearities in the calculations.

As a free allowance no longer exists, the relationship between the total metered consumption and the total chargeable wastewater is now much simpler. As shown in Figure 10.5 below, since the free allowance ended, total chargeable wastewater as a percentage of total metered non-residential consumption has stabilised at just under 60 per cent. The period from 2008–09 to 2011–12, when the free allowance was constant at 500 kl/year also illustrates that during periods with a constant free allowance, total chargeable wastewater is virtually a constant proportion of total metered consumption.

Figure 10.5 Chargeable wastewater as a proportion of total non-residential consumption



*: Excludes unfiltered and includes recycled water consistent with the base for the chargeable wastewater volume calculation

As there no longer is a free allowance, the detailed property level simulation model approach to forecasting chargeable wastewater that was used for previous proposals is no longer required. As shown above, total chargeable wastewater as a percentage of total metered consumption has stabilised since the free allowance was abolished. Therefore, to forecast total chargeable wastewater we multiply the forecast of total non-residential demand by a factor of 59.5 per cent, the average percentage in 2021–22 and 2022–23. To make the basis for this calculation consistent with the basis for the chargeable wastewater charge, we include recycled water in the demand forecast that is used to forecast the chargeable wastewater volume.

Demand forecast application in long-term planning

The LTCOP modelling process is informed primarily by Strategic Capital Investment Plan (SCIP) and Sydney Water Infrastructure Future Test (SWIFT). Each of these tools serve different modelling purposes and have different data input requirements. The key demand projections and associated inputs provided to support the LTCOP modelling process are listed below.

Provided for SCIP modelling:

- annual growth projections for population, dwelling and non-residential properties
- average annual total (both drinking water and other sources) demand volume and additional greening demand to support cool, green places
- average annual residential demand volume
- average annual non-residential demand volume
- minimum average residential annual volume required that must be supplied by drinking water sources (a subset of the average annual total demand volume)
- wastewater discharge factors for the residential customer segment.

Provided for SWIFT modelling:

- estimated demand reductions in drought during restrictions and broader drought
- climatic demand factors.

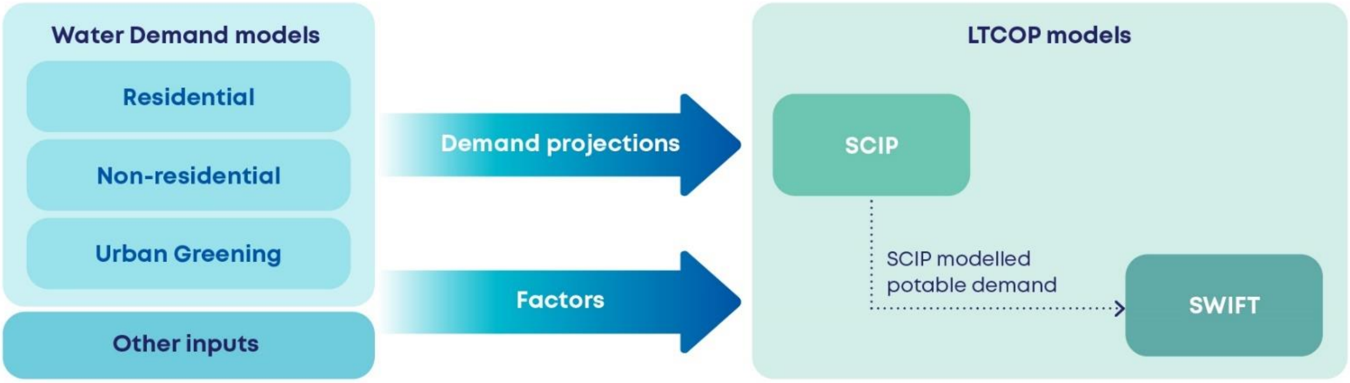
In addition to the above inputs, the LTCOP process also considered:

- Average annual demand drinking water volumes required in drought during Level 3 and Level 5 restrictions. This was to inform the targeted enduring supply volume as per the Greater Sydney Water Strategy's (GSWS) direction to plan to supply at least a Level 5 equivalent enduring demand under all weather conditions.

At any time, the input provided to the LTCOP modelling process are made up of drinking water demand projections (from the then current version of the models described in LTCOP), together with forecast non-drinking water demand (residential from the Long Term Residential Model, non-residential based on current and planned Sydney Water recycling schemes only, and additional greening demand modelled separately). Minimum residential demand from drinking water sources and wastewater factors are also derived from the Long Term Residential model.

The full range of residential and non-residential model outputs are used to derive demand factors associated with the variable inflows being considered in SWIFT modelling to test system performance. Drought-driven demand interventions are modelled as reductions in residential end use to meet LPD targets and as percentage reductions in non-residential use.

Figure 10.6 High level flow of models and inputs for the LTCOP modelling process



The first release of the LTCOP modelling used demand projections from July 2022. It is being updated with the demand projection described in this chapter (released April 2024).

Water demand forecast in operating expenditure

Demand projections are crucial for determining short- and medium-term (five years) costs related to raw bulk water purchases from WaterNSW, Sydney Desalination Plant operating costs, and treatment expenses (Build, Own, Operate, Transfer plants). Specifically, when estimating the cost of procuring bulk water from WaterNSW, which accounts for approximately 30 per cent of the operating expenses (opex), demand projections serve as a key input to the model. Furthermore, the projections aid in forecasting the Sydney Water filtration plants' costs, and developing strategies on managing asset construction costs (such as pre-treatment). The details are discussed in **Chapter 7**.

Chapter 11: Prices and tariff structures

Key message

Our proposed prices aim to fairly recover costs, considering customer insights, bill impacts for all customers, and our ability to finance safe, reliable service. The bill impact for a water and wastewater customer consuming 200kL per year is an increase of 18 per cent in 2025–26 followed by 6.8 per cent every year for the remainder of the determination period. This is an average bill increase of approximately $226 in the first year, and $111 every year until 2029–30.

Summary

- Our proposed pricing structure and tariffs have been informed by our customer engagement program, Our Water, Our Voice. In Phase 6 we explored customer preferences about pricing structures (for example, a mix of fixed and variable prices) and price controls (such as to deal with revenue shortfalls or extra costs during a determination period).
- Customers told us that their preference is to retain the current pricing mechanisms, including strong support for the existing water pricing structure, rather than alternative pricing structures such as an inclining block tariff (IBT).
- We are proposing to maintain the current price structures for water and wastewater, with only minor procedural changes that improve the overall quality of the pricing mechanisms for customers.
- To support environmental benefits and equitable recovery we propose that developers pay for new stormwater systems which help protect waterway health from development via location-based infrastructure contributions. We propose that any remaining stormwater costs relating to waterway health be recovered from all customers via their wastewater service charge, rather than the current situation where some customers pay more than others for this outcome. This approach also aligns better with National Water Initiative pricing principles.
- Other than infrastructure contributions which are locational, we propose to apply postage stamp pricing to our services for the purpose of fairness to our customers.
- For trade waste, we're proposing a series of charges to ensure a 'user pays' model for backflow, smart metering and planning variation requests. This will reduce the amount of potential cross-subsidisation from those who do not benefit from these services.

Key reference materials

APPENDICES

11.1 Proposed prices for all Products

READING ROOM

Drought pricing
LRMC attachment
How we propose IOP works
How smart meter charges work
The customer metering program

Guided by our 3Cs focus principles

CUSTOMER OUTCOMES

Customers told us they preferred the existing pricing structures for major services and were engaged on their pricing principles. They preferred structures that supported affordability and 'user pays' models. This informed our proposed changes to stormwater, wastewater and ancillary charges.

BALANCE RISK AND LONG-TERM PERFORMANCE

Setting prices to align with customers' expectations ensures impactors of costs pay for the services they receive, and the full costs are recovered for the investment program. Our proposed price path is the minimum requirement to deliver outcomes that align with our customers' expectations.

EQUITABLE AND EFFICIENT COST RECOVERY

We have explored tariff structures that may have delivered more affordability but ultimately have proposed pricing structures that most customers consider fair.

Our proposed prices

This section of our pricing proposal details the price structure and tariffs we propose to apply for the period 1 July 2025 to 30 June 2030. The chapter positions our approach to setting prices, including the role of customers and the individual fees and charges we propose to apply for water, wastewater and stormwater services for residential and non-residential customers as well as a series of smaller charges which represent a smaller split of our total revenue.

Prices for major services

Almost all of our current revenue (98 per cent) comes from three types of charges – for water, wastewater and stormwater services. The remainder (~2 per cent) comes from many smaller charges, such as for trade waste, miscellaneous and non-regulated charges.

Figure 11.1: Analysis of IPART 2020 'Final Report: Review of prices for Sydney Water' Table 5.5 p. 59

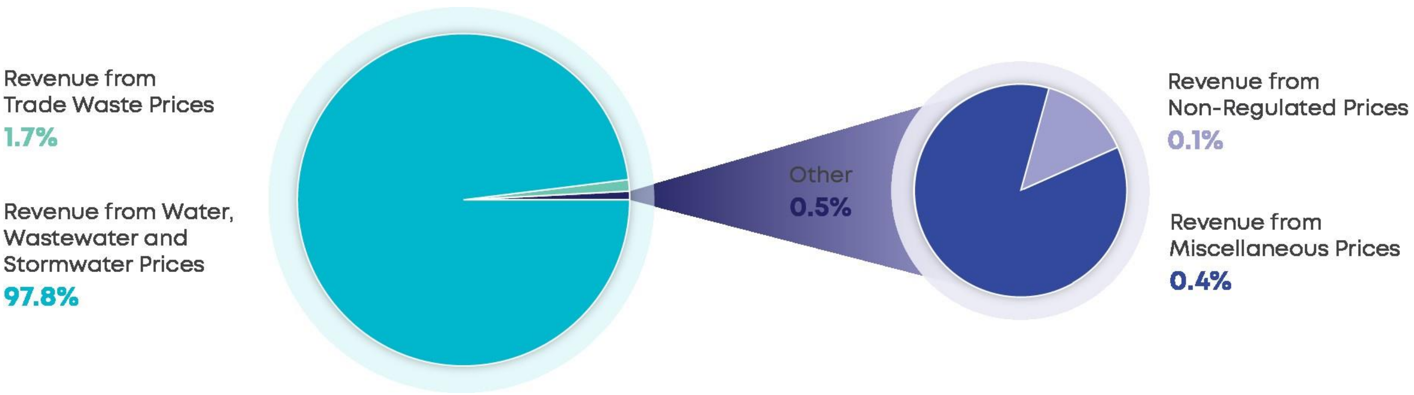


Table 11.1: Prices for major services ($24–25)

	Units	2024–25	2025–26	2026–27	2027–28	2028–29	2029–30
Water charges							
Water usage*	$/kL	2.67	3.12	3.12	3.12	3.12	3.12
Water service (20mm meter)**	$/year/meter	67.04	85.23	141.46	202.16	267.67	338.37
Wastewater charges							
Wastewater usage***	$/kL	1.36	1.41	1.41	1.41	1.41	1.41
Unadjusted wastewater service (20mm meter)	$/year/meter	551.04	691.05	745.48	802.96	863.65	927.74
Unadjusted discretionary service (20mm meter)	$/year/meter	1.58	0	0	0	0	0
Stormwater charges							
Stormwater service (not within a multi-premises)	$/year	87.21	104.05	117.10	131.78	148.31	166.91
Stormwater service (within a multi-premises)	$/year	27.22	32.48	36.55	41.13	46.29	52.09
Discretionary service	$/Year	0.97	0	0	0	0	0

*This rise in water usage in 2025–26 reflects the update to our LRMC applicable from that year
**Water service charge for 2024–25 includes an uplift for the SDP pass-through. Prices shown for all other years are exclusive of proposed pass-throughs.
***The rise in our wastewater usage charge during 2025–26 factors in the March 2024 CPI of 3.6 per cent (noting that as 2024–25 is a deferral year, the in-force IPART determination does not allow any further adjustment for inflation within the 2024–25 year)

We have applied the principles and what we learned from our customers to propose prices that consider bill increases over the next two periods. This approach gives consideration not just to the prices we propose over the next five years but also our forecast of the prices that customers may pay over a 10-year time horizon. This ensures that the prices we set are sustainable over time and would avoid large future bill impacts. The considerations made in proposing this approach are discussed in detail in the 'Price paths and regulatory structures' section later in this chapter.

Implementation of prices

Except where noted otherwise, we propose to continue the pricing formulas and billing methodologies from our existing determination. These formulas and methodologies are required to translate prices to corresponding bills. We summarise below the formulas and methodologies required to calculate bills for the above major services.

The wastewater service charge and discretionary service charge for a meter is calculated as the unadjusted charges shown above multiplied by the discharge factor for that meter.

To calculate service charges and wastewater usage bills, the following properties are deemed to have a single 20 mm meter, a 75 per cent discharge factor, and 150 kL of wastewater usage:

- each residential property
- each non-residential property within a mixed multi-premises
- each child property in a joint water supply services arrangement
- each unmetered property
- each small boarding house.

Please see our existing determination for a precise definition of each of these categories.

For properties not included in the list above, service charges are levied per meter and depend on meter size based on the following formula:

$$Service\ charge\ for\ meter = \frac{(meter\ size\ in\ mm)^2 * service\ charge\ for\ a\ 20mm\ meter}{400}$$

In addition, the discharge factor applied and discharge volumes will be based on our estimate of the percentage of water supplied via that meter that is discharged into the sewerage system.

For example, a residential water and wastewater customer consuming 200 kL of water per year will incur the following charges in 2024–25 over the year, assuming they pay both usage and service charges in their entirety:

- water usage charge = $2.67 x 200 kL = $534.00
- water service charge = $67.04
- wastewater usage charge = $1.36 x 150kL = $204.00
- wastewater service and discretionary service charges = ($551.04 + $1.58) x 75% = $414.47
- total bill (sum of the above) = $1,219.51

Notable changes to Sydney Water's charges

In line with customer's pricing principles we propose several changes to our minor services and pricing structures. These new charges and pricing frameworks ensure that cost recovery for each of its services delivers the best long-term outcome for customers. They include:

- introducing smart meter charges so that all new customers can benefit from smart metering
- adjusting trade waste agreement fees to reflect the cost of servicing and complexity of requests
- introducing backflow administration charges to align with customers' expectations of user pays pricing principles
- a price cap with a 0 per cent demand volatility adjustment mechanism (DVAM) to align with customers' preferences around over- and under-recoveries.

This chapter will discuss the various considerations made that inform the proposed prices and highlight the changes to the status quo. For further information on existing pricing structures please refer to the appendices throughout.

How we develop tariff structures

Pricing principles

Our regulated charges are designed to fully recover the costs of the regulated services we deliver fully contained in the charge for the given service; for example, water charges recover water services and wastewater covers wastewater services. These pricing structures are designed in line with the National Water initiatives (NWI) pricing principles and are informed by historic determinations made by IPART.

What customers told us

Under the new 3Cs framework, customers now have more influence on the way prices are set than ever before and our proposal price structures have been informed by customer preferences and community feedback during our customer and community engagement. Phase 6 of Our Water, Our Voice focused on managing affordability and ensuring cost recovery processes are aligned with customers' values around fairness, the objectives of this phase were to get recommendations on:

- how customers are charged (tariff structure)
- how Sydney Water is held accountable for delivering customer outcomes through customer commitments (outcome delivery incentives – see **Chapter 13**.
- how prices are adjusted when Sydney Water over- or under-recovers revenue (price controls).

To assess customer preferences on price structures the customer panel was asked to use a set of eight principles as 'fairness windows'. Developed by Verian, the CCRG and Sydney Water, these principles helped them make decisions about pricing structures and price controls, but they were also given the opportunity to introduce additional 'windows', such as 'Education'.

Figure 11.2: Our Water, Our Voice, Phase 6: 'Principles for Fairness Windows'

As part of the exercise, the customer group was asked which principles they considered most important. The collective results from the exercise showed that customers ranked affordability (57 per cent), aligning price structures to user pays principles (51 per cent), and the clear and simple to understand price structure (26 per cent) as the most important elements. Details of these preferences are provided in **Figure 11.3**.

Figure 11.3: Our Water, Our Voice, Phase 6: Customer preferences for ‘Principles for Fairness Windows’

Affordability is a core principle that has driven our approach and planning through the price proposal. The other elements – such as user pays principles, clear and simple to understand price structure, predictable and stable bills, and conserving public resources – have informed the develop of our proposed price structure and tariffs.

This customer feedback and how it has been incorporated for the setting prices is discussed in more detail in the following section of the chapter, particularly for charges where the cost of dedicated customer engagement may be disproportionate to the size of a given charge (In line with IPARTs proportionality principle).

Water prices

We recover the cost of delivering customers their water services in line with the NWI Pricing Principles and the IPART handbook methodology by using a variable and fixed charge:

- Water usage charge. A charge that increases for each 1,000 litres (1 kL) of water a customer uses each quarter, set with respect with long run marginal cost of water (LRMC) estimates.
- Water service charge. A fixed quarterly charge set based on the size of a customer's connection. Contrary to many customers' expectations, this is not set to reflect the fixed cost of connecting an additional dwelling to the water network but instead the remainder of the revenue required for Sydney Water to deliver its services after expected water usage charges.

These charges can vary due to a mechanism known as a cost pass-through. These pass-throughs reflect the higher cost of servicing that may occur within the regulatory period. Notably, the costs associated with drought response, and the higher costs associated with operating the Sydney Desalination Plant. These costs are not reflected in customers' bills during typical conditions, to ensure that the water bill paid is entirely reflective of the levels of service they receive at the time they receive it.

Customer preferences

Aligned to the IPART 3Cs framework we have engaged with and listened to our customers. As part of the engagement, customers told us that they value affordability only behind safe water. Delivering this affordability in line with our ambitious expenditure profile is challenging and has required us to investigate new charging structures that might give customers more control over their bills.[65]

How can customers get more control through water pricing?

The current water usage charge applies a flat price regardless of how much water a customer uses. In other jurisdictions, customers are charged a tiered price, where their initial water use is charged at a lower rate and their higher more discretionary water use is charged at a higher price per kilolitre.

Sydney Water has explored several tiered pricing structures with its customers as a way of reducing water bills for those who use less water giving them more control over their bills.

'I found it fascinating that there was so much (so many different variables) to consider when really digging into the different pricing structures looking at them from a fairness perspective. None of it was as straightforward as it appeared on the surface – once you considered how they would affect different people.

It is very hard to make these types of decisions. There's a lot of weighing up to do. I was surprised at how responsible I felt to ensure I really considered how different people would be affected. The group dynamic brought up lots of points I hadn't considered.'

Pricing structure customer forum participant – Residential customer | Phase 6 Day 2 survey

We propose a single block tariff

As part of Phase 6 of Our Water, Our Voice we engaged with customers across four days on prices and pricing structures to understand what attributes our customers value with respect to water prices. They discussed several price structures, ranging from fully fixed to fully variable. Customers pared the discussion down to a choice between a single block tariff (our current flat pricing structure) and an inclining block tariff (a tiered pricing structure where the cost per unit of water increases for a customer the more that customer uses).

Customers ultimately favoured the existing, flat pricing structure. When shown the added complexity and equity concerns related to an inclining block tariff, many customers were uncomfortable with the mechanism, even if it would deliver affordability to those who used lower quantities of water.

[65] https://www.esc.vic.gov.au/sites/default/files/documents/2023 water-price-review-guidance-paper-20211026.pdf pp51

Understanding customer preferences

When it came to water pricing, few customers strongly disliked the current water tariff. However, many strongly disliked a tiered tariff structure. Each of these customer cohorts were interviewed to understand why they felt this way about the pricing structure, and the overwhelming sentiment of 'if it's not broke don't fix it' was clear.

Our Water, Our Voice Phase 6 Day 2: 'If Sydney Water were to implement a [Tariff option] Would you…'[66]

	Loathe it	Live with it	Like it	Love it
Tiered tariff	16 (32%)	11 (22%)	15 (30%)	7 (14%)
Single block tariff	1 (2%)	14 (29%)	20 (41%)	14 (29%)

To correctly interpret this table we added the number of customers who could live with, who like and who love the option. This reflects how 'Acceptable' an option is. Ninety-nine per cent of customers felt that the existing pricing structure was acceptable, while 68 per cent of customers felt the tiered pricing option was acceptable.

We asked each group why they felt this way. Our customers identified three key groups that might be unfairly treated under tiered pricing:

- large families – these groups may be efficient on a per person basis but because they have lots of people may pay a higher price per kL even though they are a water-efficient household
- those on shared water meters – these customers would share an adjusted water use allowance based on the number of households behind the meter
- those without smart meters – some felt it unfair that customers would be unaware when they would begin to pay the higher usage price. If these customers had smart meters, then a tiered tariff might be fairer.

Many of these concerns are structural to a tiered water price, adjustments to charging structures based on household size are not practical and many of our customers in large units have a shared meter connection. Likewise, our rollout of smart meters is in its early phases, with approximately one per cent of connections having a form of smart metering. We consider it necessary to address these concerns through a larger smart meter rollout and to reduce the reliance on shared meters before revisiting the potential for tiered pricing with our customers in our 2030 pricing submission.

Considerations in water pricing

Long run marginal cost

Aligned to the IPART requirements,[67] we are continuing the practice of setting the water usage (variable charge) in line with the long run marginal cost (LRMC). Our modelling using several LRMC methodologies provides a range of $1.64/kL to $7.15/kL ($2024–25).

We propose adopting an LRMC of $3.12/kL ($2024–25) as this estimate aligns with Sydney Waters preference for an average unit cost (AUC) method, a yield assumption of 543 GL and mid-range assumption for the WACC. This estimate also aligns with NWI pricing principles, ensuring at under the proposed revenue requirement customers do not pay a negative water service charge while maximising the variable element of customers water bills. As a result, the chosen estimate holds the value of water in real terms in 2025–30.

This ensures that there is also customer alignment in pricing, as customers have made it clear that (where possible), they would like their bill to be driven by user pays principles.

[67] IPART 2023 "Water Regulation Handbook" Section 4.7.4 pp48

Drought pricing mechanism

A drought pricing mechanism is designed to dynamically adjust water tariffs in response to varying water supply and demand during drought conditions. This approach encourages water conservation by reflecting greater scarcity of water during drought, thereby incentivising customers to use water more efficiently. It supports the financeability of water utilities by allowing for revenue adjustments that compensate for reduced water sales during drought periods, and higher investment in infrastructure and operations to ensure continuity of supply through severe droughts.

We propose to maintain our existing drought pricing mechanism with updated prices. To recover our revenue requirement during times of restricted demand and greater investment in drought response, the usage price would need to increase from $3.12/kL to $3.78/kL ($2024–25) if Greater Sydney dams drop below 60 per cent or a different value if Level 1 water restrictions is re-defined by the NSW Government.

SDP and Shoalhaven passthrough pricing mechanism

The existing SDP and Shoalhaven passthrough pricing mechanism is designed to pass through costs that are contingent of higher bulk water costs that occur in line with trigger events such as drought. Passing through costs only when a trigger occurs ensures that customers on average pay less, and only pay the higher amounts when necessary.

We propose maintaining the existing pricing method for the SDP and Shoalhaven passthroughs per the 2020 IPART final determination[68], being a cost passthrough to the water service charge in the following year of higher SDP operations or Shoalhaven costs. This mechanism is currently fit for purpose and ensures that customers only incur the higher price of the cost passthrough when these services are required and ensures Sydney Water's cost recovery is in line with approved higher costs when triggers occur. Sydney Water recommends two procedural improvements to the mechanism to the SDP mechanism:

Sydney Water recommends that IPART updates this mechanism to remove the lag in the regulatory period for U_{t-1}. U_{t-1} refers to the revenue that Sydney Water recovered from customers through the SDP uplift to the water usage charge under the 2016 Determination between 1 April 2020 and 30 June 2020 in the current SDP pass through formula to reflect the new determination. As this period is not relevant for the upcoming determination it adds unnecessary complexity to the mechanism.

Sydney Water also recommends that IPART clarify in the mechanism C_{t-1}. The C_{t-1} component of the formula reflects the actual costs paid by Sydney Water to SDP in $2020–21. Re-defining this variable to reflect continuous operational costs ensures that the model is easy to understand and removes ambiguity.

Treatment of costs associated with the Sydney Desalination Plant Expansion

In line with the proposed expenditure, The Sydney Desalination Plant may be expanded within this regulatory period to double its daily output of desalinated water to Greater Sydney driven by the NSW Government 'Doubling down on desalination'.

Sydney Water proposes that if the Sydney Desalination Plant Expansion is delivered and incurs higher operational costs than our regulatory allowance within the following 2025–30 regulatory period, we will not passthrough additional operating costs in the form of higher usage and service charges via the SDP cost passthrough during the period. Instead, we will seek to recover this (with holding costs) over the 2030–35 period via a separate mechanism.

Similar to the existing SDP cost pass-through mechanism, this ensures that customers benefit from the pricing certainty contained in this proposal and shares risk between Sydney Water (which incurs these costs in the short run) and customers (who would pay a higher price in the following determination period if the higher costs were realised). We would seek to pass through actual SDP Expansion costs to the water service charge in the following year against a forecast of the recovery of costs built into the pass-through formula. We will welcome working with IPART to shape what the SDP Expansion formula will look like in and to ensure that it will be fit for purpose.

[68] IPART 2020 "Sydney Water final determination" Section 4 pp7

Prices for unfiltered water

Sydney Water offers unfiltered water services to one industrial customer. We have calculated prices for unfiltered water continuing the methodology applied in the current determination. That is, we apply a discount to the drinking water price to reflect the reduced water filtration costs we incur in supplying unfiltered water.

The discount applied in the current determination was $0.31/kL ($2020–21). We have escalated this discount to real $2024–25 to calculate our proposed discount of $0.37/kL. This results in a proposed price for unfiltered water of $2.75/kL.

Deemed usage for unmetered properties

Despite being a requirement for a property to be metered, under our customer contract approximately 15,000 customers are not able to fit meters due to a range of factors that may cause it difficult to replace or in some cases impossible to install. While Sydney Water will make all practical efforts to install meters in customers properties in some cases it is necessary to charge a deemed usage price or potentially an opt out charge.

We propose to maintain the same assumed volume assumption for unmetered properties for the purpose of calculating water usage charges. This is currently estimated at $\frac{180}{365}$ kL per day. This means that these properties are assumed to use 180 kL per year in most years, and marginally more during leap years. Approximately 15,000 customers have usage assumed in this way.

Climate change considerations

It is important to consider climate change when setting our prices. Climate change may increase the chances of extreme weather events, both droughts and floods. This has implications for pricing objectives including water conservation, economic efficiency, and cost recovery, and hence the appropriateness of related price structures and levels.

Water conservation and economic efficiency

We considered adopting an inclining block tariff structure for our water usage charge. Customer engagement was a key driver of this decision, however there are also considerations around economic efficiency of water use and water conservation.

As mentioned in the NWI, the single block usage charge is a more economically efficient structure, however an IBT may be used to send a stronger pricing signal for water conservation purposes. This was one motivation for considering the IBT. Interestingly, modelling showed that the IBT we considered may have the opposite effect of marginally increasing water usage. This is due to increased consumption by the lower consuming households that would receive a discount compared to the single block tariff. Therefore, we saw that the single block usage charge is both more economically efficient and more supportive of water conservation objectives.

Cost recovery during dry weather events:

Drought can have an impact on cost recovery in two ways. Drier conditions lead to reduced water demand due to water restrictions, which reduces the revenue recovered from water usage charges. In addition, the amount of revenue needed may increase as lower supply levels trigger the need for both operational and investment responses.

The issue of cost recovery during drought is addressed through:

- drought uplift pricing, which involves an uplift to our water usage charge, considering both lower sales and higher revenue needs during drought (see the drought pricing mechanism section above)
- DVAM, which is a true-up for revenue variation due to sales differing to forecast, outside of a five per cent deadband. We propose that this deadband be changed to 0 per cent to ensure cost recovery and avoid perverse incentives for water conservation. Please see section below on removing the DVAM materiality threshold.

Investment in rainfall independent supply

The GSWS noted that Greater Sydney was particularly vulnerable to rapid and prolonged drought due to its relatively low levels of RFIS. This has impacted our proposed prices as we have included project costs related to RFIS, in particular the expansion of the SDP, as part of our revenue requirement. In addition, our estimate of the water LRMC has taken into account RFIS augmentations.

The level of our water usage and water service charges therefore both take into account the need for greater RFIS in Greater Sydney.

Cost pass-throughs

We propose to maintain similar proposed cost pass-throughs as in the current period, with adjustments to reflect changes in our regulatory environment and other inputs. Specifically, our proposal relates to updating the Sydney Desalination Plant (SDP), Shoalhaven, and drought cost pass-throughs.

Sydney Desalination Plant and Shoalhaven transfers

In 2022, we developed a decision framework that underpins our annual production request to SDP. This has been approved by our Minister. As such, while production levels (and costs) for SDP are more flexible under IPART's framework, our control over production levels is more limited. Therefore, we consider it is appropriate that we continue to recover the actual costs we incur for our use of SDP to supply safe and reliable water to our customers. We note that our base opex includes a minimum level of SDP production, and so the cost pass-through adjustment to base prices is expected to be smaller than the current period. As explored in **Chapter 8**, we propose to exclude the costs of the expanded SDP expansion in this cost pass-through.

Similarly, for Shoalhaven, we propose to continue IPART's existing cost pass-through mechanism. It is expected that Shoalhaven transfers will begin when Greater Sydney dam levels fall below 75 per cent. However, given the uncertainty of when dam levels will fall below this threshold, and whether other circumstances prevent transfers, we propose to maintain a cost pass-through of actual Shoalhaven transfer costs. This avoids customers paying upfront for costs that may not occur.

Non-bulk drought costs

We also propose that IPART maintain the existing method of recovering non-bulk drought costs. As noted in IPART's last Determination, this provides a stronger incentive for customers to save more water when it is most scarce. It ensures Sydney Water can recover the costs associated with managing drought without charging customers a higher price outside of drought.

We have updated cost and demand parameters that went into IPART's calculation. Currently, the uplift in drought is $0.94/kL ($2024–25). In comparison, we propose a drought uplift of $0.66/kL ($2024–25). The key drivers of this are the inclusion of costs which are now efficient in non-drought conditions (that is, changes in minimum flow operating rules for SDP), and a less aggressive drought demand assumption.

For more information on drought pricing and the associated costs, see *Drought Pricing Attachment* in the reading room.

Wastewater prices

Under the current pricing structure, different wastewater charges apply based upon the type of customer connecting to Sydney Water's network.

Residential customers pay only a service charge which is the sum of the:

- service charge, with assumed 20 mm meter size and discharge factor of 75 per cent, and
- usage charge multiplied by a fixed level of 'deemed' usage (150 kL).

Non-residential customers pay a:

- service charge based on meter size and an estimated discharge factor
- a single tier usage charge per kL, with estimated usage.

These charges are set to reflect the shared cost of operating the wastewater network that is scaled based on the size of a customer's connection. Most of these charges are fixed on a customer's final bill.

Customer preferences

We have listened to our customers and understand they prefer variable controllable charges, over fixed charges, and we have incorporated this into our water pricing. For residential wastewater customers, a variable element to the charge is impractical as volume of discharge is not measured. Non-residential wastewater customers do pay a variable charge based on estimated discharge; however, in both cases it is difficult to justify a principled approach to setting the level of the variable charge. This is because the chemical concentration of wastewater and stormwater infiltration (when stormwater enters the wastewater network) are both large drivers of costs that typical customers have little ability to control.

We consider that the current approach to wastewater charges is aligned to IPART pricing requirements and propose to maintain the current arrangement with one amendment aligned with IPART's previous recommendation to remove discretionary charges.[69] This approach ensures that all customers share the costs associated with maintaining the wastewater network and aligns with customer expectations for user pays principles, a clear and simple to understand price structure, and predictable and stable bills.

Where appropriate and practical, Sydney Water applies volumetric wastewater pricing based on pollutant load to non-residential customers. More information on these tariffs can be found in the trade waste charges.

[69] See section A.2 Of IPART's Water Regulation Handbook pp96

Considerations in wastewater pricing

Discretionary prices are now included in the wastewater service charge

In line with IPART's Water Regulation Handbook[7], Sydney Water does not propose a discretionary charge on top of the service charge. All expenditure proposed for the wastewater services is included in the proposed service charge in line with the customer outcomes discussed in **Chapter 2**. This also includes expenditure that was previously categorised under the stormwater discretionary charge in line with broader customer engagement in support of the Waterway Health Improvement Plan (WHIP).

What should the level of our usage charge be for both residential and non-residential customers?

There has been ongoing discussions with IPART over several price reviews in pursuit of a principled approach to setting the level of the wastewater usage charge:

- 2012 review: IPART estimated that the short run marginal cost (SRMC) of collecting, transporting, treating and disposing of wastewater was significantly lower than the usage price at the time. The usage price began a transition downwards to their estimate.
- 2016 review: The transition was paused as Sydney Water and IPART agreed that LRMC may also be important to consider. This led to the 2015–16 level of prices continuing as a holding position until better estimates were attained.
- 2020 review: Sydney Water proposed moving to an updated estimate of the SRMC. We acknowledged the potential value of using LRMC and were open to exploring the approach in the future but proposed to use SRMC due to more practical concerns: 'data limitations, uncertainty about efficiency benefits and our customers' preferences for price simplicity'. This was not accepted by IPART as it preferred LRMC. We believed that we had insufficient information at the time to calculate accurate estimates. The usage price continued to be held at the same level until better estimates were attained.

More recently, IPART led a working group this year (2024) exploring LRMC methodologies for water and wastewater. As part of this, participating utilities (including Sydney Water, Hunter Water and Central Cost Council) reached agreement with the IPART secretariat that it should not be mandatory for utilities to estimate a wastewater LRMC because:

- Estimating wastewater LRMC accurately would require significant effort as the required data is not currently collected.
- It is difficult to use the LRMC to incentivise efficient usage by customers as:
  - wastewater discharge is not metered
  - wastewater usage for residential customers is inelastic with respect to price
  - wastewater cost drivers are complex and are not simply a function of discharge volumes.

The primary alternative was to set the usage charge with respect to SRMC. This may be easier to estimate, but involves similar concerns to the LRMC in terms of being cost reflective. Any usage charge that is based on discharge volumes may not be cost reflective due to the complex cost drivers in wastewater.

We therefore propose maintaining the usage charge at its current levels (2023–24 charge updated for inflation) that is $1.41/kL until we are able to justify an appropriate basis for pricing.

Stormwater prices

Our stormwater pricing regime currently charges a fixed rate to customers based on their assessed impact on the stormwater network.

For residential customers services are either

- service charge – residential single ($/year)
- service charge – residential multi ($/year).

For non-residential customers,

- service charges are based on the size of the lot and
- assessed impact on the network.

However, customers in the Rouse Hill stormwater charging area currently pay higher charges – namely, the Rouse Hill stormwater drainage charge and land charge. This is because, to date, costs for integrated water cycle management in the area have been ring-fenced (only charge to those connected to the infrastructure in that location). The other exception to the above charges is when we have assessed a property as having a 'low impact' on the stormwater system. These properties pay a lower charge to reflect they place a lower demand on our stormwater systems.

Customer preferences

In 2015, we began engaging with customers on the waterway health outcome our stormwater systems provide. At that time, we found there was very low knowledge of which entities managed stormwater, who paid for these services, how much was paid and what outcomes stormwater systems provided.

In the initial engagement in 2015, customers had mixed views about how stormwater services should be paid for, reflecting the confusion about what these systems provide. This same outcome was evident in the Our Water, Our Voice engagement in that, in the initial engagement on stormwater pricing, there were mixed views on how stormwater services should be paid for, but strong support for the outcome of waterway health. However, in 2015, we went on to conduct in-depth panel sessions, which demonstrated that once customers understood stormwater systems protect waterway health, they were clear that stormwater prices should not change based on location nor which entity provides the service.[70] That is, there was a strong preference for everyone across Sydney to pay the same amount for stormwater regardless of where they live.

The reasons given for this preference are shown below.

Essential infrastructure such as stormwater should not work on a user pays basis. Rather, it should be paid for equally by all – including by healthcare, public transport and education organisations

Everyone has to use different infrastructure, including stormwater, in different locations at different times and everyone should contribute equally to this in the same way they do for other essential infrastructure.

People move in and out of different areas, so equal charging removes the element of luck of where you live.

Everyone has to contribute to the future liveability of Greater Sydney; stormwater infrastructure is an important part of this and financial contribution to its provision should be shared equally across the city

A desire for a simpler, more streamlined system of stormwater infrastructure provision and charges that are more transparent, that would enable greater accountability, and would be more efficient by reducing intergovernmental duplication and administration costs.

[70] University of Technology Sydney: Centre for Local Government, 2015 Stormwater customer research: Research prepared for Sydney Water – See Appendix 8B: Revenue IWCM

The need for simpler, more efficient provision of infrastructure and charging, is also echoed in the GSWS Priority 4: Our waterways and landscapes are healthy. Sydney Water considers that equitable charging for stormwater services will remove one of the funding barriers to a new, streamlined and better coordinated model for stormwater governance and management controls. Equitable and secure funding will enable improvements to waterway health where they are needed most, for the benefit of all customers.

Considerations in stormwater pricing

Stormwater benefits

Stormwater infrastructure is vital in protecting local connected customers and their communities from flooding; and benefits the wider community and economy by protecting waterways from the effects of urban pollution. For flood reduction, it remains equitable to only charge connected customers, because other customers not connected to Sydney Water's networks will likely pay their council for flood protection provided by their local stormwater network. However, it remains a challenge to implement an equitable, shared cost model for waterway health. In the past, when we have delivered improvements to stormwater networks to protect waterway health, we have only charged customers connected to those networks. However, this clearly goes against evidence of how customers would prefer to pay for these services as these investments are essential and provide benefits to the wider community.

Protecting waterways

The largest investment in waterway health protection was made in the Rouse Hill region, to protect the Hawkesbury Nepean River. The next investment will be in Mamre Road and the Aerotropolis Precincts which also drain to this river. As all customers can enjoy rivers and waterways located on public land, we no longer consider it appropriate to charge only a small number of local customers for this service. Similarly, our recent Waterway Health Improvement Program delivers improved waterways which all customers can enjoy. Although this was previously included as a discretionary project following willingness to pay in our last price proposal, we now consider it more appropriate for all customers to contribute to these costs, as the benefit is not limited to the far smaller subset of customers with a direct connection to Sydney Water's stormwater infrastructure. For new development areas such as Rouse Hill and the Mamre Road and Aerotropolis precincts, IPART sets charges to recover most of the infrastructure cost from developers.[71] This means only the residual cost needs to be allocated between direct beneficiaries and wider beneficiaries.

Flood protection

To separate the remaining cost to deliver flood protection from the cost to deliver waterway health requires two steps:

1. We have removed all waterway health-related capital costs from the calculation of stormwater flood protection charges for our existing declared stormwater catchments going forward. Most of the infrastructure in these catchments was designed and built between 50 and 150 years ago, primarily delivering flood protection. We consider this charge (with waterway health-related costs removed) provides a good proxy for the flood protection benefit our newer connected stormwater customers receive in the Rouse Hill Drainage area, and in the Mamre Road and Aerotropolis Precincts. We propose all customers should pay the same flood protection stormwater charge, which will be attached to that calculated for our existing stormwater catchments.
2. Allocation of the waterway health benefit to be shared by all customers, has been achieved by first allocating all waterway health-related costs to the wastewater building block.[72] This pre-existing building block provides a simple, efficient and pragmatic instrument to share the cost to protect waterways equitably, as it already does this for other growth-related waterway health protection costs.[73] In the Rouse Hill, and Mamre Road and Aerotropolis Precincts, waterway health infrastructure is part of an integrated servicing approach which delivers three distinct benefits: flood protection, waterway health and recycled water availability. As such, the cost of this infrastructure has been included **net** of infrastructure contributions paid by developers and secondly, net of the flood protection and recycled water usage revenue paid by local customers connected to this infrastructure.[74]

[71] We have gained aproval to levy stormwater developer infrastructure contributions for all new infrastructure at Mamre Road and the Aerotropolis. For Rouse Hill, these charges were abolished by the NSW Government in 2008, but will be phased back in. Further detail is provided in the following section on the Rouse Hill Land Charge.

[72] Even though some customers (~1.6%) do not pay Sydney Water for wastewater services, we consider the wastewater building block is more appropriate than the water building block. This is because the outcome wastewater services deliver is similar to IWCM services (waterway health) and we do not consider it appropriate that we charge a waterway health related charge to customers who only receive a drinking water service from us.

[73] We consider cost allocation should not be dictated by nor limited to the traditional classification of infrastructure by product name. Rather it is appropriate to group costs and charges by the outcome that expenditure achieves. Both wastewater treatment infrastructure and stormwater pollution protection infrastructure provide the same outcome – healthy waterways – so it is appropriate for both costs to be combined in a single charge on customers' bills.

[74] Importantly, the costs and the connected customer numbers in our new catchments have been excluded from the calculation of the flood protection stormwater charge in our existing catchments, to avoid double counting.

This two-step method then ensures that customers receiving the same service pay the same price for that service, regardless of where they live, and that the price of additional benefits (flood protection and recycled water usage) can be set with regard to the price of substitutes (connection to traditional flood protection infrastructure and connection to drinking water used for non–drinking water uses, respectively).

What this means for pricing

Stormwater customers in our older existing declared catchments and Kellyville will continue to pay for connection to our stormwater systems; however, will no longer pay costs which relate to waterway health protection.

Customers in Rouse Hill[75] will no longer pay a higher charge to protect waterways (the Rouse Hill Drainage and Land Charges) as these additional costs are proposed to be paid by developers, with any residual paid by all customers in their wastewater bill.

Customers in the newly declared catchments in Mamre Road and the Aerotropolis will pay the same price for stormwater services as in our other (older existing) declared catchments, Rouse Hill and Kellyville.[76]

Residual costs to deliver the waterway health customer outcome are now included in the proposed wastewater charge.

Removing the Rouse Hill Land Charge

As described in **Chapter 8**, new customers in Rouse Hill and Kellyville currently pay the Rouse Hill Land Charge if they have recently connected to our services. This charge was introduced because the NSW Government set stormwater developer contributions to zero in 2008, so some development had made a contribution while others had not. The land charge was set by IPART, so that all properties made an equal contribution to the stormwater infrastructure that was needed to service the new development.

The current charge is just under $2,000 and is paid over 20 quarters. However, the NSW Government has now reversed the zero charges policy, and infrastructure contributions are being phased back in. As such, we propose the land charge will no longer be needed once developers begin to make contributions for the stormwater infrastructure at Rouse Hill. Removal of the land charge will allow pricing in Rouse Hill to align the rest of Greater Sydney where customers only pay costs net of infrastructure contributions paid by developers.

To ensure all properties have contributed equally to cover costs, the land charges will need to be phased out in such a way that each newly developed property still pays an equivalent contribution, whether this is via the 20 quarterly payments or paid as a contribution by the developer (becomes a pass-through to the purchase price) as part of the Section 73 certificate process. That is:

- All properties who have begun to make land charge payments but have not made all 20 payments before 1 July 2025 and the date the Rouse Hill Stormwater DSP is registered with IPART, will continue to make their remaining payments until all 20 have been made.
- All new properties who can demonstrate payment of a Rouse Hill Stormwater DSP charge applicable to that property (developer infrastructure contribution), will be exempt from paying the land charge.

Sydney Water anticipates being able to register a revised Rouse Hill stormwater DSP with IPART on or shortly after 1 July 2025. Given some properties will begin to make their 20 payments just before the DSP is registered, it is likely there will be some properties still paying land charges in 2030.

[75] The Land Charge is also currently paid by a small number of properties in Kellyville. To be clear, going forward, no new properties should need to begin to pay this charge once the revised Rouse Hill stormwater DSP is registered.

[76] In Mamre and the Aerotropolis, this charge will only apply once a property is developed because existing properties do not require the new systems we are building, which cater for the increase in stormwater flow and intensity from development.

Trade waste, ancillary and miscellaneous services pricing

Sydney Water offers a series of minor services such as trade waste, ancillary and miscellaneous services. These are charges for our customers that reflect the higher cost of servicing due to their impact on the network and allow Sydney Water to offer customers choice of services. The proposed charges in this section reflect our customers clear preference for pricing structures that exhibit user pays and deliver affordability for those who don't directly benefit from these services.

Trade waste

Trade waste is defined as wastewater produced at a property during a non-residential activity in which the concentrations of pollutants exceed a domestic equivalent. There are two groups of trade waste services:

- services associated with the transport and treatment of trade waste pollutants, which are charged on a volumetric basis
- services associated with managing trade waste dischargers, which are fixed charges per service.

Trade Waste Pollutant charges

Sydney Water uses a trade waste pollutant model to identify transport, treatment and corrosion costs, and determine the proportion of costs resulting from trade waste (a flow-based apportionment methodology). It translates these into prices for both industrial and commercial trade waste customers.

A full review and update of cost and volume inputs into the trade waste models has been completed for the 2025–30 price path. However, the model itself has not been changed significantly. Costs for wastewater transport and treatment includes capex, opex, regulated asset base, WACC and corporate overheads. The trade waste pollutant model produces a dollar per kilogram basis per pollutant. The same rates are applied to both commercial and industrial dischargers, but in different ways.

Industrial customers are charged on a dollar per kilogram basis per pollutant. A different rate per pollutant is applied according to the treatment type: primary, secondary or tertiary.

Commercial customers are divided into similar process groups. For each process group, Sydney Water has estimated typical discharge characteristics for individual pollutants. These customers are then charged on a per kilolitre basis.

For more information on how pollutant charges work see *2025 Trade Waste Pricing* in the reading room.

Aligning these charges with customers' expectations

Due to the relative scale of trade waste related expenditure, compared to major services, engagement on proposed charges has been driven by discussions with our customers and Sydney Water's Customer Community Reference Group (CCRG). They have been designed to align with customers' values and NWI pricing principles such as 'user pays' and 'cost reflectivity.' This ensures that engagement is proportional to the level of expenditure but also consistent with what we heard from our customers.

Trade waste ancillary charge

Sydney Water has several trade waste ancillary fees to cover the cost of establishing or managing trade waste agreements.

We are proposing to introduce a number of new trade waste ancillary fees and amend the definitions of some existing charges. The new fees were established to align further with the principle of user pays and use time and motion data to derive the prices. These new fees or amendments are outlined below.

Tiered application fees for commercial trade waste customers

Sydney Water does not currently levy commercial trade waste application fees. Our costs for processing applications are recovered from the commercial permit fees paid by existing trade waste customers. We propose to levy an application fee for commercial trade waste customers to recover related costs. Sydney Water is proposing a tiered application fee (low, medium and high complexity) based on the number of trade waste processes that a customer applies for. These charges reflect the hours required to process each application.

Commercial trade waste permit variation charge

We do not currently levy commercial trade waste variation fees. Variations to existing agreements can be driven by a range of scenarios, including a customer advising us of a change in their trade waste process on site or Sydney Water updating permit details because of an inspection that we carry out. This charge will cover the cost of reviewing and processing any changes to the commercial permit.

Commercial trade waste discharge meter reading charge

This fee recovers the cost to travel to and from a customer site to read their trade waste discharge meter and record this reading in our billing system. Less than 2 per cent of commercial trade waste customers are required to install trade waste discharge meters.

Administering a non-compliance fee

To ensure the cost of managing non-compliant customers is recovered directly from those customers, we are proposing to introduce a non-compliance management fee. This fee recovers the costs of writing to a non-compliant customer and managing their response to the non-compliance. If managing the non-compliance requires additional customer visits or site inspections, we will use the existing additional inspection fee.

Non-standard industrial trade waste application fee

The current non-standard industrial application fee is applied as an hourly rate to recover the cost of assessing an application to discharge pollutants that are not covered in our acceptance standards and charging rates fact sheet, plus any analytical cost for assessing the wastewater to be discharged, up to a maximum of $20,000. We propose redefining this fee as an hourly rate fee to recover the cost of reviewing and processing industrial trade waste applications which are more complex or involved, as they take additional time beyond what has been allowed for within the standard application fee. This fee will therefore no longer be limited to only assessing applications for the discharge of pollutants not covered in our acceptance standards and charging rates fact sheet. We also propose to retain the ability to charge analytical costs for assessing the wastewater to be charged as per the current definition. An example of when this non-standard fee would be applied is when a network capacity check is required to determine if the network can accommodate a proposed high rate of discharge.

Non-standard industrial trade waste variation fee

Like the non-standard industrial application fee, we propose applying an hourly rate fee to process industrial trade waste variations which take additional time beyond what has been allowed for within the standard variation fee. As per the non-standard application fee, an example of when this fee would be applied includes when a network capacity check is required to determine if the network can accommodate a proposed high rate of discharge.

Re-defining when higher charges are applied

Higher charges are used to manage some commercial trade waste compliance issues relevant to the retail food sector. The current definition agreed with IPART is a ‘charge for low and high strength Biological Oxygen Demand (BOD) food if pretreatment is not maintained in accordance with requirements.’

We propose amending this definition to reinforce that higher charges can also be applied if required pre-treatment is not installed or if Sydney Water determines that the pre-treatment is undersized. The proposed revised definition is ‘charge for low and high strength BOD food if pre-treatment is not installed, is deemed to be undersized or is not maintained in accordance with requirements.’

Customer preferences

These proposals were presented to Sydney Water’s CCRG in April 2024. Our proposal was well received, and members were supportive of our proposal to implement the new trade waste charges and of our plan to spread the system enhancement costs required to implement the new charges across the broader trade waste customer base to balance affordability and user pays.

Ancillary and miscellaneous customer charges

Sydney Water levies ancillary and miscellaneous customer service charges for several non-contestable one-off services. These include certificates and diagrams when buying, selling a property, building plan approvals, and connecting or disconnecting from our services. Other services include billing record search statements, having a property's meter read monthly and charges for replacing a damaged meter.

We currently offer 42 ancillary and miscellaneous services. Twenty-five of these services attract a charge and account for around 0.5 per cent of our total revenue.

For this price review, we focused on reviewing backflow prevention program prices and our proposed new smart meter prices. Our existing ancillary services were also adjusted to reflect an increase in our corporate overheads to 16 per cent.

Backflow prevention charges

We provide assurance for our drinking water quality through the administration and management of backflow containment on a customer's property. Backflow can occur when there is a cross connection between services on a customer's property and/or a reduction in mains pressure which creates a syphoning effect. Annual testing of a backflow device is mandatory under AS/NZS 3500 Plumbing and Drainage to ensure the device is functional. The testing of backflow devices reduces the risk of contaminating the drinking water supply and protects public health.

Currently, our backflow prevention program costs are recovered from all customers (residential and business) included in service charges and not directly from business customers with a medium to high hazard rating that require a backflow prevention device to be installed and tested annually.

To ensure that program costs are recovered from the business customers that it serves, we propose to include an 'annual administration fee' (in our price schedules, but currently doesn't have a fee) to ensure we recover the costs of managing the backflow containment program from customers with a testable backflow prevention device. In addition, we propose that in situations where we are required to inspect backflow customer properties to manage compliance, we may make use of the additional inspection fee outlined under trade waste ancillary charges to recover the costs of the inspection.

What we are proposing

Our proposed price is $11.33/quarter ($45.32/year) in 2025–26, which will reduce to $10.43/quarter ($41.73/year) in 2029–30. This price covers labour costs, IT costs and corporate overheads. Volume is estimated at 27,000 devices, with growth of three per cent each year.

We also propose to revise the existing 'backflow annual test charge' (third-party testing) to reflect market costs. This charge was approved in the 2020–24 Determination. However, we couldn't proceed with this service as the IPART-approved price was unable to fully recover third party testing costs when backflow accredited plumbers' fees increased during and post the COVID-19 pandemic. As such, our proposed price for 2025–30 is $462.70, which is 68 per cent higher than the current fee of $274.69.

This fee will be levied on non-compliant business customers that have an overdue testable backflow device. It will involve a Sydney Water contracted backflow plumber visiting the property, conducting an annual test of the testable backflow device (in situ), and lodging the test report. The revised fee is reflective of administration costs, corporate overheads, and costs of having a backflow accredited plumber test the device. Volume is estimated at 3,200 tests a year.

Related to the backflow annual test charge, we are also proposing a new 'backflow testing – no access' fee to recover costs incurred when customers refuse access for Sydney Water's contracted backflow accredited plumbers to test the overdue backflow device. We estimate that around five per cent of customers with non-compliant devices will deny access, a volume of around 650 a year. Our proposed price for 2025–30 is $361.11, charged per occurrence. This fee is reflective of the backflow plumbers call-out fee, administration costs and corporate overheads.

How it aligns with customer expectations

Our proposed fees for managing the backflow program were presented to Sydney Water's Customer and Community Reference Group (CCRG) in April 2024. The proposal was well received, and members were comfortable with our proposal to implement the new and revised charges that balances affordability and user pays for customers with testable backflow devices.

Smart meter charges

Smart meters (digital meters) provide accurate, real-time data automatically and help identify costly hidden leaks early. This delivers cost savings for our customers and smarter water management for Sydney Water. Over the next few years, Sydney Water will stop offering mechanical meters and replace around 1.6 million mechanical meters across Greater Sydney with smart meters.

To ensure that existing customers' bills are less impacted by the cost of servicing growth, we are phasing out offering free mechanical meters for new connections and aligning with infrastructure contribution pricing principles to ensure that the incremental cost of new developments is funded by property developers in the form of a one-off smart metering charge. This ensures that all customers pay approximately $12 less over the duration of the upcoming regulatory period to fund growth servicing.

Customer Benefits

The introduction of smart meters provides customers with up to date data on their water usage which:

- enable customers to have more control over their bills and understand the volume of water they are using as they use it, rather than a need to wait for the bill to arrive
- allow access to leak alerts to notify them of possible water leaks on their property, reducing the likelihood of bill shock.

If new customers were not offered smart meters this could delay them receiving these benefits for upwards of 20 years when their mechanical meter is set to be replaced with a smart meter, meaning a new customer connecting to Sydney Waters network in 2026 may not get their first digital meter leak alert until 2046.

As a result, we propose the following smart meter charges as a means to accelerate these benefits to our customers in a way that aligns with customers broader expectations for user pays and affordability.

Smart meters for all new 20 mm connections

Developers are currently required to purchase 20 mm smart meters for high rise developments. These meters are then 'gifted' to Sydney Water for ongoing operation and maintenance. We propose all new 20 mm connections be aligned with high rise developments, support the rollout of our smart meter program and to standardise our new connections process.

Our proposed price of $289.45 includes the cost of the smart meter as well as our administration costs and corporate overheads. The smart meter itself accounts for around 77 per cent of the costs. Volume is estimated at 20,000 smart meters in 2025–26, increasing to 25,000 meters a year in 2026–30.

Smart meter opt-out

This gives customers the option to opt-out of our smart meter program. However, customers will be required to pay for the cost of a manual meter read. Our proposed new price is $9.01 per quarter to coincide with our quarterly billing cycle. We estimate that around 6,400 properties a year will opt-out of smart meters.

Smart meter – pulse splitter/double adapter

This adapter provides business customers with access to Sydney Water's smart meter data. Currently, these are provided to business customers free of charge so that both Sydney Water and the customer can collect pulse reads. Using IPART's pricing principle of user pays, the proposed one-off charge of $586.94 allows us to recover the cost of supplying this adapter. Volume is estimated at 50 units a year.

Workshop test of water meter (smart meter)

This charge reflects the cost of testing and verifying the accuracy of smart meters, at the customer's request. As the cost of this test is higher than the mechanical counterpart, we propose a separate charge for this service that is fully cost reflective. Our proposed charges per test are:

- 20 mm to 32 mm meters – $352.59
- 40 mm meters and greater – $406.40

These charges are $120 higher than testing the equivalent mechanical meter size. Volume is estimated at 30 tests a year.

Late payments and declined payment fees

In line with IPARTs August 2022 Determination for late payment and declined payment fees. Sydney Water proposes these fees increase in line with the cost incurred because of late payments.

For this price review, we propose to increase the current charge of $16.80 for declined fees and $5.57 for late payments to $18.03 and $5.98. This adjustment reflects an increase in our corporate overheads to 16 per cent.

Effluent disposal charge

Developers are approaching Sydney Water seeking interim servicing options so they can accelerate their developments ahead of our planned delivery for permanent infrastructure.

This requirement is either due to Sydney Water's delay in delivering the permanent infrastructure or the developer's own decision to accelerate their development ahead of Sydney Water's delivery timeframe.

To help address the issue with accelerated demand, Sydney Water proposes introducing new Interim Operating Servicing facilities for wastewater receival and treatment at Sydney Water network sites. Interim Operating Procedure (IOP) may be the most efficient and appropriate option to meet this demand.

Interim Operating Procedure supports growth planning

Interim Operating Procedure (IOP) servicing would allow customers who are undertaking developments but do not have access to a centralised wastewater connection, to transport (via tanker) wastewater at their cost to selected treatment facilities for wastewater disposal. This avoids the need to delay development construction while Sydney Water is still delivering the permanent connection.

The Sydney Water offered IOP service involves several components (storage, treatment and disposal). SWC would like to offer to developers wastewater receival and treatment facility and leave developers to manage the storage and transport supply chain components at their own cost and risk. This gives the developers an efficient choice of service.

SWC will plan to offer wastewater receival facilities at multiple locations, reducing the distance required for transportation to minimise costs, impact on the public and to reduce transport emissions. This will also increase the available options for IOP wastewater disposal services in the proposed regions.

Locations that support IOP charging and proposed price

We propose that IOP Effluent receival facilities are developed at Glenfield, St Marys and Liverpool WWTP sites. Multiple sites balance the need to offer enough sites to support likely demand for this service and to provide the most cost-effective service for customers based on proximity and transportation costs. The sites have been selected after extensive review of Sydney Water Network locations considering key criteria such as proximity to new development areas, impact on residential customers, capacity of ne network and minimal impact on environment.

Sydney Water proposes IOP wastewater receival charge of $22.65 per kL ($2024–25) for this service. Sydney Water seeks IPART to review the proposed IOP wastewater receival charge for the 2025–30 pricing period based on the currently available cost and demand projections. The forecast revenue from these charges have been set to recover the incremental costs of the IOP that will be incurred above the regulatory allowance ensuring full cost recovery if demand materialises for this service.

However, considering the uncertainty of developer demand and IOP related capital costs, Sydney Water did not include any IOP Effluent receival costs or revenue in this submission. By excluding these costs from the submission Sydney Water will avoid having customers bear the risks of demand for IOP services being lower than expected and prevent any cross-subsidies by customers over the upcoming pricing period. Therefore, it is intended that Sydney Water would then seek in the 2029–30 pricing submission the incurred IOP capital costs to be included in the Regulated Asset Base (RAB), subject to the IPART prudency and efficiency tests.

Proposed cost recovery framework (customers vs developers)

IOP treatment services are ancillary to regulated wastewater services, as key assets are the wastewater treatment plants included in the RAB. IOP will require just relatively minor plant modifications, such as development of an access road for tankers and wastewater metering and storage. These assets have long economic lives and will be used by multiple developers in the future. They will also provide SWC with extra wastewater solution in case of an emergency.

Therefore, we propose the cost recovery model. In which:

- all operating and capital costs of IOP to be treated as wastewater costs
- regulated IOP charges (specific to each site) are introduced to cover incremental operating costs of IOP and capital costs (return on asset, depreciation and tax allowance) over the economic life of the IOP assets.

The projected income from the IOP charges would be deducted from the wastewater Annual Revenue Requirement.

The proposed approach would:

- minimise risks of negative customer bill impact
- give a clear pricing signal to developers seeking certainty of permanent servicing or accelerated servicing
- allow for the most efficient least-cost servicing of growth areas.

Sydney Water seeks IPART to review the proposed IOP charges for the 2025–30 pricing period based on the currently available cost and demand projections The charges were proposed at the level that should generate a revenue equivalent of the Annual Revenue Requirement resulting from the IOP costs included in the Building Block Model.

However, considering uncertainty of developer demand and IOP related capital costs, Sydney Water did not include any IOP costs or income in its pricing submission. Sydney Water does not want customers to bear the risks of demand for IOP services being lower than expected and prevent any cross-subsidies by customers over the next pricing period.

Proposed prices for key services

For further details, refer to *Appendix 11: Proposed prices for all products*.

This document contains existing and proposed charges and our proposed prices in 2025–30 and forecast prices out to 2035.

Chapter 12: Price paths and regulatory structures

Key message

We have modelled multiple ways to pass on required bill increases to customers over the next five years with the least possible impact on affordability. For a water and wastewater customer consuming 200kL per year, we are proposing an increase of 18 per cent in 2025–26, followed by smaller annual increases. We propose this price path due to a range of factors discussed in this chapter. We also propose maintaining the existing price control and making a minor adjustment to the way daily rates are calculated.

Summary

- Our proposed pricing structure and tariffs have been informed by our customer engagement program, Our Water, Our Voice. In Phase 6, we discussed preferences for pricing structures and price controls.
- We've calculated prices in a way that seeks to balance out some of the changes to customer bills. We consider that bill impacts are more reflective of the customer experience and are therefore a better metric for measuring affordability when setting price paths.
- We propose the bill impact for a water and wastewater customer consuming 200kL per year is an increase of 18 per cent in 2025–26 followed by 6.8 per cent every year for the remainder of the determination period. This is an average bill increase of approximately $226 in the first year, and $111 every year until 2029–30 (excluding inflation). The reason we are not proposing a fully smoothed path is because a lower increase in the first year would cause bills to be higher in later years. This approach creates lower bills across the regulatory period in net present value terms. Lowering the average annual bill impact from $158 to $134 ($2025-26)
- In terms of price control, customers were presented with a choice between a price cap or a revenue cap as part of the Our Water, Our Voice program. The majority said they preferred a revenue cap, based on a preference to align costs closely to services with prices. We have listened to customers, but noting the significant amount of regulatory reform and the added complexity associated with introducing a revenue cap, we propose maintaining the existing price control.
- This includes continuing to use IPART's hybrid price cap and demand volatility adjustment mechanism (DVAM) for 2025–30 and adjusting the DVAM approach to remove the +/- five per cent deadband to mitigate the key concerns our customers expressed for full cost recovery. This delivers the key outcomes that customers want from Sydney Water. We propose to take on demand risk during the period but true-up any difference in the 2030–35 regulatory period.

Key reference materials

APPENDICES	READING ROOM
12 Indicative bill impacts	Nil

Guided by our 3Cs focus principles

CUSTOMER OUTCOMES

We have spoken to customers about their preferences and considered them when proposing changes to our price paths and regulatory structures.

BALANCE RISK AND LONG-TERM PERFORMANCE

The proposed price path balances the commercial needs of Sydney Water in delivering proposed expenditure with the long-term future impacts that a proposed structure may have on customers' bills.

EQUITABLE AND EFFICIENT COST RECOVERY

We propose price paths and price controls that are fair and consider the needs of our diverse customer base.

The procedural changes proposed in this chapter will ensure Sydney Water does not receive more or less revenue than determined by IPART.

Price paths and regulatory structures

In keeping with the IPART framework, Sydney Water can recover the revenue required to make the investments described in this proposal through a range of pricing profiles across the 2025–30 regulatory period. These profiles range from an up-front increase to customer's bills to smaller annual increases spread evenly across the pricing period. Both approaches require trade-offs between customers' preferences, government policy objectives and service levels, and are constrained by Sydney Water's legal obligations under the Sydney Water Act.

Sydney Water could also deviate from its existing price control of a price cap and move to a revenue cap, which would involve more frequent but smaller changes to customers' bills.

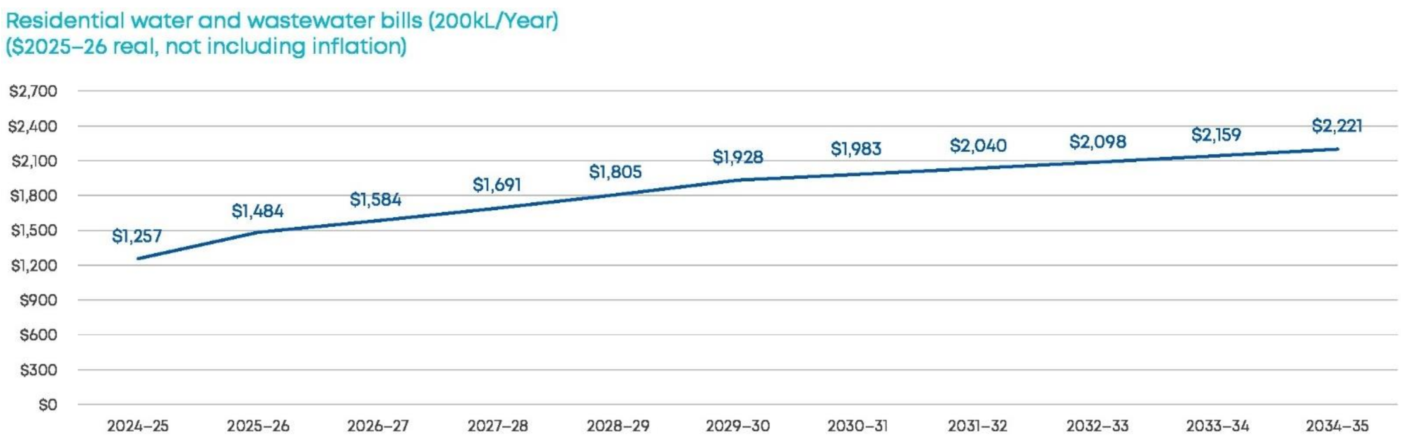
Why we are proposing this price path

We have listened to our customers and heard that affordability is the most important issue to them. This has informed the approach we have taken to setting prices. Historically, we have adjusted prices once at the beginning of each regulatory period and kept them constant in real terms over the period. This approach has two drawbacks, which we have sought to address in our proposal.

- In the context of significant increases in revenue requirement, passing on all required bill increases to customers in the first year will lead to a significant bill shock. We have sought to mitigate this by proposing an increase of 18 per cent in 2025–26, followed by smaller annual increases (for on a water and wastewater customer consuming 200kL per year).
- Smoothing at the price level leads to some disconnect between the choice of price path and the bills that customers receive. A path for any individual price may not consider interactions with other prices. For example, choosing a certain path this year for water service charges may lead to bigger bill shocks in 2025–26 due to the step increase in water usage charges this year. We have instead considered smoothing at the customer bill level. That is, we propose a path for customer bills that we consider appropriate and that allow underlying prices to vary year on year to achieve that bill outcome. Bill impacts may vary depending on individual customer consumption and services received. Note: our calculations for typical water and wastewater service use are based on a residential customer with 200 kL of water usage.

We propose the bill path shown in the chart below, which shows the bill impact for a typical water and wastewater residential customer consuming 200kL per year: an increase of 18 per cent in 2025–26 followed by 6.8 per cent every year for the remainder of the determination period. This is an average bill increase of approximately $226 in the first year, and $111 every year until 2029–30.

Figure 12.1: Proposed bill path for a typical (200 kL) residential water and wastewater customer



Bills after the increase of 18 per cent in real terms are still less than what water customers in Perth, Brisbane and Darwin currently pay, and $62 ($2025-26) per year more than what customers in Hobart currently pay. As a result, the initial increase is within what a customer might reasonably expect to pay in Australia's capital cities.

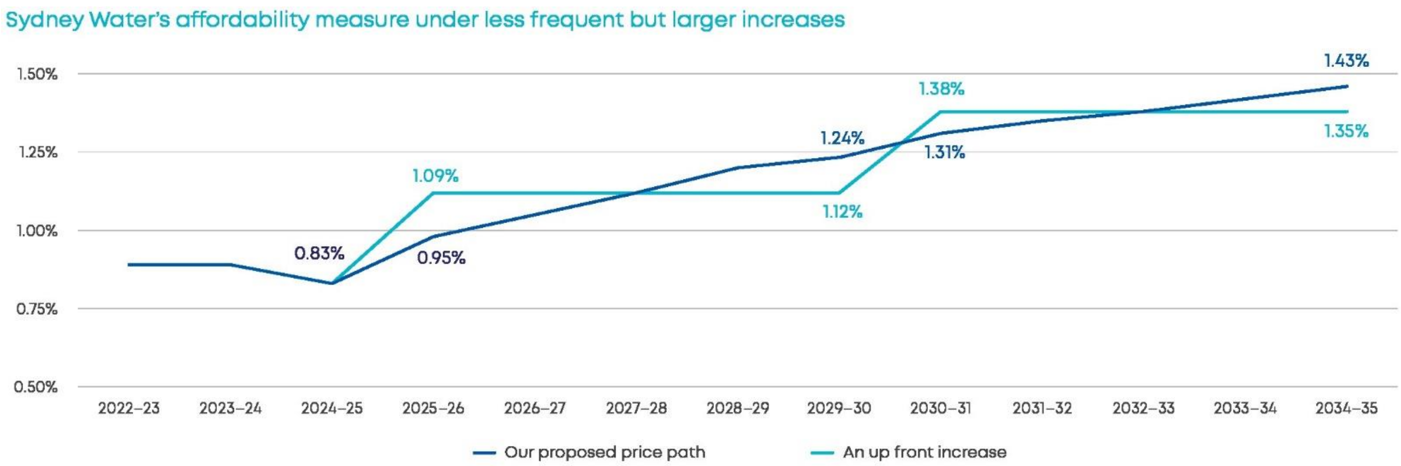
Less frequent but larger bill increases create short-run bill shocks

If Sydney Water were to instead adopt a single one-off increase to customer bills, similar to the approach taken in the 2020 determination, bills would need to increase by $434 from 1 July 2025 (in $2025–26 terms) followed by an approximately similar increase in the 2030–35 pricing period. This approach mitigates Sydney Water's financial risks associated with more gradual price increases, but requires customers to bear the entire cost of this investment profile from their first bill in September 2025. We consider that this level of increase in one year is not acceptable for affordability reasons.

It is worth noting that this approach leads to smaller average bills over the pricing period compared to approaches where bills are increased more gradually. This may be a benefit over the medium term but comes with a trade-off that higher bill increases may be required over the 2030–35 pricing period.

Under Sydney Water's affordability measure[77], the one-off increase would mean that customers would immediately pay approximately 1.09 per cent of their disposable income on water and wastewater services in 2025–26, compared to 0.95 per cent under our proposed approach. If Sydney Water were to make a second one-off increase in 2030 for the next pricing period, then affordability would jump to 1.35 per cent, compared to 1.27 per cent under our proposed price path. Within the broader context of affordable water services, utilities that fall below three per cent are generally considered affordable.

Figure 12.2: Affordability measure for proposed price path compared to up-front increases



A fully smoothed approach avoids large future bill impacts

If Sydney Water were to adopt a bill path with constant year-on-year percentage changes, customers would benefit in the short term by having lower bills and more time to adjust to bill increases. However, recovering the full investment profile price requires bills to be higher later in the regulatory period to ensure that the expenditure delivered by Sydney Water from 1 July 2025 is recovered in net present value terms. The practical implication of this is that a typical customer would incur an average bill increase of $158 per year (in $2025–26 terms) compared to the $87 per year (in $2025–26 terms) impact delivered under a single one-off increase over the course of five years – A result that puts further strain on customers bills to deliver the same levels of service.

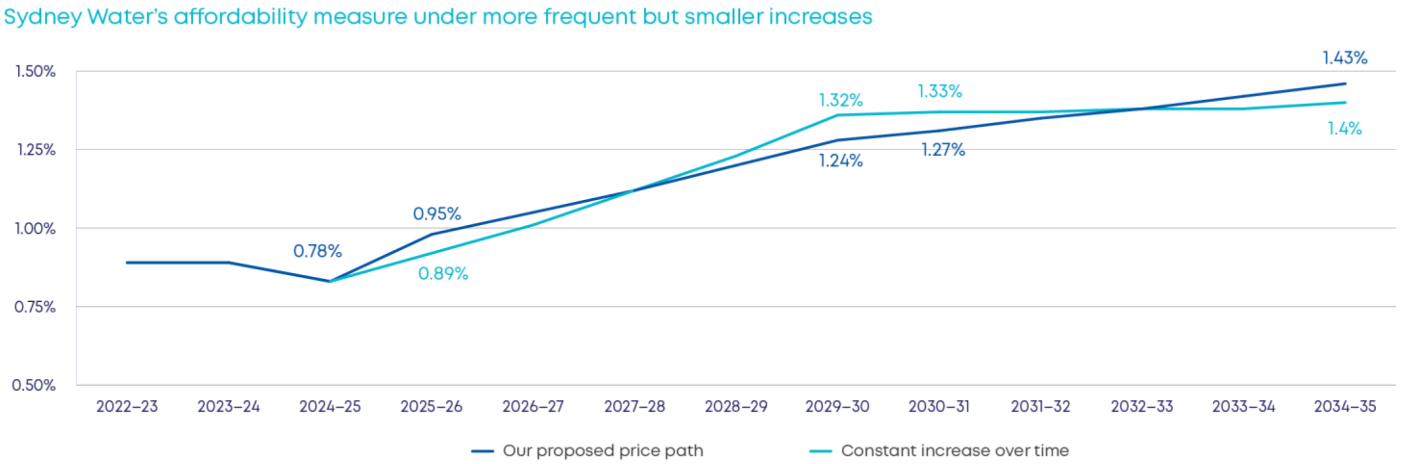
In addition, Sydney Water's ability to efficiently deliver higher levels of service becomes subject to higher financial risks as the difference between revenue collected and the immediate cost of delivering investments reduces cash on hand in the short run. This is known as a financeability risk and is discussed in further detail in **Chapter 9**.

Under Sydney Water's affordability measure, a bill path with constant year-on-year percentage changes would mean that customers would spend approximately 0.89 per cent of their disposable income on water and wastewater services in year 1, compared to 0.95

[77] To see the methodology for this figure please refer to the customer experience servicing investment plan.

per cent under our proposed approach. However, because customers pay later in the period, at the end of the regulatory period they pay almost 0.1 per cent of more of their disposable income than in our proposed approach.

Figure 12.3: Affordability measure for proposed price path compared to constant year-on-year price increases



A balanced approach manages risk and ensures a predictable bill path for customers

Given the trade-offs between these two approaches, it is clear that neither constant year-on-year changes nor a single increase delivers the best outcome for customers or Sydney Water. As a result, Sydney Water proposes a combination of a one-off increase in 2025–26 that reduces the average bill increase across the regulatory period and addresses our financeability concerns, while smoothed increases over the rest of the pricing period minimise financial pressure on households.

Financeability considerations

In line with the discussion in **Chapter 9**, these prices paths must ensure that Sydney Water continues to be financially stable and have sufficient cash flow to deliver the services customers expect.

In line with the expectations of NSW Treasury, this price path ensures Sydney Water adheres with its legal obligations for key metrics such as interest coverage, funds from operations, and gearing. It ensures that once customers experience bill increases, they can have confidence Sydney Water has the financial stability to deliver the investment discussed in this proposal.

Sydney Water recommends the above path as further reductions on the initial increase in 2025–26 create additional credit risk in the medium term. Any reductions may lead to higher costs of borrowing, further impacting customer bills.

To learn more about how we considered financeability when setting this price path, see **Chapter 9**.

How this price path impacts small households

When setting price paths, consideration must be given to the ratio between fixed and variable charges. Under a fully fixed charging structure, all customers would be billed equally; while under fully variable pricing, customers pay only for what they use. For small households, larger fixed charges often mean that their behaviour affects their overall bill less than in a large household whose bill is shaped more by the volume of water consumed. Inversely, if we were to adopt a price path with a higher usage price, efficient water use for large households may be unnecessarily high and put more pressure on larger families.

In Phase 6 of Our Water, Our Voice, customers made it clear that we should pursue variable pricing as much as possible. Sydney Water has aligned with customer preferences for variable pricing as much as practical for each of the services it provides. However, customers also made it clear that highly variable tariff structures, such as tiered pricing that unfairly impacts large households, were also not acceptable when they penalised large households that were efficient on a per person basis.

For water prices, we are following national guidelines, proposing a variable price that reduces the fixed charges customers pay. This means that while the cost of using water may go up or down, the regular, fixed fees customers pay each month are kept as low as possible. Sydney Water can't set a higher price for water use because it would unfairly affect wastewater charges.

For wastewater prices, we plan to increase the fixed charges each year, but this will be done gradually according to planned price increases.

For stormwater services, the bill includes a fixed charge based on how much each customer impacts the system. Unlike with wastewater charges, smaller households usually have a measurable reduction in the costs associated with the stormwater network. Therefore, small households pay a lower stormwater charge.

Overall, small households can feel confident that their fixed charges are kept as low as possible while still covering the necessary costs efficiently.

Impact of growth on bill increases

We have considered the role that growth plays in increasing the need for higher bills described above. Over 2025–30, we expect to spend $9.5 billion on growth capex and $226 million on related opex, which is partially offset by expected revenue from infrastructure contributions of $3.9 billion to 2030. The inclusion of these costs and revenues increase our revenue requirement from $18.9 billion over 2025–30 to $20.0 billion.

In the short term, the revenue from infrastructure contributions is insufficient to offset a higher revenue requirement due to growth. However, growth implies an increase in property numbers and sales, which means that this higher revenue requirement is recovered from a larger customer base. It is difficult to estimate this effect as some growth, particularly a proportion of infield growth, will continue even if we did not incur any growth expenditure.

Form of price control

Under the IPART regulatory framework, utilities can propose the form of price regulation they believe to be most appropriate for their situation. The main two forms of price control are a price cap and a revenue cap. A hybrid version of these forms of control can also be adopted.

Price cap – Prices (tariffs) are set for the regulatory period (with annual adjustment for inflation). The benefit of this approach for customers is that it provides the most stable bills. The risk of any fluctuation in demand and the impact this has on total revenue is borne by the utility.

Revenue cap – An overall cap is set on the total revenue the utility can earn during the regulatory period, irrespective of the volume of water sales. Under this arrangement, customers bear any volume-related risk through price increases or decreases over the regulatory period.

Hybrid price cap – Prices are set in the same manner as with a price cap, with the addition of a demand adjustment mechanism to share the risk of demand variations between customers and the utility. The benefit of this approach is that it more closely follows the actual cost to provide the service. Although customers share the risk and may be required to pay more, they may benefit from lower prices if demand is higher than planned.

IPART's current form of price control

IPART regulates Sydney Water using a hybrid price cap with a demand adjustment mechanism. This involves IPART first determining a forecast of the efficient revenue we require to deliver our regulated services over the determination period. IPART then approves a demand forecast (see **Chapter 10** for details) and calculates prices so that our business will recover the forecasted cost of servicing water demand. This approach is illustrated in **Figure 12.4**.

Figure 12.4: Sydney Water can under or over-collect revenue based on how much water is sold

If actual demand and connections differ to the forecast (due to factors such as different climate conditions or population growth), we would over- or under-recover the efficient revenue allowance set by IPART. This is known as demand risk.

IPART's approach involves a partial adjustment for this risk of revenue over- or under-recovery. When actual water sales over an entire period differ by more than ±5 per cent from those forecast when setting prices, IPART will consider an NPV-neutral true-up of that excess over the following period. This true-up is known as the demand volatility adjustment mechanism (DVAM). There is no equivalent adjustment for other sources of revenue variation. We characterise this as a hybrid price and revenue cap model.

Demand volatility adjustment mechanism materiality threshold

The DVAM is an important addition to a pure price cap framework since it ensures that we (broadly) recover the revenue that IPART deems as efficient to operate our business. However, the materiality threshold in the DVAM risks windfall gains and losses. We calculate that the ±5% threshold could have resulted in windfall gains or losses of up to $262.5 million for water sales between 2019–20 and 2023–24.[78]

Actual events since 2019–20 were not far off. We have under-recovered our target revenue by $618.0 million since 2019–20. After accounting for holding costs, we are only entitled to recover $301.1 million over 2025–30 under IPART's DVAM. The remainder is worn by Sydney Water as a windfall loss.

Table 12.1: Demand volatility adjustment true-up for 2019–20 to 2023–24

	2019–20	2020–21	2021–22	2022–23	2023–24 (forecast)***	Total
Target water sales volume (ML)*	491,627	509,569	515,941	522,241	530,118	2,569,495
Actual water sales volume (ML)*	473,139	466,578	450,608	465,000	487,476	2,342,801
Difference (%)	-3.76%	-8.44%	-12.66%	-10.96%	-8.04%	-8.8%
Water sales revenue below target ($m) ($2024–25)	-$61.2	-$145.3	-$202.4	-$169.2	-$124.6	-$618.0
Water sales revenue below lower dead band ($m) ($2024–25)**	$15.7	-$49.1	-$106.0	-$83.2	-$44.2	-$262.5
DVAM gain (loss) ($m) ($2024–25)						-$301.1

* Includes unfiltered water sales, top-up and deemed unmetered water sales, per IPART's methodology[79].
** Includes adjustment for holding costs.
*** Note that 2023-24 figures are not available at the time of writing.

Customer preferences

Customers rank affordability and water conservation in their top five outcomes

Through Our Water, Our Voice, we engaged our customers on the outcomes they would like Sydney Water to deliver over the next five to ten years. Throughout this engagement, customers identified affordability and water conservation as two of their highest priorities.[80] This is discussed in more detail in **Chapter 1**.

Affordability has two dimensions relevant to the design of the price control: the size of the bills that customers pay, and the rate at which those bills change.[81]

Depending on the form of price control, customers' bills may be higher or lower than what is needed to fund our services efficiently. Any adjustments made will impact the stability of bills during or between periods.

The form of price control is also relevant to Sydney Water's incentive to promote water conservation. Under price caps, revenue is predicated on water sales. In other words, greater water conservation means less revenue for the business. In contrast, under a revenue cap, the actual revenue does not diverge from target revenue, due to differences in forecast sales.

[78] We also note there are potential timing issues in the recovery of revenue. IPART generally accounts for this through an NPV adjustment, discounting any under- or over-recoveries by the regulated weighted average cost of capital. This affects the absolute amount customers end up paying.

[79] IPART 2020 "Final Report – Review of prices for Sydnbey Water" Appendix O

[80] In Phase 1, with a broad understanding of Sydney Water, customers ranked affordability as their second-highest priority. Water conservation was a common thread between a number of subsequent priorities. These outcomes remained recurring themes throughout the engagement program.

[81] Water Services Association of Australia (2020) Understanding affordability, internal discussion paper.

Targeted engagement on price controls

During Phase 6 of Our Water, Our Voice, customers deliberated on a price cap, and a revenue cap that may increase bills by as much as two per cent but would return any over-recovery of revenue by Sydney Water. This engagement is outlined in *Our Water, Our Voice Phase 6 report.* Customers recognised that while a price cap offers simplicity, a revenue cap offers preferable timing for payment, particularly when paired with the protection of a side constraint for price increases. In the revenue cap option, we had proposed that any adjustment required for lower demand and therefore less revenue would be recovered in the following regulatory period, and this was seen as a more favourable outcome by customers.

Figure 12.5: Our Water, Our Voice Phase 6 stimulus showing the difference between a revenue cap and a price cap

64% of customers preferred this:

Revenue Cap ($10 under in year 1 & year 2)	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Under recovery	-$10	-$10	$0	$0	$0	$0	$0	$0	$0	$0
Change to bill	+$0	+$2	+$2	+$2	+$2	+$2.4	+$2.4	+$2.4	$2.4	$2.4
Total Shortfall	-$10	-$18	-$16	-$14	-$12	-$9.6	-$7.2	-$4.8	-$2.4	$0

36% of customers preferred this:

Price Cap ($10 under in year 1 & year 2)	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Under recovery	-$10	-$10	$0	$0	$0	$0	$0	$0	$0	$0
Change to bill	+$0	+$0	+$0	+$0	+$0	+$4	+$4	+$4	$4	$4
Total Shortfall	-$10	-$20	-$20	-$20	-$20	-$16	-$12	-$8	-$4	$0

Why we aren't proposing a revenue cap

While customers preferred the revenue cap approach over the price cap, there are several factors why we propose a price cap:

- There are simpler ways to achieve the objectives that customers saw a revenue cap as providing. Longer engagement sessions with customers through Our Water, Our Voice enabled us to better understand *why* customers preferred one option over another. For the form of price control, customers who voted for the revenue cap preferred a closer alignment between the prices they pay and the costs we need to recover. With the exception of the financeability risk this may create for our business, this can be achieved with less complex, more stable prices in-period by setting the materiality threshold to zero.
- Price caps limit in-period changes to prices. Unlike in the current pricing period, we are proposing staggered increases to prices. As a result, the adjustments to customers' annual prices will now include real increases on top of Consumer Price Index adjustments. Introducing additional changes to account for a revenue cap would result in an additional increase/decrease to customer bills in period. As a result, further annual adjustments may not be appropriate.
- A price cap minimises non-essential regulatory reform in a complex price proposal. Given the level of proposed investments, simultaneous water price submissions and added regulatory complexity under IPART's 3Cs framework, there may not be suitable time in the upcoming review to introduce a new form of price control without introducing further complexity and regulatory burden.

Removing the materiality threshold under the DVAM aligns better with customers engagement outcomes

In the context of significant regulatory reform, we propose that IPART continue to regulate Sydney Water using its hybrid price and revenue cap model but remove the five per cent materiality threshold under the DVAM. This enables us to mitigate the key concerns customers expressed about price caps, without moving to a pure revenue cap approach. The benefits of this approach for customers are discussed below.

Avoiding the risk of under- or over-recovery was a key feature of our customer engagement

The opportunity for Sydney Water to make a profit above the revenue we need to operate our business and, conversely, the concern that under-recovering revenue contributes to under-investment in our assets, was the key reason why customers voted against price caps. Any under-recovery that is worn by our business risks an inability to efficiently invest in activities to achieve the long-term interests of customers. Conversely, any windfall gains are rewards for our business for factors outside our control. Our customers have told us it is not appropriate that they pay for such rewards.[82]

As such, the windfall gains and losses that can exist under the current DVAM do not balance our funding requirements for delivering the customer, community and environmental outcomes our customers value with what they have also told us in relation to affordability.

A full true-up improves incentives to promote water conservation by limiting the connection between water sales and revenue

A price cap including a true-up in the following regulatory period ensures that our business recovers the fixed costs of delivering our regulated services. This approach avoids the impact greater water conservation would otherwise have on revenue recovery. The only issue is timing. We propose wearing this timing risk in exchange for the benefits that doing so has for the affordability outcomes we discussed above. Under this approach, our business's incentive to conserve water is better aligned with our customers' expectations for it.

Price cap regulation with a true-up improves our ability to deliver long-term customer value

An additional benefit of a full true-up is that it enables us to manage external risks more flexibly or pursue further opportunities for improving customer value. That is, every business has a risk appetite that is contingent on the funding and cost risks it is exposed to. Minimising demand risk will open opportunities to manage other risks more efficiently.

As discussed in our response to IPART's review of regulation for NSW water businesses,[83] with challenges such as population growth, ageing infrastructure, climate change and extreme weather events, it will become more critical than ever to ensure that utilities can respond in a timely and effective manner in the long-term interests of customers.

Implications on demand risk

Regulators have often been critical of revenue caps as they are seen to transfer demand risk onto the customer.[84] In the context of variable-cost businesses, placing this demand risk on customers means windfall profits or losses (revenue certainty but variable costs dependent on demand). For fixed-cost businesses, placing this demand risk on customers means there are no windfall profits or losses (revenue certainty and fixed costs). This was a prominent feature of the customer preference for revenue caps (to avoid 'overcharging' customers, or not having sufficient funding to prioritise the right level of service and risk).[85]

In the context of our business, our costs are largely fixed (long-lived infrastructure) over five-year determination periods. As such, we consider that a price cap and DVAM without a materiality threshold better aligns with customers' preferences in relation to demand risk.

[82] Verian (2024), Our Water, Our Voice, Phase 6 Final Report
[83] Sydney Water (2022) "Regulating water businesses Response to Draft Report" pp16

[84] See, for example, IPART (2022), Our water regulatory framework, Technical Paper, p. 33.
[85] Verian (2024), Our Water, Our Voice, Phase 6 Final Report

Chapter 13: Customer impact and support

Key message

We're building awareness of all our customer support programs through market scanning and predictive modelling. We will continue to support customers through our customer hardship programs.

Summary

- We will continue to support customers through existing customer hardship programs. Our programs are varied, with several touch points to engage with customers and assist them with paying their water bills and in mitigating the impacts of potential bill increases.
- Our programs are robust and highly regarded. Recent customer advocacy surveys show Sydney Water's hardship programs currently have a high customer advocacy score (88 per cent – at 30 June 2024) and high customer satisfaction score (83 per cent June 24).
- Each hardship program is closely monitored and has built-in mechanisms to scale up or scale down eligibility criteria in response to moving customer needs and potential bill rises. Sydney Water will continue to support customers to manage their bills and offer financial support.
- We will uplift our services with the assistance of the NSW Government. We forecast Sydney Water will offer over $1 billion through payment assistance programs in 2025–30.
- We help customers to manage their bills through payment extensions. Customers can call Sydney Water and access programs like WaterFix®. We offer additional hardship programs such as our payment assistance scheme and PlumbAssist. Sydney Water can reduce the end bill amount for vulnerable customers and also provide access to plumbing services to fix leaks and reduce water bills.
- We work closely with community partners to assist customers experiencing hardship across other utilities, banking and government support. In that way, Sydney Water is a holistic support provider – a one-stop shop.
- We're building awareness of all our customer support programs through market scanning and predictive modelling, to reach customers directly. Additionally, we will reach customers through their communities. We will expand our communication about customer assistance – through channels such as in-language radio – to ensure those who need support are aware it's available and proactively contacted.
- We are proposing the bill impact for a water and wastewater customer consuming 200kL per year is an increase of 18 per cent in 2025–26 followed by 6.8 per cent every year for the remainder of the determination period. This is an average bill increase of approximately $226 in the first year, and $111 every year until 2029–30 (in real $2025–26 terms).

Key reference materials

APPENDICES	READING ROOM
12. Indicative bill impacts	Nil

Guided by our 3Cs focus principles

CUSTOMER OUTCOMES

We've reviewed our customer programs to ensure they are fit for purpose, and we continue to explore new ways to build awareness of ways customers can access support.

We are prepared to uplift our services to match an expected increase in the numbers of customers accessing hardship programs based on the proposed bill increase.

BALANCE RISK AND LONG-TERM PERFORMANCE

The proposed bill impact will ensure that investment is not delayed. We recognise that this will increase bill impacts in 2030, requiring larger levels of customer support.

EQUITABLE AND EFFICIENT COST RECOVERY

The impact of Sydney Water's investment program for a water and wastewater customer consuming 200kL per year is a bill increase of 18 per cent in 2025–26 followed by 6.8 per cent every year for the remainder of the determination period. This is an average bill increase of approximately $226 in the first year, and $111 every year until 2029–30.

Customers want bills to remain affordable. Affordability was noted as the second most important priority for customers in Phase 1 of the Our Water, Our Voice customer engagement program. With this insight our challenge has been to safeguard our water services for the next regulatory period and beyond, in the face of new and existing challenges to our operating landscape (see **Chapter 2**) while keeping bills affordable.

Through Our Water, Our Voice customer engagement activities, our customers indicated that they understand the challenges and have provided Sydney Water with the support and social licence to act now to safeguard our water future. Customers indicated that they don't want a decline in services now or in the future and could accept an (affordable) bill increase over the next regulatory period to sustain current levels of service and some carefully balanced improvements. This price proposal has presented a price path that will maintain sustainable service levels over time, while managing bill shock.

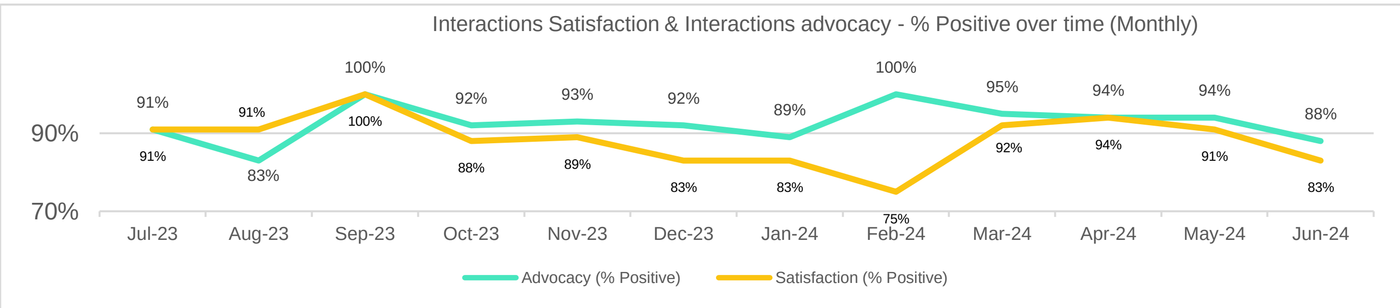
Under our proposed price path, the bill impact for a water and wastewater customer consuming 200kL per year is an increase of 18 per cent in 2025–26 followed by 6.8 per cent every year for the remainder of the determination period. This is an average bill increase of approximately $226 in the first year, and $111 every year until 2029–30. We predict the need to increase bills by a further 2.9 per cent per year over 2030–35 to recover the required costs for the following regulatory period. Further details on the price path and the considerations we made in choosing it can be found in **Chapter 11**.

Sydney Water's customer programs are highly rated

Despite our low bill prices over the past decade, Sydney Water continues to deliver an industry-leading suite of customer hardship programs to support our customers and work towards adopting best practice programs outlined in the Water Service Association of Australia's 2024 Supporting customers in debt report.

Recent customer advocacy surveys find that these programs currently have a high customer advocacy score (88 per cent – in June 2024) and high customer satisfaction score (83 per cent) and appropriate eligibility criteria, with a 75 per cent approval rate. This data demonstrates that our existing programs are robust and fit for purpose.

Figure 13.1: Interaction customer advocacy and customer satisfaction scores, FY2023–24



Sydney Water is well prepared to continue to deliver these programs into the future and respond to the needs of our customers during the next regulatory period, monitoring bill impacts through a range of proactive and predictive measures that are further discussed in this chapter. These measures include a material uplift in the value of community service obligations (CSOs) funded by the NSW Government, to support customers experiencing hardship.

We're determined to make programs easier to find

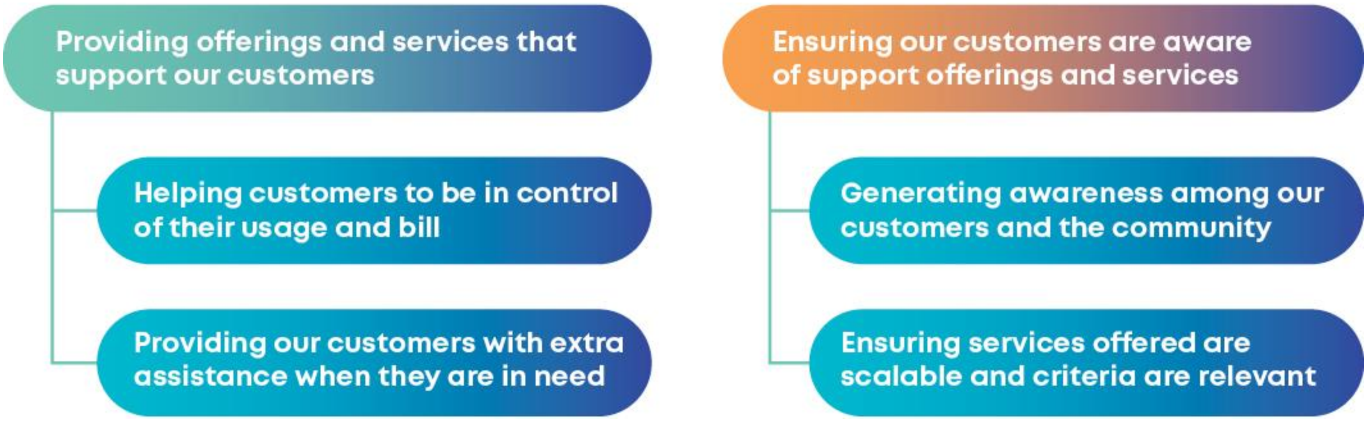
Through the Our Water, Our Voice customer engagement program, customers told us they would accept a bill rise, but were very clear about the need to protect those who are financially vulnerable, noting that Sydney Water must help where needed.

We know that accessibility and awareness of our programs is vital. Over the coming pricing period, Sydney Water will work to increase the visibility of our customer programs among people who need them, and ensure these customers are supported during price increases. As living without water is not an option, many participants in customer engagements suggested that it is important for customers to know that Sydney Water offers support for those in need.

'Most customers were impressed with the list [of hardship programs] despite being unaware that these options were available.' **What we heard | Our Water, Our Voice Phase 4 customer forums**

How we will support our customers

Figure 13.2: We support customers in many different ways



We will continue to support all customers to manage their bills

Sydney Water recognises that we play an essential role in helping our customers take greater control of their water usage and reduce their bills through education and water efficiency programs. We will continue to support our customers through the Residential, Strata, Commercial and Schools variations of our WaterFix program, and offer monitoring programs including online monitoring of concealed leaks to assist our customers in finding leaks.

In addition, Sydney Water offers a variety of rebate schemes for certain customers, and proactive notification programs that tell customers when there is a possibility of a leak that is significantly increasing their usage and bill.

Helping customers be in control of their usage and bills

Finding information on programs

Sydney Water's customers can help themselves to services online and via phone and mail messaging. This provides opportunities to self-select support programs that best suit their needs, through their chosen method of communication. Online, our customers can lodge requests for support through My Account. They can also speak to someone on the phone about our programs. Sydney Water provides email updates to customers on the programs it offers, as well as a range of tips through our Waterwrap customer newsletter.

Figure 13.3: Example Waterwrap customer newsletter

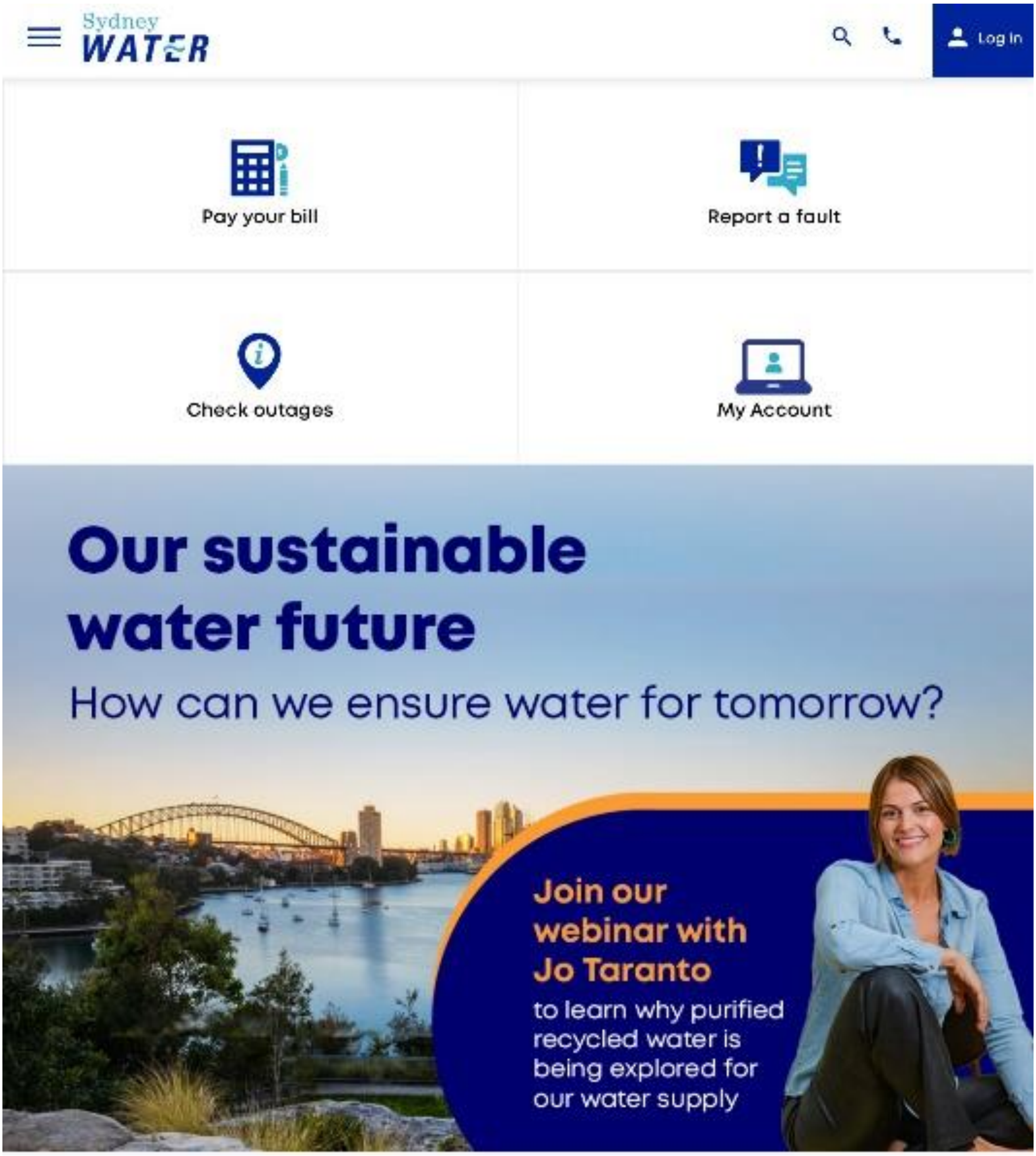
Web optimisation

Since our last pricing determination, Sydney Water has made it easier for customers to navigate our updated website. User friendly navigation is offered in plain English and a range of language translations to ensure all customers can easily find the resources they need.

Sydney Water regularly tracks how customers use our website, to improve the content and design. This helps make sure customers can easily find what they need and enhances the overall customer experience.

Over the past 12 months, the Sydney Water website has been widely used, with a total of 26,000,000 impressions (total page views)

Figure 13.4: Adding mobile portals for our website to improve accessibility



Concessions, rebates and water efficiency programs

Sydney Water offers a series of rebates and concessions for pensioners and those needing longer-term financial care. All customers can visit our website or contact Sydney Water by phone to review the eligibility criteria to see if they can receive a concession.

Concealed leak program assists customers with rebates and finding leaks

Sydney Water's hidden leak allowance enables customers to save up to 50 per cent on their water usage charge where the high water use was caused by a concealed leak. The concealed leak must be fixed by a licenced plumber. Plumbers can nominate their customers to Sydney Water when they find hidden leaks on a customer's property. Customers can also apply directly for the hidden leak allowance on our website. This allowance is available once every five years for the same property

Last year, Sydney Water issued 50,000 proactive notifications to customers who were identified as having a potential hidden leak, and we provided 2,500 adjustments to customers' bills in instances where a hidden leak concession was applicable.

WaterFix for residential customers

Fixing leaks and installing water efficient devices are some of the quickest ways for customers to save water and reduce their water bills. The Sydney Water website has information for customers on addressing leaks and benefitting from concessions. Sydney Water's WaterFix program offers a wide range of water saving options to help customers reduce water wastage at home and in their business. Programs include:

- **WaterFix Residential**: For a small callout fee of $44 ($16.50 for eligible pensioners), our plumbers will conduct minor leak repairs to standard taps, toilets and outdoor taps as well as replace showerheads to one with a 4 star WELS rating. Other services are also available for a fee.
- **WaterFix Strata**: Our free desktop assessment is the first step to determining if a strata's water usage is low, average or too high. We use data such as apartment and bedroom count plus historical water usage to compare the strata to best practice industry benchmarks. If the desktop assessment indicates the strata's water use is too high, we'll set up an inspection and provide an obligation-free quote covering the work that needs to be done.
- **WaterFix Concealed Leaks**: For this service, our specialist plumbers will check the property for any obvious leaks and use specialised equipment such as pipe location devices and acoustic listening devices to detect any concealed leaks. We will also provide an obligation-free estimate to fix the leak or leaks.

Figure 13.5: WaterFix

Spotted a leak?

Call your plumber or contact WaterFix Residential to start saving water and money!

Water Fix and online monitoring for non-residential customers

Business customers have access to some Waterfix services and have the option of acquiring a smart metering monitoring service This service provides smart metering capabilities with data reporting to increase visibility of water usage.

- **WaterFix Commercial** – This program is specifically structured for businesses such as office towers, hotels, shopping centres and aged care facilities. We provide a free desktop assessment to see if the site's water use is low, average or too high compared to industry benchmarks. It includes 24/7 monitoring of water use via a data logger, detailed onsite audits and an obligation-free quote to make the property water efficient.
- **WaterFix Schools** - Our WaterFix Schools program aims to lower school's water bill and boost sustainability. We offer a free desktop water efficiency assessment that allows us to take a closer look at the school's water usage. The program includes installation of a data logger on the school's water meter to analyse water use, an on-site audit and report outlining ways the school can save water and an obligation-free quote on works to make the school more water-efficient. Tertiary institutions, including universities and TAFEs, can access WaterFix Commercial.
- **Online monitoring -** Hidden leaks and inefficient processes cost businesses of all sizes thousands of dollars each year. They can waste tens of thousands of litres of water. Our Online Monitoring program provides near-real-time data logging to help business' track their water use and pinpoint the areas where the business can save. Sydney Water is currently offering a subsidy where eligible businesses pay just $495 for each data logger – a saving of over $1,000 up front.

Figure 13.6: Information on the online monitoring subsidy

Save with the Online Monitoring subsidy

With the subsidy, eligible businesses pay just $495 for each data logger – a saving of over $1,000 up front.

What the program costs	What the program includes
First year $495 per data logger	• data logger (yours to keep) • installation • 12 months' 24/7 access to the online platform, plus email alerts for sudden changes or spikes in water use.
Second year and ongoing $150 per data logger	• renewed 12 months' 24/7 access to the online platform, plus email alerts for sudden changes or spikes in water use.

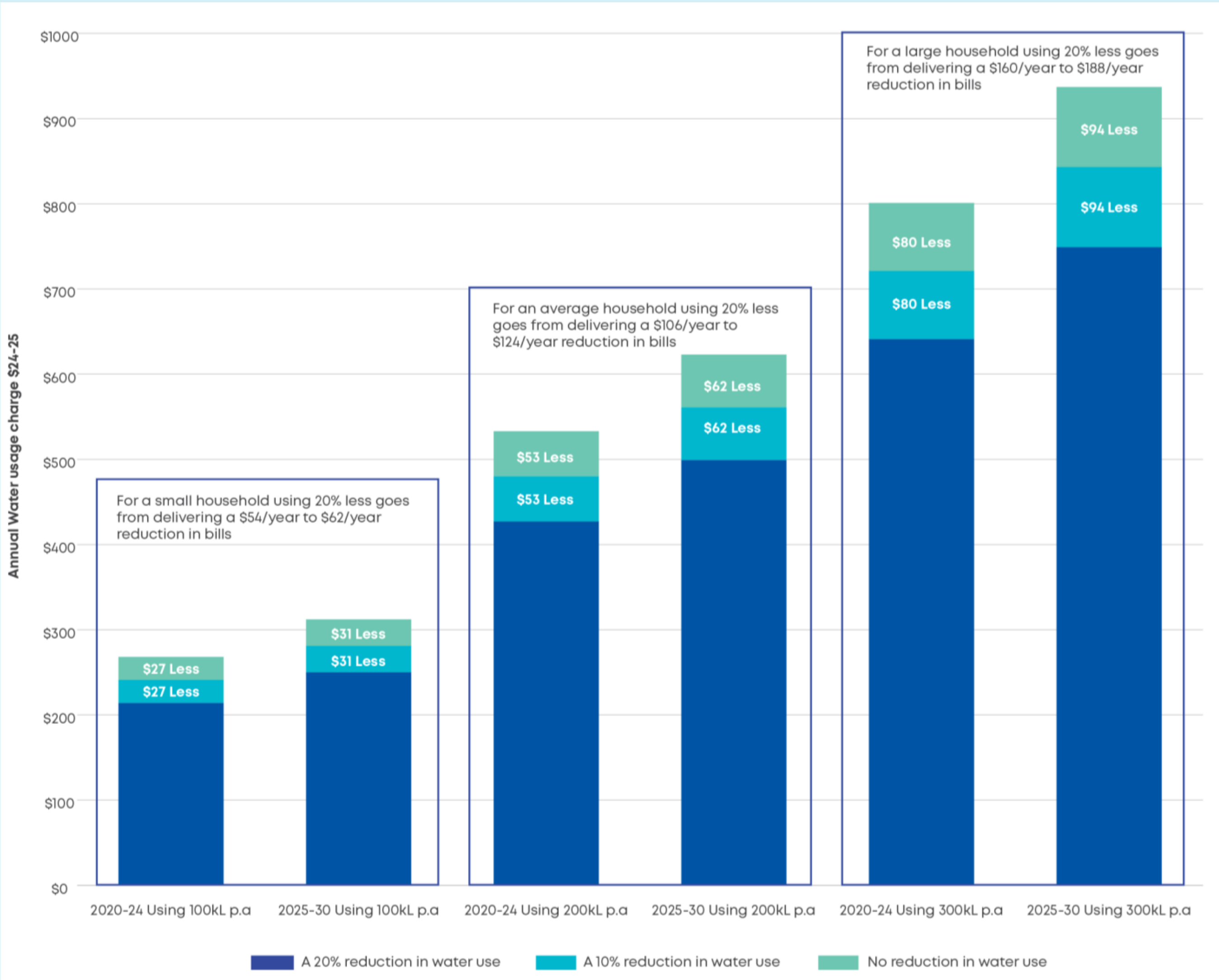
For more information on our water saving programs and applicable fees, visit Find a water saving program (sydneywater.com.au)

Case study: Saving water reduces your bill

We propose to increase the unit price of water from $2.67 to $3.12 per 1,000 litres, increasing it annually in line with inflation between 2025 and 2030. This means that customers who commit to save water will see larger reductions to their bills. To assist our customers to find ways to save water, we continue to research how we can help them make every drop count and target these messages to those who will benefit most.

Under the new water usage price, a large water customer using 300,000 litres per year could save $94 per year by reducing their water use by 10 per cent, and $188 per year (in real $2024–25 terms) by reducing it by 20 per cent, compared to $80 and $160, respectively, under the previous usage price. This incentive would grow in line with inflation from 2025 onwards.

Figure 13.7: Annual real water usage charge 2020 vs 2025 ($24-25)



Short-term offering and solutions for customers to manage their finances

Offering payment options that suit customers

Sydney Water will continue to offer a range of payment options to allow its customers to better manage the method and the frequency with which they pay their water bills.

Customers don't have to pay their bills online. Those receiving paper bills can pay at Australia Post or by calling Sydney Water on 1300 123 458.

Those who pay online can do so via My Account or our bill payment portal using a range of payment methods.

Payment plans, extensions and deferrals

Customers want to feel in control of their finances and can arrange to pay bills in smaller amounts every two weeks or monthly in advance to reduce a quarterly bill shock.

All customers can opt into payment extensions, if they need more time to pay by selecting a new payment date via My Account or by calling Sydney Water. There are no late payment fees or interest charges, if customers keep to the arrangement. In the past financial year, Sydney Water offered 14,000 payment extensions and 54,000 payment plans. Payment arrangements can still be made after the bill due date by contacting Sydney Water directly.

Financial support programs for customers

Some customers require further support from Sydney Water in instances where they are at risk of or already experiencing ongoing hardship. Over the coming pricing period, Sydney Water will ensure that those who need further assistance can access it and that the range of products to support them are fit for purpose.

Programs for property owners

All customers can contact Sydney Water for assistance if they have difficulty paying their bill. We have levels of hardship support for all situations. The assistance they're offered is based on their individual circumstances.

Table 13.1: Overview of customer programs for financial support

Customer programs	Overview of program
Payment Assistance Scheme (PAS)	Payment extension, payment plan and payment arrangement are based on reasonable commercial considerations and market conditions. There is no limit to the number of customers we assist with this support option. This scheme assists residential customers experiencing financial hardship to pay their bill and ensure they maintain access to our water and wastewater services. Eligible customers receive a credit applied directly to their bill. We work in partnership with over 100 accredited community service and specialised agencies to deliver this scheme. For business customers, payment extension, payment plan and payment arrangement are based on reasonable commercial considerations and market conditions. There is no limit to the number of customers we assist with this support option.
BillAssist®	A customer is assigned a dedicated case coordinator to help manage their account and hardship factors. This offers customers in need protection from debt recovery, connection restrictions and interest payments. Customers accessing BillAssist® can also be referred to further internal programs at Sydney Water or external supports for people experiencing financial hardship.
PlumbAssist®	Customers who are experiencing financial difficulty are also eligible for PlumbAssist®. This service provides residential plumbing services for customers unable to afford a private plumber, ensuring that all customers have access to basic services that are efficient and promote sustainable water use.

Customer programs	Overview of program
	By providing an accredited plumber, customers can have confidence that they will receive support if needed, and be offered referrals to specialist services such as sewer cleaning and concealed leaks. PlumbAssist® can also refer customers to WaterFix® for additional assistance.
Services for customers experiencing hardship through holistic support offerings	
Family Violence Assistance	Customers experiencing domestic and family violence are appointed a case coordinator and their details are protected. Regardless of their financial circumstances, we enrol them in the BillAssist® program so they have single point of contact. We will continually review our family violence policy to ensure our customers are supported.
Working with community support agencies	We help put customers in touch with a range of community service agencies that Sydney Water partners with for help, including assistance services for other utilities. This might be for counselling, emergency financial relief and/or medical advice and support. Partnerships with thriving communities like Australia's One Stop One Story hub ensures that customers who are experiencing hardship don't have to tell their story again. It facilitates support across their banking, water, energy and telecommunications providers to eliminate the barrier and trauma of telling their stories repeatedly. Customers can also receive support within their communities from Sydney Water's accredited community agencies.
Services for those who meet an external criteria (for example, pensioners)	
Concession assistance	Ensuring that customers are aware of other government concessions they may be entitled to.
Pension rebates	Eligible pensioners are entitled to a concession on their service charges. As renters do not receive the service charge, they are not eligible for a pensioner concession.
Centrepay payments through Centrelink	This offering allows customers who receive eligible Centrelink payments to set up a deduction from their payment into their Sydney Water account.

Programs for tenants

While residential tenants don't have an account with Sydney Water, they are still eligible for support and can receive updates on service interruptions. As part of our response to Sydney Water's latest Operating Licence review, we have reviewed the possibility of tenant billing and the various support programs that tenants can access. While we are not proposing tenant billing as part of this proposal, we are making it easier for tenants to understand their relationship with Sydney Water.

> **If the property owner doesn't pay the bill**
> If the water bill hasn't been paid for some time, water flow may be restricted even if you've already paid for your water usage. We'll hand-deliver a warning notice 48 hours before any restriction. If you receive one, call 13 20 92 8am–5:30pm Monday to Friday (except public holidays). We'll do what we can to maintain your water services.

For tenants who can't afford to pay their water usage charge or are experiencing violence at home, we offer services such as BillAssist® and the payment assistance scheme to ensure they are supported.

To learn more about how renters can engage with Sydney Water, visit Renting (sydneywater.com.au).

Generating awareness in the community

> **'I wasn't aware of this [Financial support]. They need to be more proactive in letting people know that support is available.'**
>
> ***Residential customer | Phase 4 Parramatta customer forum, Our Water, Our Voice***

In addition to our internal identification processes, we advertise our support offerings to customers in a range of ways.

Every bill contains a reference for customers to make contact if they are unable to pay by the due date. This includes original notices, reminder notices, disconnection notices and prelegal notices. Correspondence regarding customers' bills also contains a standard message to contact us if the customer is unable to pay their bill.

All our payment assistance offerings are available on our website. We maintain a link titled 'Help with your bill' under the 'Accounts & Billing' tab on the homepage that links directly to the assistance page. At times when people are most likely to experience financial hardship, this page is given more prominence with direct links from tiles on the homepage. We also have a page providing links to external services for people in financial hardship, and provide information to Services NSW so it can include information about Sydney Water bill assistance on its website.

At least once a year, we advertise our payment assistance offerings through social media posts. We push these posts as targeted, sponsored content, so that they are most likely to come to the attention of relevant customers. We also include a piece about our payment assistance offerings in Waterwrap and Business Update, our customer newsletters that are sent quarterly with bills. Typically, we include this message in the February to April edition. The current May to July quarter features a call to action for customers to visit our website, and a case study from the Customer Care team.

Our Customer Care team also performs direct outreach to customers at risk of not being able to pay their bills and to people who have aged debt and who have not been in touch with Sydney Water. See the Customer Care team case study at the end of this chapter.

Our Customer Care team continuously builds on our existing partnership with various community agencies, large education providers, and charities through an outreach program. They attend events for industry and customers to promote our assistance offerings. The team offers free community information sessions, with an interpreter, to any community or government organisation. Outreach is particularly effective at communicating with minority groups. The team has actively engaged with community agencies and councils, and held various stalls and presentations. In the culturally and linguistically diverse and language other than English (LOTE) space, our teams attend local meetings to provide translated information to customers. These are also available on our website and include details of payment assistance support.

Understanding who needs support and ensuring they know support is available

Sydney Water community partnerships for Hardship Programs

Building partnerships with community agencies

Sydney Water is working with, and continually looking to collaborate with new community groups to ensure that we are generating awareness of support programs. Insights from over 100 community agencies and emergency relief providers allow us to better understand their members and how we can support them. We have acted on these partnerships, attending 64 community events in the past financial year.

Working with these agencies helps Sydney Water customers know what services are available to them and builds advocacy networks that promote services directly to those who need assistance.

Figure 13.8: Our community partnerships for hardship programs

Seven of Sydney Waters more than 100 community partners, which help us support our customers

By working together with our community partners (also represented in our CCRG), Sydney Water aims to alleviate the burden of water costs for those experiencing hardship, ensuring that everyone can access and have awareness of these essential resources.

- We work with industry groups such as plumbers to ensure that these groups advocate for our services to their customers.
- We work with community agencies to help understand how we can deliver our hardship strategies to support the groups they represent.
- We engage with local communities in languages other than English using community radio.
- We attend community events such as NAIDOC Family Day, Cost of Living Help Hub Burwood, and Migrant Information Day (MID).[86]
- We partner with emergency services and local councils to provide immediate assistance during natural disasters, ensuring continuous access to clean water.

These partnerships work and will continue to promote the visibility of our programs. We plan to build on these relationships and continue to deliver stakeholder meetings so these groups can learn about our programs and promote them to those who need support through a range of free resources and events.

We also aim to collaborate with these groups to ideate and create new products and services based on their members' feedback.

> **'Sydney Water's partnership with the Salvation Army helped me through a tough period. Their support with bill deferrals and payment plans was a lifesaver.'**
>
> *Customer Feedback* **|** *Jane, who received support from Sydney Water through the Salvation Army*

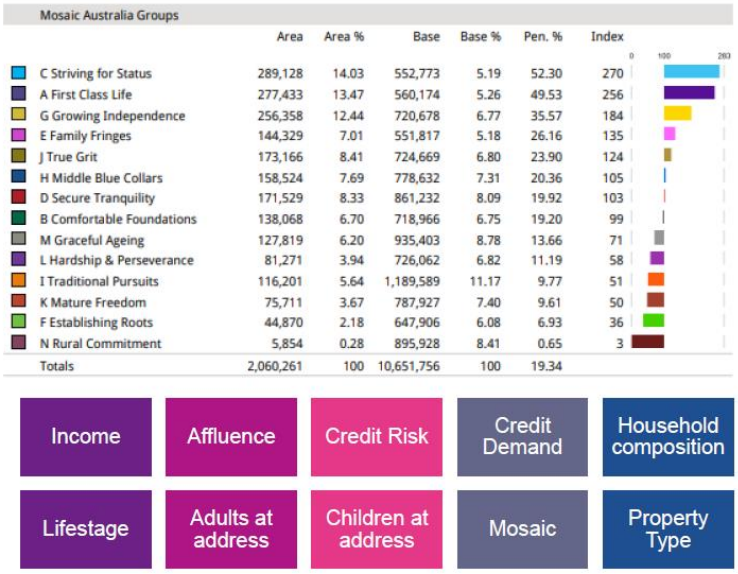
[86] See Outreach Events 2023-2024 Customer Care.xlsx

Market scanning

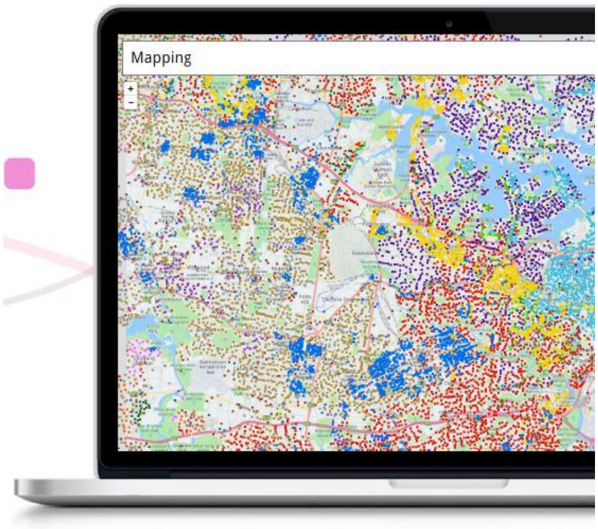
Sydney Water is continuously innovating ways to supports those who are in hardship. To do this, we collaborate with government bodies such as the NSW Data Analytics Centre, working with agency groups to understand who needs help and how Sydney Water can best support them. We partner with industry specialists such as Experian and Westpac Data X to develop techniques to proactively identify those in need.

Most of these partnerships will leverage market scanning to uncover insights. Market scanning refers to the process of leveraging big data (not personal data) to create predictive models that identify the likelihood that different customers might need support due to a range of factors. We will work with our partners to develop these models to deliver insights that will inform our support programs communications, as well as the delivery of our outreach strategy.

Figure 13.9 Market scanning services can identify hotspots where customers might need help

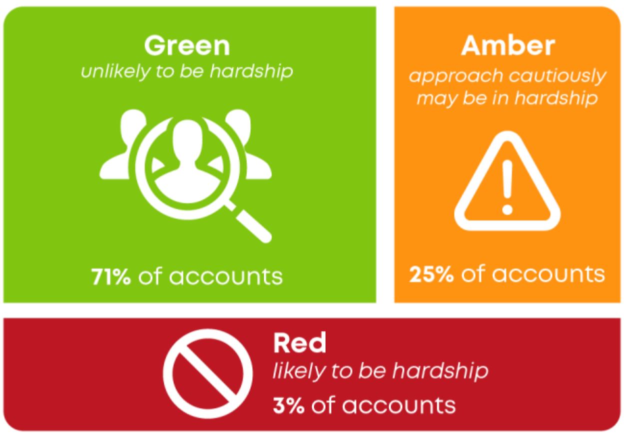


Mosaic Australia Groups	Area	Area %	Base	Base %	Pen. %	Index
C Striving for Status	289,128	14.03	552,773	5.19	52.30	270
A First Class Life	277,433	13.47	560,174	5.26	49.53	256
G Growing Independence	256,358	12.44	720,678	6.77	35.57	184
E Family Fringes	144,329	7.01	551,817	5.18	26.16	135
J True Grit	173,166	8.41	724,669	6.80	23.90	124
H Middle Blue Collars	158,524	7.69	778,632	7.31	20.36	105
D Secure Tranquility	171,529	8.33	861,232	8.09	19.92	103
B Comfortable Foundations	138,068	6.70	718,966	6.75	19.20	99
M Graceful Ageing	127,819	6.20	935,403	8.78	13.66	71
L Hardship & Perseverance	81,271	3.94	726,062	6.82	11.19	58
I Traditional Pursuits	116,201	5.64	1,189,589	11.17	9.77	51
K Mature Freedom	75,711	3.67	787,927	7.40	9.61	50
F Establishing Roots	44,870	2.18	647,906	6.08	6.93	36
N Rural Commitment	5,854	0.28	895,928	8.41	0.65	3
Totals	2,060,261	100	10,651,756	100	19.34	



Creating these partnerships with industry groups ensures Sydney Water is targeting the right people at the right time, and that insights are built on the best service offerings on the market. This approach has already been identified in a Water Services Association of Australia (WSAA) 2024 report as an optimal to support customers in debt and is proven to work in other Australian jurisdictions.

Figure 13.10 WSAA 2024 ‘Supporting Customer in debt’ details how utilities can use market scanning to assist customers



We plan to use market scanning insights responsibly, in line with best practice data privacy standards. This will ensure that customers will be supported as best as possible while also protecting their privacy.

Leveraging business insights

Hardship is not evenly spread across Greater Sydney. Sydney Water knows this and tracks who has historically needed help to inform its future messaging across a range of metrics such as website queries, qualitative data collection, and spatial reporting. As the cost of living continues to put pressure on our customers, we look backwards to who has previously needed help, to shape our communications to these groups and target this messaging.

Table 13.2: Emerging trends in support requirements

Emerging trends	
Hardship	• Credit overcommitment is up 69% • 25% of customers are claiming a change in circumstances; for example, loss of income. • 22% more customers are asking for assistance. • There has been a 21% increase in PlumbAssist queries.
LGAs	• The top 3 LGAs for assistance programs are Blacktown, Bankstown and Liverpool.
Macroeconomic trends	• Interest rate conditons are contributing to more mortgage stress on households.
Renters	• In the FY23–24, 53% more renters reached out to Sydney Water. • Renters are telling us they are struggling to pay for rent increases. • A high number of these renters have been referred by our community partners.
Web queries	• Sydney Water will continue to refine its search engine optimisation for key webpages so that customers can discover key programs. • We have found that some customers find certain pages more helpful than others when it comes to receiving support. Our three top most popular web pages for hardship last year were: ○ Water fix Residential (84,700 views last year) ○ Help With your Bill (29,800 views last year) ○ Payment Options (35,400 views last year).
Customer satisfaction of support programs	• Our customer satisfaction score has remained over 80% despite receiving 16% more calls last year.

This analysis allows Sydney Water to prioritise the local government areas where it delivers its community events, and has informed its community awareness programs in areas with high proportions of renters and people from culturally and linguistically diverse backgrounds.

Ensuring services are scalable and criteria are relevant

Funding these programs

The expenditure described in this proposal ensures that Sydney Water will continue to offer appropriate services as well as having a sustainable source of funding so that its programs are well resourced. As a result, Sydney Water plans to increase staffing of its Customer Care team by 33 per cent, from nine people to 12. This will enable broader training and partnerships with community groups to align with our awareness strategy. This team will be responsible for facilitating more outreach programs, based on the insights from agency partners.

For more information on how we plan to fund these services see our Customer Experience Strategic Investment Plan

Reviewing criteria of programs

Consistent reviews of Sydney Water's eligibility criteria have ensured that 70–75 per cent of hardship applicants are successful in their submissions. We plan to maintain this rate through constant reviews of eligibility criteria, to ensure those in need are supported and that Sydney Water's messaging is targeting those who need its help. By tracking this approval rate, we are able to better understand whether our programs remain fit for purpose and, when applications fall out of this range, make appropriate adjustments to criteria.

Financial support for these programs

A staggered bill increase allows changes to typical bills to be transparent and predictable over time. However, we acknowledge that increases in prices impact the affordability of our services for our customers. With assistance from the NSW Government, Sydney Water plans to provide over $1 billion in rebates and concessions to our customers during the regulatory period to support this necessary uplift in bills in the form of community service obligations (CSOs).

Each year, Sydney Water submits a Statement of Corporate Intent (SCI) to the NSW Government, which contains its business plans and expected costings for non-commercial activities such as payment assistance schemes. In its June 2024 submission, Sydney Water has planned to spend the following amount to deliver on its community service obligations.

Table 13.3: Forecast CSO by service ($24–25, $millions)

	2024–25	2025–26	2026–27	2027–28	2028–29	2029–30	2030–31	2031–32	2032–33	2033–34	2034–35
Pensioner concessions ($)	$132.2	$157.3	$172.3	$188.2	$204.9	$224.6	$232.8	$241.0	$249.5	$258.1	$266.9
Exempt properties ($)	$17.1	$20.4	$21.5	$22.8	$24.0	$25.4	$26.1	$26.7	$27.4	$28.0	$28.7
Payment assistance Scheme (PAS) ($)	$2.4	$3.2	$3.3	$3.5	$3.6	$3.8	$3.8	$3.9	$4.0	$4.1	$4.2
Blue Mountains septic pump-out ($)	$0.1	$0.1	$0.1	$0.1	$0.1	$0.1	$0.1	$0.1	$0.1	$0.1	$0.1

Under this scheme, we have proposed to scale CSOs in line with the proposed price increase and our forecast on higher uptake for our support programs

How our price proposal will impact customers

The table below shows our proposed bills for a typical household using water and wastewater services. The sections below discuss the trade-offs between larger increases that happen less often and smaller increases that happen more often, and how these changes might affect different customers. It also explains how Sydney Water has thought about service quality and financial limits when deciding on the best price plan to balance the needs of customers, Sydney Water and government stakeholders.

Figure 13.11: Typical annual residential water bill ($25–26)

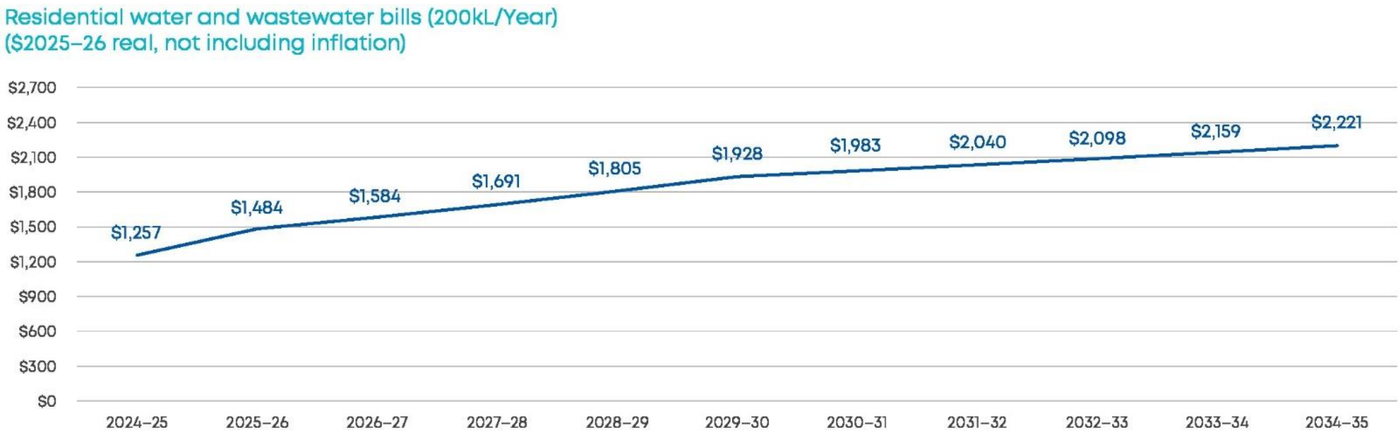


Table 13.4: Typical annual residential water bill ($25–26)

	2024–25	2025–26	2026–27	2027–28	2028–29	2029–30	2030–31	2031–32	2032–33	2033–34	2034–35
Typical residential bill for a 200kL per year customer ($)	$1,257	$1,484	$1,584	$1,691	$1,805	$1,928	$1,983	$2,040	$2,098	$2,159	$2,221
% YOY increase (%)		18.0%	6.7%	6.8%	6.8%	6.8%	2.9%	2.9%	2.9%	2.9%	2.9%
	Current bills	Proposed typical bills					Forecast typical bills				

Understanding the bill impact for different customer groups

How will our residential customers be impacted?

Table 13.5: Typical annual bill for residential water and wastewater customers ($25–26)

	2024–25	2025–26	2026–27	2027–28	2028–29	2029–30
Rose and her partner are pensioners. They live in a townhouse in Ryde. They have a small garden that they value, and they are very low water users. 137 litres per person per day 100 kL per year Receives a pensioner rebate	$365	$435	$465	$498	$543	$584
Tim and Wendy are a couple living in a small house in Dapto, and they are very mindful of water use. 137 litres per person per day 100 kL per year	$982	$1,162	$1,262	$1,369	$1,484	$1,606
John and Kerry live in an apartment in Bondi. Neither one really thinks about water use in their day-to-day lives and use what they want. 219 litres per person per day 160 kL per year	$1,147	$1,355	$1,455	$1,562	$1,677	$1,799
Tiffany and Ed live in a standard house with a backyard in Marrickville. They have a young child, so affordability is their number one priority. 182 litres per person per day 200 kL per year	$1,257	$1,484	$1,584	$1,691	$1,805	$1,928
The Baileys are a multigenerational family living in Fairfield. They have 6 people under one roof, making them high water users. 183 litres per person per day 400 kL per year	$1,533	$1,805	$1,905	$2,012	$2,127	$2,249

How will our business customers be impacted?

Table 13.6: Typical annual bill for non-residential water and wastewater customers ($25–26)

To view more typical non-residential bill impacts, see *Appendix 12: Indicative bill impacts*.

	2024-25	2025–26	2026–27	2027–28	2028–29	2029–30
Mark is a mechanic in Doonside. He uses water to clean his workspace and run the kitchenette in his office space. His shop uses 100 kL per year (277 litres per day). He has a trade waste agreement with Sydney Water	$1,000	$1,175	$1,276	$1,383	$1,498	$1,621
Kim owns a laundromat in Five Dock. Many of her machines are water efficient but she could upgrade to save water. Her customers use 292 kL per year (810 litres per day). She has a trade waste agreement with Sydney Water due to the chemicals used to clean garments.	$1,786	$2,074	$2,179	$2,288	$2,406	$2,530
The Trinhs run a fast-food restaurant in Albion Park. They serve fried food and require a large volume of water to clean the endless piles of dishes. They use 1,480 kL per year (4 kL per day). The restaurant holds trade waste and Wastesafe agreements with Sydney Water.	$8,908	$10,724	$10,918	$11,176	$11,472	$11,720
The Easy Living nursing home in Hornsby houses 60 residents. It provides meals and offers clinical services. The home uses 14,000 litres per day (5,180 kL per year). It has a trade waste agreement with Sydney Water.	$28,034	$32,761	$34,390	$36,113	$37,968	$39,937
A shopping centre in the Illawarra contains over 30 stores and trades seven days a week. Overall, the centre uses 27,000 litres per day (9,800 kL per year). It has trade waste agreement and Wastesafe agreements with Sydney water.	$39,878	$45,455	$45,862	$46,307	$46,787	$47,287

Case Study: Sydney Water's Customer Care team

Our Customer Care team continuously builds on our existing partnership with various community agencies and charities, through an outreach program. We attend events for industry and customers, to promote the assistance offerings we have available. The team also offers free community information sessions, with an interpreter, to any community or government organisation. Outreach is particularly effective at communicating with minority groups.

Our Customer Care team works closely with over 100 community agencies and emergency relief providers specifically trained to support customers with their water bills. We keep a list of those agencies on our website, broken down by local government area. Any customer needing assistance with their Sydney Water account can approach those services directly or contact our team for assessment.

Our hardship support services are also listed on the Service NSW and Tenants' Union of NSW websites.

We work closely with local councils and attend events organised by members of parliament, including cost-of-living hubs and bring your bill days. Those events are used as an opportunity to connect directly with customers, as well as to liaise with other local service providers and keep them informed of our support options, so they can best educate and refer their customers in need of assistance.

We also attend the annual Financial Counsellors Association of NSW Conference. This is a great opportunity to spread awareness of our program to financial counsellors and to understand the trends they are seeing among vulnerable customers.

In partnership with the Sydney Water Community Education team, we have been attending local TAFEs to raise awareness of our hardship program to hundreds of newly arrived migrants and refugees who are enrolled in English classes.

We are also members of the Thriving Communities Partnership's One Stop One Story hub. This is an interagency referral system that reduces the burden on customers to self-identify with individual service providers. If a customer agrees, our staff can enter a referral to their other service providers for assistance. We also receive referrals in this way. This network includes banks, utility providers and community agencies.

The Customer Care team keeps a calendar of monthly themes, such as Anti-Poverty Month, Senior's Month, Disability Support and Carers' Month, and proactively engages with local service providers to attend events and offer presentations on support options available. We also use our debtors list (aged debt report) to proactively reach out to customers and offer assistance and hardship support.


Chapter 14: Credibility, accountability and reporting

Chapter 14: Credibility, accountability and reporting

Credibility is the third of the three pillars in IPART's 3Cs water regulation framework, complementing customer and cost considerations. This chapter explores mechanisms to maintain our accountability and enhance our credibility through ongoing performance reporting.

Under the framework, credibility is assessed retrospectively at the beginning of the 2030 Determination period against key metrics, including operating expenditure, capital expenditure, outcome delivery incentives, and customer-facing performance targets.

Accountability for our performance

Our business goals and plans are under constant review to guarantee we meet our targets and deliver customer value. Several existing and planned measures help keep us accountable:

- **Transparency**: Regular performance reporting through various channels including the CCRG and IPART's water sector benchmarking dashboard.
- **Financial**: New incentive mechanisms to share customer value, as well as the continuation of operating licence rebates to customers and environment protection licence fees and penalties.
- **Efficiency**: Streamlined review processes and increased transparency with stakeholders and our community.

Our Annual Report is also an important way in which we demonstrate our accountability to the NSW Parliament and the community for the way we use customer resources each year. It summarises our yearly achievements, challenges, statutory compliance, and progress towards strategic goals.

Communicating our performance to customers

Sharing our performance with customers is key to building trust and transparency. By openly communicating our progress against goals and targets, we demonstrate our commitment to delivering world-class water services and continuously improving. We will report regularly about the progress we're making towards achieving our targets and meeting our regulatory obligations by:

- reporting to customers through an online scorecard, shared on our social media channels and in our Waterwrap that customers receive with their bill
- annual reporting to IPART for use in its public-facing communications.

Performance dashboard

Sydney Water is committed to transparently reporting our performance to our customers. We will regularly update our website with performance metrics, including daily drinking water quality reports. Annually, we will share a detailed assessment against all targets for each outcome, including explanations for any shortfalls and plans for improvement.

We will collaborate with IPART to develop a standardised dashboard for reporting outcomes. We propose a simple 'traffic light' rating system for self-assessment, such as:

- green for achieved targets,
- amber for mostly achieved (within tolerances)
- red for not achieved.

Tolerances will be defined for each measure, considering factors like weather variability. We will also track performance trends over time.

Table 14.1: Sample of annual dashboard of performance progress (example status and comment included for first two measures)

✅ = Met ⊖ = Mostly met ⊗ = Not met

Outcomes	Performance measures	Target 2025–26	Actual 2025–26	Status 2034–35	Comment
Customer experience	**Affordability:** Average residential customer bill as a percentage of average disposable income for the Sydney region.	0.95%		✅	Result within target etc
	Customer satisfaction: Measured position within top quartile (Top Q) of benchmarked peers via quarterly Brand Tracker Customer Survey (external survey), based on customers rating overall service satisfaction at 8 or above out of 10.	Top Q		⊖	Performance improved however target not met due to …
	Water literacy: Literacy score from Quarterly Water Literacy Tracker (external survey) testing customers' understanding of water, where it comes from, how it's managed, and where it goes.	5.15			
	Public access and recreation: Annual increase in number of sites with improved community access for recreation (including swimming). This includes sites managed by Sydney Water for temporary or long-term access, and sites managed by councils or other agencies.	≥1 extra site			
Water quality and reliability	**Drinking water quality:** Percentage of systems where drinking water meets health guidelines.	100%			
	Available water supply: Proportion of drinking water demand met by rainfall independent supply.	17%			
	Drinking water use (residential): Residential drinking water use per person per day – average weather (litres per person per day (LPD)).	<183 LPD			
	System leakage: Percentage of drinking water supplied lost as leakage (proposed as outcome delivery incentive).	8%			
	Water continuity: Percentage of customers affected by an unplanned water interruption for more than 5 hours.	2%			
Environmental protection	**Quality of treated wastewater (concentration – core pollutants):** Percentage of water resource recovery facilities where quality of wastewater discharged complies with annual concentration limits of core pollutants that treatment plants are designed to treat.	84.6%			
	Pollution and environmental harm incidents: Number of pollution incidents or other incidents that cause, or have the potential to cause, environmental harm, primarily as a result of wastewater treatment and network incidents. Also includes other incidents such as water discharge, and vegetation or heritage impacts.	1053±2std*			
	Volume of recycled water available: Volume of our recycled water that is available for supply, including treated wastewater and harvested stormwater (gigalitre (GL)/year).	≥46 GL/yr			

Outcomes	Performance measures	Target 2025–26	Actual 2025–26	Status 2034–35	Comment
	Natural area and green infrastructure land actively managed: Percentage of Sydney Water land with natural values and green infrastructure that is actively managed.	75%			
	Net zero carbon emissions (tCO_2): Volume of scope 1 and 2 carbon emissions (CO_2e tonnes per year where CO_2e refers to 'carbon dioxide equivalent').	279,000 tCO_2e			
	Climate risk maturity health check: Systematic level of climate risk management maturity rated through the NSW Climate Risk maturity health check tool.	Systematic			

Customer and Community Reference Group's role in monitoring performance reporting

We've consulted the CCRG about performance reporting, particularly regarding content and presentation for customers. Its suggestions have informed our proposed approach, which we will share with the group as feedback.

This feedback will be incorporated into our assessment of performance against customer outcomes and supporting outputs/targets.

We will continue to evolve customer engagement through the CCRG and deliberative forums to:

- communicate our progress in customer-relevant ways
- ensure our targets are fit for purpose and reflect changing customer preferences
- identify appropriate strategies to address performance shortfalls or emerging issues.

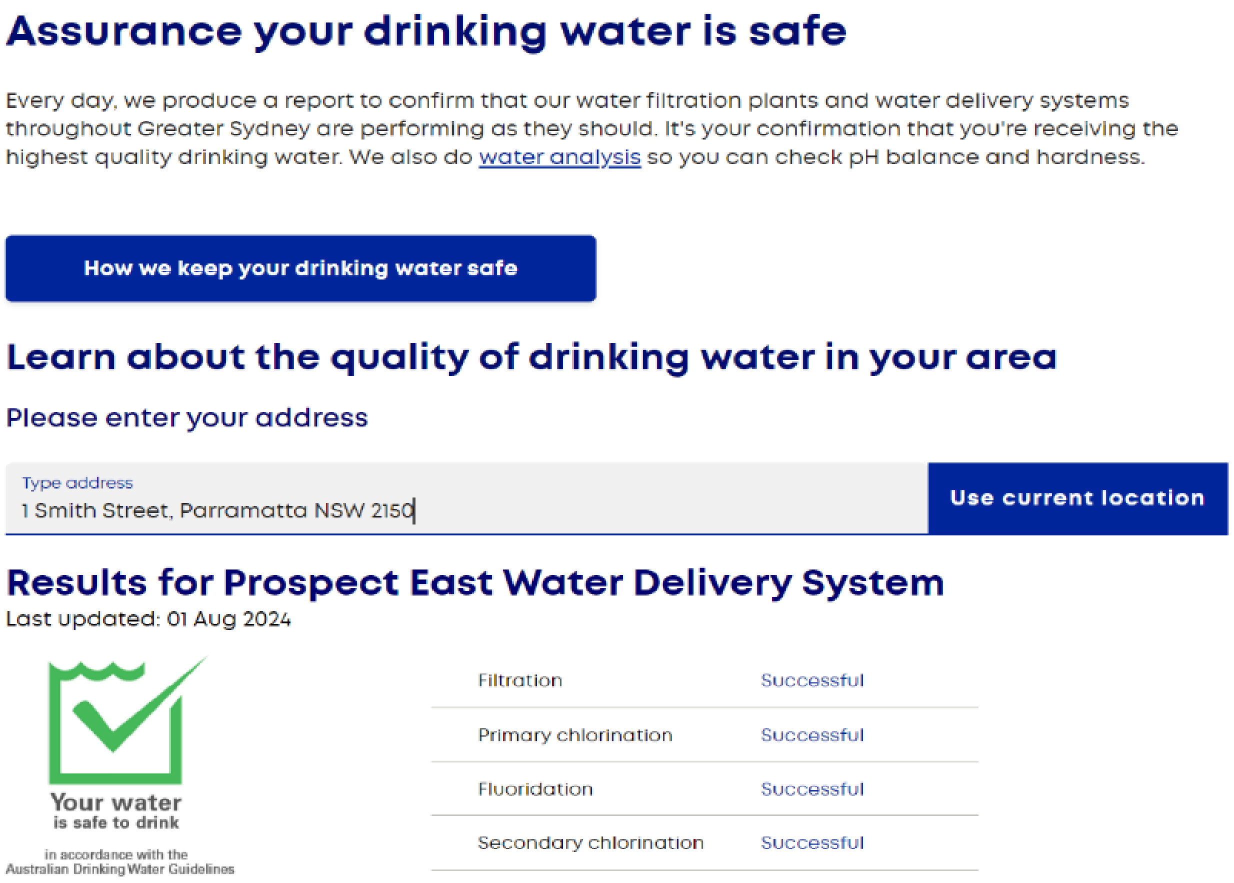
Additional performance reporting

We monitor additional performance indicators that track our performance against obligations under our operating licence and other regulatory requirements, and publicly report through several comprehensive reports on our website:

- Sydney Water Annual Report: A statutory report providing transparency to Parliament and the community for the way public resources have been applied during the year.
- Daily Drinking Water Report: A daily website report to customers to confirm that our water filtration plants and water delivery systems throughout Greater Sydney are performing as they should.
- Quarterly Drinking Water Quality Reports: A quarterly report detailing monitoring results for each drinking water system.
- Annual Environmental Performance Report: A holistic statement focusing on wastewater discharges and trending data, incorporating our statement on special objectives (as required by the Sydney Water Act) and our Environmental Indicators Performance Report.
- Water Conservation Report: Detailing our efforts in water conservation, efficiency, leakage management, and water-recycling initiatives.
- EPA pollution monitoring data reports: Monthly water quality tests at our water resource recovery facilities and water filtration plants, with results published within 14 days.
- Sydney Water Aquatic Monitoring (SWAM) Program Reports: A new EPA-approved monitoring program replacing our previous Sewage Treatment System Impact Monitoring Program reporting.

We also support sector-wide performance reporting, including progress in delivering the GSWS and National Performance Reports benchmarking Australian water utilities. These reports cover water resource supply and usage, financial operations, bills and pricing, assets, water quality compliance, and customer performance. Published annually and prepared independently by the Bureau of Meteorology, state and territory governments, and the Water Services Association of Australia, they support commitments under the National Water Initiative.

Figure 14.1 Snapshot of Sydney Water website report to customers on drinking water quality



Internal performance reporting

We perform internal monitoring and reporting for the Executive and Board, aligning with IPART's regulatory decision. Our monthly and quarterly Corporate Performance Reporting holds the business accountable for achieving outcomes as measured by key performance metrics. These reports offer visibility to heads of business, the Executive and the Board on performance against targets, guiding actions when targets aren't met.

Our Enterprise Risk Management Framework aids in managing risk and uncertainty to achieve strategic outcomes while protecting customer and shareholder interests. Board Risk Appetite Statements outline areas for risk minimisation and for measured acceptance of higher risks. Risk tolerance metrics track our adherence to the Board's risk appetite, setting clear limits and enabling preventative actions through trend monitoring.

Figure 14.2: Alignment of strategic outcomes and enterprise risks to Sydney Water's three principal objectives

Principal objectives	Strategic outcomes: Customer experience	Water quality and reliability	Environmental protection	Accountable, agile, innovative culture	Successful & sustainable business	Enterprise risks and desired outcomes
Protect **public health** by supplying safe drinking water	✓	✓	✓			**Public health:** Proactively manage activities that could impact the quality of our products
Protect the **environment** by conducting operations in compliance with the principles of ecologically sustainable development	✓		✓			**Environment:** Protect, restore and enhance the quality of our environment, minimising activities that could cause harm to natural environments
Be a **successful business** by operating efficiently, maximising net worth, and exhibiting a sense of social responsibility	✓	✓	✓		✓	**Customer experience:** Prioritise the delivery of outcomes our customers value that maintain trust and recognition of our brand
	✓			✓		**Safety and wellbeing:** We will avoid activities that could compromise the health and safety of our people, customers and members of the public
	✓	✓	✓		✓	**Asset safety, reliability and capability:** Sustain critical operations and manage reasonably foreseeable business interruptions that could impact the reliability and continuity of our products and services
	✓	✓	✓		✓	**Capital program:** Deliver our capital investment program on time and budget to achieve our desired customer, public health and environment outcomes
	✓				✓	**Enterprise security:** Manage and protect the exploitation of vulnerability in our cyber, physical, personnel and supply chain spaces
				✓		**Culture and ethics:** Establish a culture that promotes ethical practices by avoiding activities that could breach our ethical framework
	✓				✓	**Finance:** Manage our financial stability (including credit, treasury, debt repayments and liquidity exposures)
				✓	✓	**Organisational capability:** Build capabilities (people, systems and processes) required to deliver core business and strategic initiatives
	✓				✓	**Procurement and supply chain:** Manage access to supplies and equipment for our products and services to reduce costs, increase customer service and ensure supply chain resilience

Sydney Water is dedicated to delivering customer value at the lowest sustainable cost. Our Board-approved Cost Efficiency Strategy will outline this commitment, with **Chapter 6** detailing our proposed annual efficiency factor for 2025–30. We will continuously monitor performance, drive efficiency, and realise savings. Financial accountability for achieving these targets is ensured through IPART's 3Cs framework.

Application of financial incentive mechanisms

Under the 3Cs framework, we have introduced three ex-post incentive schemes, including the:

- Expenditure Benefits Sharing Scheme (EBSS) for operating expenditure
- Capital Expenditure Sharing Scheme (CESS) for capital expenditure
- Outcome Delivery Incentive (ODI) Scheme for customer agreed performance outcomes.

The three schemes are intended to work together and will apply adjustments to our allowed revenue in the subsequent regulatory period based on our financial and outcomes performance.[87] IPART intends to cap the net payments from the EBSS, CESS and ODIs to one per cent annual revenue over the determination period.

As this is the first time IPART will be applying these incentive mechanisms, we propose further collaboration on the financial rewards (or penalties) arising from their application to performance in 2025–29. This will allow us to re-assess the efficient opex and capex allowances the mechanisms should be comparing actual performance against.

Efficiency Benefit Sharing Scheme

The EBSS rewards (or penalises) utilities for incremental efficiency gains (or losses) when they underspend (or overspend) against forecast opex in a regulatory period. EBSS payments to utilities are calculated by:

- summing the net present value of all incremental efficiency gains (or losses) over a period
- allocating 20 per cent to the utility and 80 per cent to the customer, and
- subtracting the utility's share (20 per cent) from the total gain (or loss) during the period (the original underspend or overspend including discounting).

Consistent with IPART's methodology, we propose that the EBSS is to apply to our base opex allowance. We support the following adjustments and exclusions from the EBSS calculation in our next Price Review:

- approved cost pass-through or true-up amounts, including opex for contingent projects
- opex incurred during the period that is assessed as prudent and efficient after the fact, regardless of whether it was initially assessed in the current Price Review
- inflation, such that calculations are done on the basis of real and net present value.

In line with IPART's *Water Regulation Handbook*, we propose to exclude two categories of expenditure from the EBSS incentive scheme. These are maintenance costs and land tax associated with providing stormwater drainage services in the Mamre Road and Western Sydney Aerotropolis Precincts, and drought-related opex cost pass-throughs.

Mamre Road Precinct and Aerotropolis stormwater drainage service

The Mamre Road Precinct in Western Sydney is the first precinct to be developed in the Aerotropolis. It consists of 1,020 hectares of land zoned industrial, of which 765 hectares represents the net developable area (NDA). The remaining Aerotropolis precincts cover 7,267 hectares of industrial land surrounding the Nancy-Bird Walton Airport and consist of four separate precincts with a combined NDA of 3,451 hectares. The proposed project involves earthworks on a major scale to create naturalised stormwater channels and waterways.

As part of the project, we will be acquiring land to build this stormwater infrastructure and conducting operations and maintenance works. We estimate that the project will generate ongoing land tax costs of $33 million and maintenance costs of $47 million over 2025-30.

[87] Since performance in the last year of a regulatory period is unknown when a price proposal is prepared, the schemes' application trails by one year. In other words, the 2030–35 price determination will apply the schemes to the four financial years 2025–29, and the subsequent price determination for the period 2035–40 will apply the schemes to the five financial years 2030–34 and so forth.

Given the scale and scope of the project, as well as the high level of uncertainty associated with the speed of development across the Aerotropolis precincts, much of which is dependent on transport infrastructure investment decisions yet to be determined by the NSW Government, we propose to exclude these costs from EBSS calculations in the 2025–30 price period, as shown in **Table 14.2**.

Drought-related opex cost pass-through

We also propose to exclude the following categories of drought-related opex cost pass-throughs:

- Sydney Desalination Plant cost pass-through of $51.6 million per year
- Shoalhaven Transfer cost of $185 million per year
- drought restrictions, extraction and processing costs of $25.6 million per year.

Under the Greater Sydney Drought Response Plan, Sydney Water and WaterNSW are responsible for implementing the majority of drought response measures. For Sydney Water, the measures include enacting water restrictions, ramping up production at the Sydney Desalination Plant to its maximum capacity, initiating transfers from the Shoalhaven area, and enhancing water conservation efforts. These conservation efforts involve delivering programs to improve water efficiency and reduce leaks within the water distribution system. A drought cost pass-through is a preferred mechanism to drought pricing as it more closely reflects actual costs and reduces the uncertainty of recovering costs in the next period.

Table 14.2: Forecast operating expenditure for EBSS, 2025–26 to 2028–29 ($24-25, $millions)

	2025–26	2026–27	2027–28	2028–29	2029–30
Forecast base opex allowance	1,936	1,955	1,968	1,996	N/A
Exclusions	4	7	13	22	N/A
- Maintenance	2	3	7	14	N/A
- Land tax	2	4	7	8	N/A
Ex-post allowed opex	Determined in 2029 review				N/A
Inflation	Adjusted in 2029 review				N/A

Capital Efficiency Sharing Scheme

The CESS results in financial adjustments for capex that are calculated similarly to the EBSS. Rewards (or penalties) for capex underspends (or overspends) are shared with customers 20:80. This allows savings to be shared between consumers and our business when capital expenditure in a period is lower than the capital expenditure allowance.

Consumers benefit through lower future return on assets and depreciation (‘return of assets’) allowances, and our business receives a financial benefit for becoming more efficient. The business could also be subject to a financial penalty if actual capital expenditure is higher than the allowance.

Consistent with IPART’s methodology, we propose that the CESS is to apply to our base capex allowance. We support the following adjustments and exclusions from the CESS calculation:

- approved cost pass-through or true-up amounts, including capex for contingent projects
- capex incurred during the period that is assessed as prudent and efficient after the fact, regardless of whether it was initially assessed in this 2025 price review
- deferrals or acceleration of capex that is deemed as prudent and efficient
- inflation, such that calculations are done in a real and net present value basis.

In line with IPART’s *Water Regulation Handbook*, we propose to also exclude two categories of expenditure from the CESS. These are capital investment in Mamre Road and the Western Sydney Aerotropolis for stormwater drainage services, and material cost escalation above the Consumer Price Index. Per IPART’s requirements for CESS exclusions, we consider:

- **Likelihood**: There is an appropriate likelihood that the capex will not be incurred.
- **Forecasting**: Our ability to forecast the capital need is not in question for this investment. Rather, it is a considerably more uncertain growth investment due to the government’s evolving growth ambitions, which is a decision over which Sydney Water has limited control.
- **Materiality**: We understand that if this expenditure is built into our allowance, but does not proceed, this will reward Sydney Water around $200 million in 2030–35. We consider our customers should not pay for such rewards.

Mamre Road Precinct and Aerotropolis stormwater drainage service

As described earlier, the Mamre Road Precinct and Aerotropolis project involves earthworks on a major scale to create naturalised stormwater channels and waterways. It also requires extensive stormwater capture and harvesting infrastructure in the form of basins and wetlands, and a recycled water system to use the captured stormwater to help meet the government’s waterway health targets for Wianamatta South Creek and achieve a cooler, greener Sydney in what is widely considered a very hot environment.

The total forecast cost for drainage works across the Aerotropolis NDA of 4,216 hectares is $3.44 billion (in real $2023–24 terms) in the 10 years from 2024–25 to 2034–35 of a 20-year program of works. We estimate the works will cost around $1,055,000 per hectare for Mamre Road, and a provisional estimate of between $1,200,000 and $1,400,000 per hectare for the Aerotropolis precincts, which is subject to further optimisation.

A stormwater project of this scale and scope is unprecedented and carries material risk of running over budget, which would likely result in a material penalty on Sydney Water from the CESS. There is a high level of uncertainty associated with the speed of development across the Aerotropolis precincts, much of which is dependent on transport infrastructure investment decisions yet to be determined by the NSW Government.

For these reasons, we consider Mamre Road/Aerotropolis a prime candidate for carve-out from CESS calculations in the 2025–30 price period. The question can be revisited for the 2030 price review, by which time we will have gathered insights from the initial phases of the project and forecasting capabilities will have improved.

Material cost escalation

A material risk to our capex plan is the escalation rate in the cost of common construction materials such as concrete, steel and timber. According to the Australian Bureau of Statistics, the Sydney CPI rose by 19 per cent between the beginning of this price period, in July 2020, and December 2023, yet the cost of cement and steel in Sydney have both risen by 30 per cent, plumbing products by 32 per cent, and construction timber by 37 per cent.[88]

This escalation risks undermining the extent to which we can deliver the capex plan and the material penalties arising from capex overspend under the CESS. Consequently, we recommend carving out material cost increases above CPI from consideration under the CESS.

Table 14.3: Forecast capital expenditure subject to the CESS, 2025–26 to 2028–29

	2025–26	2026–27	2027–28	2028–29	2029–30
Forecast base capex allowance ($m)	3,320	3,441	3,273	3,198	3,329
Exclusions ($m)	409.8	400.4	536.5	492.5	N/A
Ex-post allowed capex	Determined in 2029 review				N/A
Deferrals or accelerated capex	Determined in 2029 review				N/A
Inflation	Adjusted in 2019 review				N/A

Outcomes Delivery Incentive Scheme

ODIs provide us with a reward (or penalty) for outperforming (or underperforming) against agreed targets for selected customer outcomes. The intent of ODIs is to counteract the incentives from the EBSS and CESS to cut expenditure and thereby undermine customer outcomes. As with the EBSS and CESS, 80 per cent of ODI rewards and penalties are shared with customers and 20 per cent retained.

In Phase 6 of the Our Water, Our Voice customer engagement program, our customers deliberated on whether they agreed with the introduction of ODIs. Seventy per cent of the customer panel considered it was appropriate to implement ODIs for Sydney Water and to pursue the design of a leakage and river health ODI. This is discussed in **Chapter 2**.

Figure 14.3: Stimulus provided to customers on Phase 6 Day 3: Our Water, Our Voice

[88] ABS: Cat. 6401.0: 30 Jan 2024 and 6427.0: 2 Feb 2024.

What we heard from customers

Customers were broadly comfortable with the idea of Sydney water introducing these incentives, as long as it remained accountable and transparent for the outcomes and that IPART monitored performance before adjusting bills. Their most common concerns were that:

- the five-year performance windows that ODIs are subject to feel 'too long'
- rewards should be spent to further improve outcomes rather than invested in other areas or returned to Sydney Water and its shareholders
- there be clear communication around where the money goes (if Sydney is rewarded) or comes from (if it is penalised).

River health

Sydney Water conducted analysis to determine whether a river health ODI similar to the one presented to customers would drive efficient behaviour above the baseline level of expenditure proposed subject to the EBSS/CESS mechanisms. Upon conducting sensitivity analysis of this model against the proposed business case, it found that this mechanism would not incentivise efficient delivery of these services and could yield penalties where the program was effectively delivered, and rewards when the program was delivered quickly but at lower quality.

As a result, Sydney Water has decided not to propose a river health ODI, but has included the programs that customers clearly value as part of its core operational expenditure to deliver healthy waterways as part of the Hawksbury Nepean Nutrient Offset Framework.

Leakage

A leakage ODI delivers on customers desire to improve performance on the amount of water that is lost from Sydney Waters reticulation network.

We propose a leakage ODI that sets a performance target of 106 ML per day, based on Sydney Water's current economic level of leakage (ELL) estimate. Consistent with our methodology for calculating the ELL, we propose a dead band around this target of ±15 per cent where no rewards or penalties are incurred by the utility. We consider this approach balances the incentive for us to maximise customer value from leakage reduction with the risk of inappropriate rewards or penalties due to the way we estimate leakage.[89]

We propose that performance against this target and dead band should be rewarded or penalised based on the usage price of water. That is, for each kilolitre outside the dead band, Sydney Water is penalised (or rewarded) for incremental losses (or gains) in performance.

Table 14.4: Overview of leakage ODI

	2025–26	2026–27	2027–28	2028–29	2029–30
Leakage target (ML/day)	127	123	116	111	106
Forecast economic level of leakage (ML/day)	106	106	106	106	106
Upper deadband (ML/day)	122	122	122	122	122
Lower deadband (ML/day)	90	90	90	90	90
Penalty for leakage above the deadband (in real $2024–25 terms)	3.12/kL	3.12/kL	3.12/kL	3.12/kL	3.12/kL

[89] Water leakage is calculated as a water balance equation. We know the amount of water we supply from our filtration plants, and estimate leakage by subtracting metered consumption, estimated unmetered consumption such as for Fire and Rescue NSW activities, and estimates for other (non-leakage) water losses.

This design was favoured by 70 per cent of our customers in Phase 6 deliberative forums.

Why should a deadband apply to the leakage ODI?

Sydney Water's proposed leakage model is similar to the one designed by IPART. This model adapts the proposed template to ensure a 15 per cent deadband surrounding the economic level of leakage, in line with the existing reporting metric. This reflects the uncertainty surrounding this calculation, removing the incentive to underfit or overfit the amount of reported background leakage to create a reward or reduce a penalty.

For example, when a fire truck connects to a standpipe, it is not metered. Sydney Water knows that truck was connected to its trunk main in response to an event, but it does not have exact data pertaining how much water was used. Consequently, it estimates this value for the purposes of the leakage metric. This, among many other factors, means that Sydney Water could increase or decrease customer bills based on assumptions rather than data if the deadband was removed.

Other notable factors that introduce uncertainty include:

- the amount of construction and water theft
- the number of underground leaks caused by weather
- changes to water meter accuracy across the fleet
- the need to estimate the amount of water loss when responding major main breaks.

We spoke to customers about this uncertainty when discussing this ODI, from which we found that:

> **'Most largely accepted the proposed 15% tolerance band for the leakage target. They recognised the range of variables that are out of Sydney Water's direct control, such as weather conditions and aging infrastructure. The tolerance band was seen as a practical measure to account for these factors while still maintaining accountability for leakage reduction.'**
>
> See *OWOV Phase 6 Detailed Report* in the reading room

Reporting leakage in a transparent and community-focused manner

Under IPART's ODI method, estimations of leakage penalties and rewards are based on megalitres and water use per day with respect to the price of water for a given year. However, at a glance, most customers may struggle to visualise what a megalitre is or the compounding impact many megalitres per day has on annual water losses. Therefore, for our public-facing metric, we propose reporting these leakage figures adjusted as a percentage of total water supplied, but continue to use IPART's method for estimating penalties and rewards so that more customers can easily understand our performance while also benefiting from the features of IPART's ODI framework.[90]

[90] For more information on the merits of different leakage reporting methods, see Akins (2005), Potential Leakage Requirements for Sydney Water, Section 4.3.

Chapter 15: 3Cs grading self-assessment

3Cs grading self-assessment

As part of its role in regulating the price and performance of NSW water businesses, IPART has developed the 3Cs framework to guide water business in developing pricing proposals, and for IPART to use in making its determinations. This framework is underpinned by 12 guiding principles in the areas of Customer, Cost and Credibility to:

- help water businesses involve and engage with customers to develop performance outcomes aligned to their preferences
- ensure customers pay only what water businesses need to efficiently deliver the services customers want
- hold water businesses accountable in a way that delivers good short-, medium- and long-term customer outcomes.

Figure 15.1: The IPART 3Cs framework and guiding principles[91]

As part of this 3Cs approach water businesses are required to self-assess the quality and ambition of their pricing proposals against all 12 principles, including:

- Customer centricity
- Customer engagement
- Customer outcomes
- Community
- Environment
- Choice of services
- Robust costs
- Balance risk and long-term performance
- Commitment to improve value
- Equitable and efficient cost recovery
- Delivering
- Continual improvement

[91] IPART, Water Regulation Handbook, July 2023, p2, Figure 11.

We have graded our overall proposal as **Standard** based on a self-assessment of our proposal against IPART's grading rubric contained in Appendix B of its *Water Regulation Handbook* (July 2023). Our grading against each of IPART's 12 principles and associated evidence is shown in Table 15.1 below.

Table 15.1: Our self-assessment against IPART's grading rubric

IPART Principle #1: Customer centricity
How well have you integrated customers' needs and preferences into the planning and delivery of services, over the near and long term?

Standard	Advanced	Leading	Our grade
Develop customer engagement strategy			
The business has published a customer engagement strategy which: - **sets out how it seeks to understand what matters to customers and identifies the outcomes that maximise long-term customer benefit at an efficient cost** - **considers the level of influence customers have in how services are delivered** - **identifies the role of customer engagement in understanding customer preferences** - **commits to engage with the customer in the pricing proposal and for major investments** - **is well structured and easy for customers to follow, and articulates clear roles and responsibilities of customers, regulator(s) and business.**	The strategy demonstrates that customers have a high level of influence in how services are delivered and commits to gain insights from customers through a variety of methods.	The strategy empowers customers to co-develop the most material aspects of its pricing proposal that impacts price and service.	**Standard** Sydney Water's published customer engagement strategy meets all standard requirements.
Customers influence business outcomes			
Customer insights and engagement influence customer outcomes, inform business decisions, and short-, medium- and long-term plans.	Customer insights are linked to customer outcomes, which inform ongoing improvements in the way services are delivered to customers.		**Standard** Sydney Water has developed customer outcomes that are linked to expenditure and service standards in line with customers' short-, medium- and long-term expectations, to inform its business structure and plans. See **Chapter 2**.

Processes support customer centricity			
Systems in place to respond to ongoing customer feedback. Consumer-facing businesses propose assistance programs for customers experiencing vulnerability (for example, hardship programs, payment plans, access to concessions or other).	**Learns from and keeps up with peers and industry best practice engagement methods.** **Consumer-facing businesses propose tools or processes to support early identification and interventions for customers experiencing a range of vulnerability circumstances.**	Clear evidence of continual improvement in customer value across the business where it reflects on, and incorporates, learnings from its engagement processes. Consumer-facing businesses propose simplifications to assist customers, including those experiencing vulnerability, and improve accessibility and understanding (for example, customer contracts, bills and accounts and water literacy).	**Advanced** Sydney Water's published customer engagement strategy meets all standard requirements. Sydney Water has a robust hardship program that supports customers, adopts industry best practice and works with community partners to improve processes. See **Chapter 12**. This proposal includes mechanisms to support early identification and awareness of support programs to its customers.

IPART Principle #2: Customer engagement

Are you engaging customers on what's most important to them, making it easy for customers to engage by using a range of approaches to add value?

Standard	Advanced	Leading	Our grade
Engage on what matters to customers			
Select issues for engagement that matter to customers.	Customers involved in setting priorities that matter most for deeper engagement.	Collaborates with and empowers customers (and/or customer representatives) to develop solutions in customers' long-term interests.	**Standard** Our Water, Our Voice engaged customers on their priorities using a range of means of engagement. See **Chapter 1**.
Choose appropriate engagement methods			
Suitable consultation method/s have been chosen to reach a representative customer base and/or their advocates, such as renters, homeowners, vulnerable groups, and businesses. **Opportunities for two-way communication with customers exist.** **Scope of engagement proportional to the level of expenditure.**	Chooses effective methods to provide all customers – including more difficult to reach customers – with a high level of influence in how services are delivered. Responses are then triangulated and tested against other information.	Continuously seeks to improve methods of engagement and explore innovative methods.	**Standard** Sydney Water has delivered a representative customer engagement program, hearing from over 13,000 customers. See **Chapter 1**. It has made all efforts to work with diverse customer groups and given customers an opportunity to shape the services we plan to deliver.

Engage effectively			
Unbiased, clear explanation of context and objectives. **Participants are informed of the impact of their feedback.** **Engagement is easy to understand, and customers understanding is tested and where relevant, technical literacy/capacity is supported for effective engagement.** **Culturally and linguistically diverse groups are supported in their engagement.** **Information is accurate, objective, tells the whole story and is correctly targeted to its audience.** **Clear explanations of investment options, service levels, and uncertainties.**	Engagement includes clear explanation of options (including price differences and any potential trade-offs), and participants are confident their feedback will influence outcomes.		**Standard** Sydney Water has developed engagement materials that are unbiased and easy to understand, and delivered a representative program that has given a diverse range of customers an opportunity to shape their services. See **Chapter 1**.

IPART Principle #3: Customer outcomes (Focus Principle)

How well does your proposal link customer preferences to proposed outcomes, service levels and projects?

Standard	Advanced	Leading	Our grade
Customers drive outcomes			
Propose outcomes, based on customer engagement, that capture what customers want you to deliver. **Link proposed expenditure to these outcomes.**	Outcomes are concise, specific, measurable and written from a customer's perspective. They are clearly aligned to customer preferences and proposed expenditure.	Outcomes and supporting output measures and targets are co-designed with customers, and proposals are supported by customers.	**Standard** Our customer engagement program, Our Water, Our Voice, engaged customers in identifying and selecting the outcomes, level and cost of services they preferred. See **Chapter 1**. Key investments for each of these outcomes are linked to our proposed expenditure. Key drivers of expenditure deliver on some of customers' highest priorities to maintain safe and reliable services. See **Chapter 2**.

Performance measures support outcomes			
Propose performance measures for each outcome. **Propose performance targets for each measure, referencing IPART’s principles, with:** • **internally consistent short-, medium- and long-term targets** • **targets justified based on past performance and other suitable industry benchmarks** • **targets that, at a minimum, meet customer protection operating licence standards and other regulatory requirements.**	Targets show a step change improvement to customer value and include adequate protections for individual customers.	Where supported by customer willingness to pay, service targets exceed past performance and other suitable industry benchmarks by an ambitious but realistic margin.	**Standard** We propose performance measures for each outcome. Each measure directly reports against a priority that customers expressed in Phase 1 of Our Water, Our Voice. See **Chapter 2**. Our targets are set to either maintain or improve service levels, with some of the most material to what we heard from customers in Our Water, Our Voice.
Accountability for customer outcomes			
Clear mechanisms ensure the business is accountable for delivering outcomes.	All outcomes include steps the business will take if not meeting targets, and where appropriate, are supported by outcome delivery incentive (ODI) payments and penalties.	All important customer outcomes with high customer value would typically be supported by ODI payment/penalty rates and targets.	**Standard** Our customer-led performance metrics and targets are regularly updated through multiple customer-facing channels, including website and bill inclusions, to hold us accountable. See **Chapter 12**. Our monthly corporate reporting process provides visibility to the Executive and Board of performance against key targets, and governs steps taken where targets are not being met. We also propose to have an ODI on leakage performance.

IPART Principle #4: Community

Are you engaging with and considering the broader community to understand their objectives, including traditional custodians of the land and water, while ensuring services are cost-reflective and affordable today and in the future?

Standard	Advanced	Leading	Our Grade
Identify community outcomes			
Engage with and consider the broader community, including Aboriginal and Torres Strait Islander peoples, to identify community outcomes. **Assess the benefits and costs to the customer of delivering on broader community values as they relate to the provision of regulated services.** **Consider costs/benefits and bill impacts before proposing expenditures.**	Outcomes have demonstrated customer value and support, with awareness of bill impacts.	Demonstrate step change improvements in community outcomes, which prioritise customer preferences revealed through engagement.	**Standard** In Our Water, Our Voice, we undertook engagement with our First Nations customers on their priorities and the outcomes they value. This is reflected in community-based objectives such as safe swimming sites, which align with our broader customer base's views on community value. See **Chapter 1**. The expenditure needed to deliver these outcomes are discussed in **Chapters 6 and 7**. Over the past year, we undertook a robust process to develop our best forecast of the investment we need to balance delivery of essential services, cost and affordability, and asset and service risk.
Community outcome performance measures			
Community outcomes have targets that are measurable, have intermediate steps and milestones built in (as needed).	Work and partner with local groups and other stakeholder to propose and deliver community outcomes within the scope of its services.	Demonstrate innovative approaches to promote customer and community value.	**Standard** Our outcomes contain community metrics that are tracked in the short, medium and long terms, as discussed in **Chapters 1 and 14**.
Accountability for community outcomes			
Clear mechanisms ensure the business is accountable for delivering community outcomes.	Mechanisms include steps the business will take if not meeting targets.		**Standard** Sydney Water will hold itself accountable through regular performance reporting and will hold itself accountable financially through incentive schemes, as discussed in Chapter 14.

IPART Principle #5: Environment
Have you identified and met environmental objectives, while ensuring services are cost-reflective and affordable today and in the future?

Standard	Advanced	Leading	Our grade
Identify environmental outcome			
Meet all regulatory requirements, including environmental. **Follow government directions and regulatory obligations.** **Set environmental outcomes that relate to the provision of regulated services, consistent with customer preferences, community views and waterway quality guidelines.** **Consider long-term environmental costs/benefits and bill impacts before proposing expenditures.** **Propose cost-efficient expenditure to manage and adapt to the impacts of climate change.**	Actively engage with other regulators, evaluate prospective government directions and obligations from the perspective of promoting the customer's long-term interests. Incorporate climate change into forecasting models and undertake climate change adaptation and mitigation actions.	Demonstrate step change improvements in environmental outcomes, revealed through engagement, which prioritise delivery of environmental outcomes that customers and the community value most.	**Standard** We strive to meet all regulatory requirements and follow government directions and regulatory obligations. We pursue environmental outcomes consistent with our customers' preferences and propose efficient expenditure conscious of bill impacts.
Environmental outcome performance measures			
Environmental outcomes have targets that are measurable, have intermediate steps and milestones built in (as needed).	**Work and partner with community groups, other businesses, stakeholders and government, to propose and deliver outcomes that meet regulatory requirements, promote customer value and provide environmental benefits.**	Demonstrate innovative approaches which promote customer value and maximise environmental benefits.	**Advanced** We regularly engage with the NSW Environmental Protection Authority (NSW EPA) to ensure that the requirements it sets deliver customer and environmental value. An example of this is our negotiation on deep ocean outfall limits, which enabled us to avoid significant investment. Over the next decade, we will continue to work with the NSW EPA on a range of compliance requirements, such as concentration and load requirements for wastewater treatment. Specifically, our investment plan aims to align with our insights from Phase 6 of Our Water, Our Voice on our customers' preferences to bring our WRRFs back to compliance over the coming period. See **Chapter 6**.

Accountability for environmental outcomes			
Clear mechanisms ensure the business is accountable for delivering environmental outcomes.	**Mechanisms include steps the business will take if not meeting targets.**		**Advanced** We are held financially accountable for non-compliance on our delivery of environmental outcomes. In the following period, we propose to report publicly on environmental outcomes that map to each of our 15 customer priorities from Our Water, Our Voice. Six of these priorities relate to environmental objectives. See **Chapter 2**.

IPART Principle #6: Choice of services
Are you providing opportunities to reflect customers' varied preferences for the tariffs and additional services they are willing to pay for?

Standard	Advanced	Leading	Our Grade
Consider differentiated service offerings			
No requirement at Standard	Engage with customers on opportunities for differentiated service offerings, including standard add-on mass market tariff options (for example, carbon offsets), where it is cost-efficient to do so. Work with government and developers in growth planning to offer additional services and supply options to new developments.	Offer customers innovative tariffs and products above licence obligations, consistent with customers' preferences if there is evidence of customer demand.	**Standard** We regularly engage government to facilitate a broader understanding of the cost and service implications of achieving various growth outcomes. Our engagement with developers has resulted in a suite of developer services that leverages resources in our business efficiently, providing a small offset to resulted costs.

IPART Principle #7: Robust costs
How well does your proposal provide quantitative evidence that you will deliver the outcomes preferred by customers at the lowest sustainable cost?

Standard	Advanced	Leading	Our Grade
Justify proposed expenditure			
Proposed operating expenditure (opex) is consistent with past expenditure and clearly explains any step changes or trends. **Proposed capital expenditure (capex):** • **is clearly explained.** • **identifies baselines for recurrent expenditure and provides justification for any changes it proposes over time** • **for large capital projects with a clear scope is supported by cost–benefit analysis considering alternative options.**	Changes in expenditure are supported by quantitative evidence which demonstrates how it promotes customer value (for example, in proposing step changes for opex, and justification in business cases for large capital projects.	Proposes opex and capex that maximises customer value, supported by modelling which shows it is below industry benchmarks.	**Standard** Our proposal reflects the minimum expenditure required to deliver our services obligations and customer outcomes sustainably into the long-term. We have moderated our costs as far are practical and we are asking our customers to fund, including deferring costs where efficient to do so, taking risk on investment by excluding them from our forecast, seeking efficiencies in our business, and applying further stretch targets to achieve affordability outcomes. For our proposed opex, we have applied a base-trend-step (BTS) approach in line with the requirements of IPART's 3Cs framework. Our proposed operating expenditure is consistent with past expenditure and identifies a trend component and step changes. See **Chapter 7**. For our proposed capex, growth and renewals are the key drivers of our 2025–30 investment. See **Chapter 6**. For growth, we are embarking on our largest ever growth servicing program to deliver Government's growth objectives. These projects encompass most of our major capital projects. Each are subject to thorough internal and external assurance of options assessments, cost-benefit analysis, and delivery of customer value. For renewals, 37 per cent of our investment is driven by three major renewal programs. Of our remaining 'sustaining renewals', we are proposing a moderate increase of 12 per cent. This is needed to respond to deteriorating asset and service performance resulting from our historic approach of sweating assets to minimise customer bills. This trend is similar across both our infrastructure and digital portfolios.

Optimise between opex and capex			
Demonstrates consideration has been given to opex and capex trade-offs.	Uses quantitative evidence to show that proposed opex and capex minimises net lifecycle costs.	Takes into account the potential and likelihood for cost saving innovations when proposing a balance of opex and capex.	**Standard** We consider interactions between capex and opex when forecasting expenditure based on performance and risk. For example: • When forecasting the operating cost impacts of large new assets we include lifecycle cost NPV analysis, and factor in the efficient operating costs. • In planning for specific service aspects like leakage management or odour reduction, we develop aligned forecasts of asset investment and operational activities that together meet the need. These are detailed in our Issue Management Plans. • We have infrastructure strategies that guide our decisions between repairing or replacing specific subsets of asset classes. See *Appendix 4: Asset management*.
Accountability for expenditure outcomes			
Expenditure performance targets have been identified that maintain compliance with licence conditions, other regulatory requirements, and are consistent with customer preferences.	Demonstrates how performance targets have been developed through customer engagement and deliver customer value.	Has adopted and implemented robust processes to ensure that forecasts are justified, evidence-based and deliverable.	**Standard** Our reporting processes highlight our expenditure performance to customers and key stakeholders annually. Delivery against key expenditure outcomes from IPART's Final Determination will form the basis of our reporting going forward.

IPART Principle #8: Balance risk and long-term performance (Focus Principle)
How well do you weigh up the benefits and risks to customers of investment decisions, and how consistent are they with delivering long-term asset and service performance?

Standard	Advanced	Leading	Our grade
Understand long-term performance			
Investment and asset management decisions demonstrate a balancing of the risks and benefits to the customer and business in terms of long-term asset and service performance.		Provides additional evidence optimising this balance of risks, using best practice, probabilistic investment decisions and asset management systems.	**Standard.** Our asset management system is certified to ISO 55001. We have developed and continually implement a best practice performance, cost and risk framework that prioritises and optimises investment by considering historical service and asset performance and future service risks. In addition, we have developed deterioration models to determine the probability of failure of our assets, to enable more effective investment decision-making. Our investment forecasts in **Chapters 6 and 7** are underpinned by our current level of service, asset performance and risk, discussed in **Chapter 4**.
Manage risks and reprioritise			
Demonstrates all cost drivers and has mechanisms to monitor cost risks and reprioritise expenditures and asset management strategies as necessary. **Outlines its approach to manage long-term risks, including climate change.**	Proposal commits to accept more risk where it has benefits for customers. Demonstrates it has organisational resilience to absorb cost impacts arising from changes in the operating environment.	Proposal includes capability and strategies to optimise and manage the value of risk factored into its forecasts and proposals.	**Standard** Our investment governance framework aims to ensure investments we make during the period are prudent and efficient, whether they were originally included in our proposed expenditure. This is demonstrated by our reprioritisation of investment in the current period. Two examples of this are our overspend of the IPART allowance to support an evolving composition of growth, and our emergency pre-treatment response to respond to raw water quality issues. In the upcoming period, we are proposing to accept similar types of risks, but of larger size. For instance, we are continuing to accept the risk of financing significant growth investment and we are continuing to take on demand risk in-period. We are also proposing considerable efficiency targets across opex and capex.

			Our short-, medium- and long-term planning identifies objectives we aim to achieve over each time horizon to sustainably deliver the outcomes our customers value into the long term. It responds to key challenges and risks such as climate change, ageing assets, and growing cities.

IPART Principle #9: Commitment to improve value

How much ambition do you show in your cost-efficiency targets and what steps have you taken to demonstrate commitment to deliver on your promises?

Standard	Advanced	Leading	Our grade
Develop cost-efficiency strategy			
The business has a management approved and externally published cost efficiency strategy that includes: • **an annual efficiency factor across opex and capex** • **productivity improvements achieved and proposed, which highlight that the business is adopting innovations** • **how it has performed against current period targets.**	Proposal is informed by cost efficiency strategy, justifies an ambitious annual expenditure 'efficiency factor' and explains reasons for its current performance.	Proposes efficiency targets that would lead to a significant step change in cost efficiencies below historical costs and industry cost benchmarks.	**Standard** We have produced a Cost Efficiency Strategy to extract efficiency and productivity improvements which recognises the step change in proposed expenditure.
Accountability for cost efficiency outcomes			
Has clear mechanisms to ensure the business is accountable for achieving its proposed cost efficiency outcomes.			**Standard** Potential rewards and penalties under IPART's EBSS and CESS will hold us financially accountable for delivering against our cost efficiency targets.

IPART Principle #10: Equitable and efficient cost recovery (Focus Principle)
Are your proposed tariffs efficient and equitable, and do they appropriately share risks between the business and your customers?

Standard	Advanced	Leading	Our grade
Propose cost-reflective prices			
Propose cost-reflective maximum prices for customers with: • **modelling to justify tariffs over the next determination period** • **a balance of fixed and usage charges that takes into account the long-run marginal cost (LRMC) of providing services.**	Provides modelling to show that proposed prices: • are sustainable over time, and would avoid large future bill impacts • have been informed by LRMC model estimates • consider the impact of climate change on the level and structure of prices addressed • justify the appropriate form of price control that promote the long-term interests of customers.	Provides comprehensive modelling to support its proposed recovery of costs, including: • catchment level LRMC estimates where appropriate (to justify demand and supply side responses to delay augmentations or prioritise investments) • longer-term pricing paths supported by long-term cost estimates.	**Standard** We propose cost-reflective pricing structures that align with National Water Initiative pricing and the IPART *Water Regulation Handbook*. See **Chapter 11**.
Justify within period revenue adjustments			
Provides robust justification for any revenue adjustments, consistent with IPART's revenue hierarchy principles.			**Standard** Sydney Water has proposed revenue adjustments that align with the IPART handbook and principles, including the revenue hierarchy principles. These adjustments – which include true-ups, avoided costs, RAB adjustments and other regulatory adjustments – are justified robustly. We also mitigate the impact of our revenue requirement on affordability. See **Chapter 8**. We have provided comprehensive, principle-based evidence of why the residual cost of both growth and existing services that protect waterway health should be allocated to all beneficiaries via wastewater bills rather than to only a smaller subset of local stormwater customers. See **Chapter 8** and *Appendix 8: Integrated Water Cycle Management (IWCM)*.

IPART Principle #11: Delivering
Can you provide assurance that you have the capability and commitment to deliver?

All levels	Our Grade
Proposed expenditures and service outcomes can be delivered in the timeframe proposed. **Sets out how progress against key investments and performance targets (both short- and long-term) will be regularly monitored and communicated to its customers.** **Plans for foreseeable future challenges, including strategies for how it will reprioritise and adapt as changes arise.** **The proposal has been approved by the Board (or equivalent), which endorses that the proposal would best promote the long-term interests of its customers.** **The proposal has evidence of a robust assurance process to ensure the veracity of information provided to IPART.**	**Standard** Over the period 2016–20, Sydney Water delivered an average of $577 million in infrastructure capital per year. In 2023-24, we significantly increased this capability, delivering $2 billion in infrastructure capital in a single year (equal to the total 2012–16 Determination). This is despite significant headwinds over the 2020–24 period, including the COVID-19 pandemic, bushfires, and an extended period of significantly above-average rainfall and flooding events. Building on our strong delivery ability, we have already taken steps to enable the expansion of our delivery capacity and capability, an increase of 500 per cent on 2020 capacity. To meet future demands, we have established the necessary foundations to scale up to $4 billion annually by 2030. Key initiatives include: • an established 10-year strategic partnership to deliver our underlying renewal and maintenance needs, representing an investment of approximately $1 billion per year and • a specialist major projects delivery capability focused on high-risk/high-profile investments, which has grown from $213 million in 2020 to $1 billion in 2023-24. See **Chapter 6**.

IPART Principle #12: Continual Improvement
Does the proposal identify shortcomings and areas for future improvement?

All levels	Our Grade
Justified self-assessment. **Performance targets have been monitored and communications to customers over the previous period, consistent with past regulatory proposals. You have justified and explained past performance to customers.** **Demonstrates how experience and lessons from past determination period/s have been integrated into current and future/long-term strategies, where gaps remain, and how future plans will address these.** **Identifies any shortcomings in its proposals including its plans to address any shortfalls.**	**Standard** Our customer-led performance metrics and targets consider past performance and improvement needs as outlined in our strategic investment plans. Our performance metrics and targets are regularly reported through multiple customer-facing channels, including website and bill inclusions, to hold us accountable. See **Chapter 14**. Through our corporate performance reporting and enterprise planning processes we will seek to address any performance gaps and iterate our strategic investment plans as required.

Chapter 16: Board attestation

Board attestation

In accordance with the Water Regulation Handbook, July 2023, of the Independent Pricing and Regulatory Tribunal of New South Wales, the directors of the Sydney Water Corporation, having made such reasonable inquiries of management as we considered necessary (or having satisfied ourselves that we have no query), attest that, to the best of our knowledge and for the purpose of proposing prices for the Independent Pricing and Regulatory Tribunal's review of Sydney Water Corporation's prices:

- The pricing proposal submitted would best promote the long-term interests of customers.
- The pricing proposal:
  - Is the business' best customer value proposition and is consistent with our customer engagement strategy.
  - Would deliver services at the lowest sustainable cost and is consistent with our cost efficiency strategy.
- The information provided in the pricing proposal submitted on 30 September 2024 is the best available information of the financial and operational affairs of Sydney Water Corporation and has been checked in accordance with the Water Regulation Handbook.
- The pricing proposal has been subject to a quality assurance check, which certifies the accuracy and consistency of all data, including confirmation of the following:
  - Information in the pricing proposal is consistent with the business' information return (AIR and SIR), the business' financial accounts, and reports against output measures, as relevant.
  - Figures in the pricing proposal are accurate and correctly sourced.
  - The pricing proposal includes proposed prices for all the businesses' regulated services.
- There are no circumstances of which we are aware that would render the information provided to be misleading or inaccurate.

Certified by the Chair of the Board:

27.9.24

Grant King **Date**

Appendix 1 Customer engagement

Phase 1 – Capturing customer priorities

November 2022 – January 2023

Table 1.1: Phase 1 summary

Objectives

- To gather insights into our customers' priorities for Sydney Water to deliver over the next five to 10 years and for customers to rank these priorities in order of relative importance
- To understand customers' views on any potential water bill price increase that might be necessary to achieve the top-ranked customer recommended priorities.

What we did

- Customers initially identified priorities through unprompted feedback, based on their experiences with water and wastewater services. They then ranked these priorities from most to least important
- We conducted a discrete choice experiment (DCE) and MaxDiff survey, with the participation of 4,000 residential customers (home owners and renters) and more than 40 stakeholders, including major business customers, developers, value makers, local and state government representatives, and small and medium enterprises.
- We used customer forums, focus groups and in-depth interviews to develop their 15 customer priorities and used the MaxDiff Survey to rank them.
- We then used the DCE survey to understand the ranked customer priorities and customers' acceptance of a bill increase for Sydney Water to deliver the customer priorities.

4,282 Customers

2 Forums

34 Interviews

14 Focus groups

4,009 Online survey responses

What we heard

Customers identified, and ranked in importance, the 15 key priority outcomes for Sydney Water to deliver by the end of this decade.

How we used customer insights

- The ranked 15 customer priorities were used to anchor all subsequent phases of engagement, including prioritising areas for deeper focus and exploration. The priorities were also used to shape our customer outcomes and the objectives under each outcome.
- Our engagement has tested key assumptions and reaffirmed the servicing outcomes we aim to deliver in our Long Term Capital and Operational Plan (LTCOP)[1]. The LTCOP sets out Sydney Water's long-term servicing direction and outlines how this will meet the performance, risk, and affordability expectations of our customers and communities (refer to Chapter 5 for more detail on our LTCOP).

How this phase informed the next

The next phase involves validating these priorities and understanding customers' specific expectations of service levels. This will help shape Sydney Water's future strategies and operational plans.

In focus: Discrete choice experiment tool

Provided here is an example of one choice set from the DCE study, where survey participants were presented with a series of 'choice sets'. Each choice set contained several alternatives accompanied by a description of attributes. Every choice set included a 'status quo' option and two or more alternatives. DCEs are used in many fields to understand and model the trade-offs and preferences revealed by peoples' choices.

Further references

- Our Water, Our Voice Phase 1 final report
- Our Water, Our Voice Phase 1 public summary
- Our Water, Our Voice Phase 1 materials and discussion guides

Phase 2 – Capturing customer service insights

November 2022 – January 2023

Table 1.2: Phase 2 summary

Objectives

- To explore customer priorities relating to customer service and communication, performance standards for core water, and wastewater standards.
- To understand the level of satisfaction with existing water and wastewater service levels.
- To further inform cumulative understanding of customer priorities and validate service-level metrics for Sydney Water's price proposal, strategic plan and the review of Sydney Water's Operating Licence 2024-2028.

What we did	What we heard	How we used customer insights	How this phase informed the next
Qualitative and quantitative research was undertaken, grouped into the following four key service areas: • communication and customer service • water continuity and outages • water pressure • wastewater overflows. 2,031 Customers 5 Forums 34 Interviews 14 Focus groups 1,521 Online survey responses	**Communication and customer service:** • Customers were generally satisfied with current service levels. • There was a preference for multiple communication channels: phone for contacting Sydney Water and email for receiving communications. • Customers want to be able to register their preferred contact method, 24/7 availability for urgent issues, and SMS for urgent updates. • There is interest in a Sydney Water app and the retention of traditional payment methods. **Water continuity and outages:** • There is an expectation for proactive notification via SMS for planned outages and prompt updates during unplanned outages. • There is a preference for repairs to be done properly to avoid future disruptions. • Customers want is to avoid peak times for planned outages, to reduce inconvenience. **Water pressure:** • Few customers experienced water pressure issues but some expressed a desire for minimisation of such incidents. • Customers trust experts to set reasonable standards for water pressure. **Wastewater overflows:** • Customers have a negative perception due to personal inconvenience, environmental damage and health risks. • Customers wish to minimise the severity and frequency of overflows. • Customers trust in experts to determine appropriate standards.	We have used the customer insights to: • validate service-level metrics, informing the review of our operating licence • identify key areas for improvement and investment • further inform the shaping of customer outcomes in this price proposal • inform our strategic investment plan for customer experience with customer preferences for communications and customer service • distil themes identified across the forums into four areas: customer experience, quality, water conservation and environmental protection • have participants in each of the five forums group the 15 customer recommended priorities and suggest names for these theme areas to help inform Sydney Water's focus outcome areas.	• Phase 3 focused on implementing the validated service-level metrics and addressing identified improvement areas to enhance customer satisfaction and operational efficiency. • Service-level standards were also further tested in the Phase 4 DCE.

In focus: Insights from customers through Phase 2 engagement

> It was good to have high level executives on site. Shows that Sydney Water is determined to show they take our feedback seriously and want to hear what public say. They want to appear accessible and open.
>
> **Residential customer** | Sydney customer forum

> I wouldn't use live chat because I am a slow typist and I would feel under pressure doing the response…and I just feel I'm wasting the person's time typing the sentence.
>
> **Individual living with a disability** | In-depth interview

> Lots of our Elders don't use that technology. They have everything worked out and go down to pay their bills and make sure they are paid and get a receipt.
>
> **First Nations customer** | Focus group

> We can organise enough back up water in tanks to keep operating for about 6 hours, but after that we have to shut down operations.
>
> **Service Critical High Business Customer** | In-depth interview

Further references

- Our Water, Our Voice Phase 2 final report
- Our Water, Our Voice Phase 2 public summary
- Our Water, Our Voice Phase 2 materials and discussion guides

Phase 3 – Customer insights for better business planning

November 2022 – August 2023

Table 1.3: Phase 3 summary

Objectives

- Explore customer priorities identified in Phase 1, focusing on outcome areas where Sydney Water could potentially deliver services beyond minimum regulatory service requirements.

What we did

In Phase 3, we combined the 15 priorities identified and ranked by customers during Phase 1, and the service-level insights from Phase 2; and we asked customers to identify the level of service preferred within several customer advocated priorities.

2,418 Customers

10 Customer workshops

18 Interviews

16 Focus groups

2,034 Online survey responses

What we heard

Participating customers were supportive of maintaining current levels of performance in:

- water leakage
- resilience of our water supply.

This preference was expressed, understanding that more investment (and associated bill increases) would be required to maintain these service levels in the context of population growth and increasing climate risks.

Customers expressed an appetite for improved levels of service in areas such as reduction in carbon emissions and provision of recycled water for creating cool, green landscapes, noting that indicative bill increases were shown for both maintaining and improving levels of service.

Each preference was considered in isolation from the others.

How we used customer insights

We used the insights to help prioritise focus areas in subsequent phases and service attributes for inclusion in the Phase 4 DCE.

How this phase informed the next

- By identifying customers' focus areas, we were able to understand what topics needed further engagement (for example, tariffs in Phase 6) and which areas we should test for willingness to pay in the Phase 4 DCE.
- During the qualitative research, we identified gaps and inconsistency in understanding of Sydney Water's funding and governance, which may have impacted customers' preferences in some areas. While this didn't invalidate the findings at a principle/value level, it further reinforced the need for deeper engagement in phases 5 and 6.

In focus: Service level preferences findings

Service level preferences – Residential customer workshops

	REDUCE service level	MAINTAIN current service level	SMALL INCREASE (1 step up)	LARGER INCREASE (2-3 steps up from current)
Water leakage	24%	40%	35%	n/a
Healthy and natural waterways	n/a	26%	39%	34%
Swim access, safety and pollution prevention	n/a	51%	21%	28%
Carbon emissions	n/a	16%	32%	53%
Creating cool, green landscapes	n/a	24%	35%	41%
Resilience of our water supply system	13%	45%	36%	6%
Legend	Primary preference		Second preference (within 10% of the first preference)	

Service level preferences – Online validation survey

	REDUCE service level	MAINTAIN current service level	SMALL INCREASE (1 step up)	LARGER INCREASE (2-3 steps up from current)
Water leakage	18%	44%	38%	n/a
Healthy and natural waterways	45%	46%	n/a	10%*
Swim access, safety and pollution prevention	n/a	41%	50%	9%*
Carbon emissions#	n/a	n/a	n/a	n/a
Creating cool, green landscapes	n/a	40%	44%	15%
Resilience of our water supply system	26%	49%	19%	5%
Legend	Primary preference		Second preference (within 10% of the first preference)	

Further references

- Our Water, Our Voice Phase 3 final report
- Our Water, Our Voice Phase 3 public summary
- Our Water, Our Voice Phase 3 materials and discussion guides

Phase 4 – Service levels and investment for the future

May 2023 – February 2024

Table 1.4: Phase 4 summary

Objectives

- To explore customer willingness to pay for improved levels of service (or accept reduced levels of service) across key service areas and at total bill level, aligned to priorities identified in Phase 1 and reinforced throughout phases 2 and 3.

What we did

We conducted:

- five residential customer forums
- 14 in-language (Korean, Mandarin, Cantonese, Greek, Arabic and Vietnamese) focus groups
- 34 interviews with business customers, major developers and government stakeholders
- a DCE, with over 4,000 respondents.

The DCE survey was used to test respondents' willingness to pay for higher levels of service through bill increases or willingness to accept degraded levels of service for bill decreases. Through the DCE, it was possible to estimate the value (in dollar terms) that customers place on changes to specific levels of service, which could then be combined in multiple ways to model different servicing combinations with associated total customer value. The DCE was also used to reveal which service changes are most important in driving respondent choices.

4,551 Customers

5 Forums

34 Interviews

14 Focus groups

4,003 Online survey responses

What we heard

The most important service attributes driving customer choice in the survey were:

- cost
- the length of time Sydney Water will be able to provide water to Greater Sydney residents until severe restrictions are enforced
- number of identified urban waterway sites improved
- amount of recycled water used to water public green spaces
- how soon Sydney Water will achieve net zero carbon emissions.

This reflects the future, community and environmental focus expressed by customers in earlier phases. The relatively lower importance of changes to services affecting households, such as water continuity and pressure, possibly reflects that customers are happy with the status quo for these services.

How we used customer insights

- The DCE was used to inform proposed service levels in line with baseline cost-benefit analysis and risk, performance and cost trade-offs.
- Customer insights informed the variable levels of expenditure proposed to customers in Phase 5 customer panel.
- Customer insights were used to develop a benefits quantification model for customer and community benefits to be incorporated into Sydney Water's program business case templates and evaluation criteria.
- Qualitative insights were used to test assumptions about prioritisation of investments in LTCOP and supporting regional plans.

How this phase informed the next

By understanding the relative value customers assigned to a series of attributes, Sydney Water was able to develop a series of customer-informed investment plans to be tested with customers as part of Phase 5.

In focus: Discrete choice experiment approach

The table shows the service 'attributes' included in the DCE, with the estimated willingness to pay values for degraded or improved levels of service. Note that customers were told that maintaining the status quo would require an increase in bills of 36% over 10 years. This was shown as a bill increase for the status quo option. For water supply resilience, for example, the current level of service was expressed as 5.5 years of dry weather before Sydneysiders would be on severe water restrictions. The improved level of service would extend that to eight years. The degraded level of service would reduce it to four years.

[To learn more about the DCE, see Our Water, Our Voice Phase 4.]

Service attribute	Degraded service (change to quarterly bill)	Improved service (change to quarterly bill)	More improved service (change to quarterly bill)
Water supply resilience	-$15.10	$13	N/A
Waterway health	-$15.10	$12.50	$21
Recycled water for green spaces	-$10	$6.20	N/A
Carbon emissions reduction	N/A	$2.80	$9.50
Provision of digital meters	$4.90	-$0.10	N/A
Water continuity	-$12	$2.50	N/A
Wastewater overflows	-$1.80	$9.40	N/A
Water pressure	-$2.1	$4.30	N/A

Further references

- Our Water, Our Voice Phase 4 final report
- Our Water, Our Voice Phase 4 public summary
- Our Water, Our Voice Phase 4 materials and discussion guides

Phase 5 – Customer-recommended price proposal part 1

August 2023 – May 2024

Table 1.5: Phase 5 summary

Objectives

- To work directly with a smaller group of customers to develop investment options that optimised the balance between delivering services customers want and need into the future and keeping bills affordable.
- To achieve consensus with the customer group on overall bill impact and performance levels, when Sydney Water delivers specific services.

What we did	What we heard	How we used customer insights	How this phase informed the next
We engaged a panel of 60 customers to discuss and decide on Sydney Water's investments for the next five years. The panel met for four full days over a month, to gradually build their understanding. They were provided with information and tools for question and answer sessions before discussing options for two key investment areas: water supply security and preventing pollution. This was necessary to maintain current service levels while addressing the need to increase customer bills over the next five years. Following IPART's principle of proportional engagement, we focused on these issues because of their importance to customers, their significant potential impact on bills, and the influence of customer preferences. Using the L-Scale and decision triangle tools, the panel reached a consensus on how Sydney Water should handle these investments. They were also informed about other investment areas outside the Phase 5 scope that could increase bills by up to $53 per quarter to meet mandatory service levels, accommodate growth and address rising risks such as climate change.	Using the decision triangle, customers preferred a medium-cost, medium-performance and low-risk profile, highlighting the importance of low-risk services over low-cost ones, expressing no further appetite for risk. The customer panel reached an 80% consensus on options for both key investment areas: preventing pollution and water supply security. **Preventing pollution:** Customers chose the 'medium' option, supporting improvements to treatment plants and reducing wet weather overflows. Over 85% of monitored swim sites would be rated good or very good by Beachwatch, with no major changes to urban waterways in the short term. Most participants preferred preventing pollution problems over responding to them, adding $15–$20 to quarterly bills. **Water supply security:** Customers supported investing in new water supply solutions to safeguard the future, improve the current situation and prevent future issues. This medium-low risk option also added $15–$20 to quarterly bills. Participants felt Sydney Water should also educate the community on water conservation.	Phase 5 aimed to get clear direction from the customer panel on their preferred balance between performance, risk and cost, especially for key investment areas over the next five years. Sydney Water has applied this decision triangle to all our investments, identifying the best timing for expenditure and deferring investments where possible over the next 10 years while maintaining service levels. For the two focus investment areas, Sydney Water used the panel's preferred options to create its "customer informed and optimised servicing pathway". However, to deliver the levels of service for the preferred options for water supply security and pollution prevention, bill increases must exceed $93 per quarter or 32% on average over the next five years. This level of performance, risk and cost aligns with the key investment decisions of the LTCOP. If customers chose a higher risk approach, more capital expenditure would have been deferred; and if they chose a lower risk approach, more expenditure could have been brought forward.	This phase of deep engagement with a small group of customers fed straight into Phase 6, with the same customer panel deliberating further topics in depth.

In focus: Decision triangle research tool – a tool for making cost, performance and risk trade-offs

Further references

- Our Water, Our Voice Phase 5 final report
- Our Water, Our Voice Phase 5 public summary
- Our Water, Our Voice Phase 5 materials

Phase 6 – Customer-recommended price proposal part 2

October 2023 – June 2024

Table 1.6: Phase 6 summary

Objectives

With a focus on managing affordability and ensuring cost recovery processes are aligned with customers' values around fairness, the objectives of this phase were to get recommendations on:

- how customers are charged (tariff structure)
- how Sydney Water is held accountable for delivering customer outcomes through customer commitments (outcome delivery incentives)
- how prices are adjusted when Sydney Water over- or under-recovers revenue (price controls).

What we did

Panel deliberations summary

Conducted over four weekends, the same 60 panel members from Phase 5 made decisions on future tariff structures, price controls and accountability mechanisms.

- **Day 1:** The panel reviewed Sydney Water's billing practices and deemed them fair. They used tools such as eight fairness 'windows' and the L-Scale for guidance on subsequent topics.
- **Day 2:** The panel learned about four pricing structures:
  - fully fixed (same price for all)
  - flat (constant cost per kilolitre)
  - tiered (increasing cost per kilolitre with usage)
  - fully variable (based solely on usage).

  They dismissed two options, focusing on flat verses tiered structures.
- **Day 3:** The panel discussed customer commitments, Sydney Water's proposed financial penalties and incentives linked to performance targets, particularly for water leakage and river health.
- **Day 4:** The panel considered price controls, methods for adjusting revenue based on actual water sales compared to forecasts.

What we heard

Tariff structures

Panel members found fully fixed and fully variable models too complex or unfair, negatively affecting large households and renters. They preferred the flat pricing structure as the simplest and fairest, using the L-Scale ('love it, like it, live with it, loathe it').

Price controls

Using the L-Scale, customers supported both price cap and revenue cap models, with a preference for the revenue cap. They liked the faster turnaround for price adjustments and the smaller year-to-year price changes. However, more than 80% of participants were content with either model, due to the over-recovery adjustments in the following regulatory period.

Customer commitments (outcome delivery incentives)

To show transparency and accountability, Sydney Water proposed financial penalties for not meeting performance targets and rewards for exceeding them, reflected in customer bills. This new regulatory mechanism, called outcome delivery incentives (ODIs), sets performance targets with associated penalties or rewards. The customer panel supported this, with 68% in favour, particularly for water leakage and river health commitments.

How we used customer insights

Tariff structures

Sydney Water will keep the current flat pricing structure, as preferred by customers and discussed in Chapter 8.

Price controls

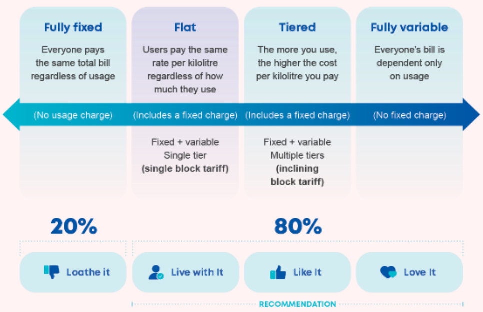
Sydney Water proposes a price cap with a 0% DVAM (Demand Volatility Adjustment Mechanism). This aligns with customer preferences on revenue adjustments without changing prices mid-period, enabling balanced reform amid regulatory changes.

Customer commitments

Sydney Water proposes an Outcome Delivery Incentive (ODI) for leakage, based on customer preferences. However, we will not propose an ODI for river health due to the disproportionate administrative effort compared to the financial reward. We will still meet our river health commitments.

In focus: Fairness windows and L-Scale engagement tools

The 'love it, like it, live with it, loathe it' (L-Scale) tool was used to establish panel consensus on key issues such as tariff structures. The 'eight fairness windows' were used to understand what fairness means to customers in relation to Sydney Water's current billing practices.



User pays	Affordability	Cost reflectivity	Service Guarantee
Customers should pay what it costs regardless of their circumstances	Prices should be affordable for everyone	Prices should only reflect the cost of service	Customers should be compensated if Sydney Water doesn't deliver the service
Simplicity	**Control**	**Predictability/stability**	**Conserving public resources**
The way in which customers are charged should be clear	Customers should be able to influence how much they have to pay	The level of variability in customer bills	Water is precious and should be conserved

Further references

- Our Water, Our Voice Phase 6 final report
- Our Water, Our Voice Phase 6 public summary

Demographics – Phases 1–6 combined

Table 1.7: Combined total of all qualitative and quantitative engagements (Phases 1–6)

	Phases 1–6 (n)
Gender (n)	
Male	6,137
Female	7,119
Other	16
Prefer not to say	-
Age (n)	
16–17 (customer forums only)	6
18–29	2,109
30–39	2,922
40–49	2,378
50–59	2,285
60–69	2,110
70+	1,461
Unknown	1
Location (n)	
Northern Sydney	2,344
Inner Sydney	3,738
Southern Sydney and Illawarra	1,955
Far Western Sydney and Blue Mountains	2,128
Western Sydney	3,113
Language other than English, First Nations (n)	
Language other than English	3,535
Primarily English speaking	9,667
First Nations people	395
Financial hardship (n)	
Experiencing financial hardship	2,591
Disability (n)	
Living with a disability	1,818
Stakeholders (n)	
Government	19
Major developers	24
Business customers	24
Value makers	24
SME	75
TOTAL	13,345

Note: Due to Phase 5 and 6 involving the same customers, they are not counted twice.

Phase 1– Capturing customer priorities

Table 1.8: Combined total of all qualitative and quantitative engagements (Phase 1)

	Phase 1 (n)
Gender (n)	
Male	1,899
Female	2,362
Other	3
Prefer not to say	-
Age (n)	
16–17 (customer forums only)	-
18–29	736
30–39	1,056
40–49	774
50–59	717
60–69	608
70+	373
Location (n)	
Northern Sydney	706
Inner Sydney	1,249
Southern Sydney and Illawarra	590
Far Western Sydney and Blue Mountains	697
Western Sydney	1,022
Language other than English, First Nations (n)	
Language other than English	1,174
Primarily English speaking	3,064
First Nations people	128
Financial hardship (n)	
Experiencing financial hardship	833
Disability (n)	
Living with a disability	499
Stakeholders (n)	
Government	6
Major developers	6
Business customers	6
Value makers	6
SME	20
TOTAL	4,282

Table 1.9: Phase 1 qualitative and quantitative engagements

	Customer forum (n)	Groups & IDIs[92] (n)	MaxDiff (n)	DCE (n)
Gender (n)				
Male	81	35	764	1,019
Female	95	44	772	1,451
Other	-	-	1	2
Prefer not to say	-	-	-	-
Age (n)				
16–17 (customer forums only)	-	-	-	-
18–29	19	13	199	505
30–39	29	14	309	704
40–49	30	19	285	440
50–59	44	24	312	337
60–69	34	7	251	316
70+	20	2	181	170
Location (n)				
Northern Sydney	31	16	310	349
Inner Sydney	45	23	384	797
Southern Sydney and Illawarra	10	9	304	267
Far Western Sydney and Blue Mountains	32	12	229	424
Western Sydney	58	19	310	635
Language other than English, First Nations (n)				
Language other than English	32	33	431	678
Primarily English speaking	144	20	1,106	1,794
First Nations people	2	11	55	60
Financial hardship (n)				
Experiencing financial hardship	40	17	281	495
Disability (n)				
Living with a disability	18	17	229	235
Stakeholders (n)				
Government	-	6	-	-
Major developers	-	6	-	-
Business customers	-	6	-	-
Value makers	-	6	-	-
SME	-	20	-	-
TOTAL	[redacted]	[redacted]	[redacted]	[redacted]

92 Individual in-depth interviews

Phase 2– Capturing customer service insights

Table 1.10: Combined total of all qualitative and quantitative engagements (Phase 2)

	Phase 2 (n)
Gender (n)	
Male	975
Female	1,037
Other	1
Prefer not to say	-
Age (n)	
16–17 (customer forums only)	-
18–29	227
30–39	350
40–49	374
50–59	413
60–69	367
70+	282
Location (n)	
Northern Sydney	395
Inner Sydney	484
Southern Sydney and Illawarra	387
Far Western Sydney and Blue Mountains	321
Western Sydney	426
Language other than English, First Nations (n)	
Language other than English	487
Primarily English speaking	1,497
First Nations people	67
Financial hardship (n)	
Experiencing financial hardship	395
Disability (n)	
Living with a disability	304
Stakeholders (n)	
Government	6
Major developers	6
Business customers	6
Value makers	6
SME	23
TOTAL	2,031

Table 1.11: Phase 2 qualitative and quantitative engagements

	Customer forum (n)	Groups & IDIs (n)	Validation survey (n)
Gender (n)			
Male	185	37	753
Female	225	45	767
Other	-	-	1
Prefer not to say	-	-	-
Age (n)			
16–17 (customer forums only)	-	-	-
18–29	22	7	198
30–39	71	24	255
40–49	82	22	270
50–59	87	19	307
60–69	87	8	272
70+	61	2	219
Location (n)			
Northern Sydney	78	13	304
Inner Sydney	89	22	373
Southern Sydney and Illawarra	80	13	294
Far Western Sydney and Blue Mountains	72	14	235
Western Sydney	91	20	315
Language other than English, First Nations (n)			
Language other than English	52	34	401
Primarily English speaking	358	19	1,120
First Nations people	8	11	48
Financial hardship (n)			
Experiencing financial hardship	98	13	284
Disability (n)			
Living with a disability	55	12	237
Stakeholders (n)			
Government	-	6	-
Major developers	-	6	-
Business customers	-	6	-
Value makers	-	6	-
SME	-	23	-
TOTAL	410	100	1,521

Phase 3 – Customer insights for better business planning

Table 1.12: Combined total of all qualitative and quantitative engagements (Phase 3)

	Phase 3 (n)
Gender (n)	
Male	1,162
Female	1,243
Other	1
Prefer not to say	-
Age (n)	
16–17 (customer forums only)	2
18–29	298
30–39	436
40–49	422
50–59	486
60–69	442
70+	320
Location (n)	
Northern Sydney	471
Inner Sydney	599
Southern Sydney and Illawarra	426
Far Western Sydney and Blue Mountains	395
Western Sydney	515
Language other than English, First Nations (n)	
Language other than English	690
Primarily English speaking	1,702
First Nations people	85
Financial hardship (n)	
Experiencing financial hardship	518
Disability (n)	
Living with a disability	419
Stakeholders (n)	
Government	-
Major developers	6
Business customers	6
Value makers	6
SME	8
TOTAL	2,418

Table 1.13: Phase 3 qualitative and quantitative engagements

	Customer workshops (n)	Groups & IDIs (n)	Validation survey (n)
Gender (n)			
Male	135	46	981
Female	146	45	1,052
Other	-	-	1
Prefer not to say	-	-	-
Age (n)			
16–17 (customer forums only)	2	-	-
18–29	18	18	262
30–39	42	22	372
40–49	52	28	342
50–59	60	12	414
60–69	72	9	361
70+	35	2	283
Location (n)			
Northern Sydney	55	9	407
Inner Sydney	58	36	505
Southern Sydney and Illawarra	45	7	374
Far Western Sydney and Blue Mountains	62	13	320
Western Sydney	61	26	428
LOTE, First Nations (n)			
Language other than English	50	65	575
Primarily English speaking	231	12	1,459
First Nations people	7	12	66
Financial hardship (n)			
Experiencing financial hardship	61	21	436
Disability (n)			
Living with a disability	30	3	386
Stakeholders (n)			
Government	-	-	-
Major developers	-	6	-
Business customers	-	6	-
Value makers	-	6	-
SME	-	8	-
TOTAL	281	103	2,034

Phase 4 – Service levels and investment for the future

Table 1.14: Combined total of all qualitative and quantitative engagements (Phase 4)

	Phase 4 (n)
Gender (n)	
Male	2,071
Female	2,444
Other	11
Prefer not to say	-
Age (n)	
16–17 (customer forums only)	4
18–29	844
30–39	1,071
40–49	790
50–59	648
60–69	684
70+	484
Unknown	1
Location (n)	
Northern Sydney	763
Inner Sydney	1,392
Southern Sydney and Illawarra	542
Far Western Sydney and Blue Mountains	703
Western Sydney	1,132
Language other than English, First Nations (n)	
Language other than English	1,164
Primarily English speaking	3,361
First Nations people	113
Financial hardship (n)	
Experiencing financial hardship	827
Disability (n)	
Living with a disability	585
Stakeholders (n)	
Government	7
Major developers	6
Business customers	6
Value makers	6
SME	24
TOTAL	4,551

Table 1.15: Phase 4 qualitative and quantitative engagements

	Customer forums (n)	Groups & IDIs (n)	DCE (n)
Gender (n)			
Male	195	35	1,841
Female	253	39	2,152
Other	1	-	10
Prefer not to say	-	-	-
Age (n)			
16–17 (customer forums only)	4	-	-
18–29	49	11	784
30–39	86	24	961
40–49	96	14	680
50–59	87	11	550
60–69	73	12	599
70+	53	2	429
Unknown	1	-	-
Location (n)			
Northern Sydney	88	17	658
Inner Sydney	94	23	1,275
Southern Sydney and Illawarra	91	10	441
Far Western Sydney and Blue Mountains	90	11	602
Western Sydney	86	19	1,027
Language other than English, First Nations (n)			
Language other than English	70	39	1,055
Primarily English speaking	378	35	2,948
First Nations people	8	10	95
Financial hardship (n)			
Experiencing financial hardship	130	20	677
Disability (n)			
Living with a disability	56	11	518
Stakeholders (n)			
Government	-	7	-
Major developers	-	6	-
Business customers	-	6	-
Value makers	-	6	-
SME	-	24	-
TOTAL	449	99	4,003

Phase 5 – Customer recommended price proposal part 1

Table 1.16: Combined total of all qualitative engagements (Phase 5)

	Phase 5 (n)
Gender (n)	
Male	30
Female	33
Other	-
Prefer not to say	-
Age (n)	
16–17 (customer forums only)	-
18–29	4
30–39	9
40–49	18
50–59	21
60–69	9
70+	2
Location (n)	
Northern Sydney	9
Inner Sydney	14
Southern Sydney and Illawarra	10
Far Western Sydney and Blue Mountains	12
Western Sydney	18
Language other than English, First Nations (n)	
Language other than English	20
Primarily English speaking	43
First Nations people	2
Financial hardship (n)	
Experiencing financial hardship	18
Disability (n)	
Living with a disability	11
Stakeholders (n)	
Government	-
Major developers	-
Business customers	-
Value makers	-
SME	-
TOTAL	63*

* Three customers dropped out over the course of the panel, leaving the total number of customers who completed the Phase 5 panel at n = 60.

Phase 6 – Customer recommended price proposal part 2

Table 1.17: Combined total of all qualitative engagements

	Phase 6 (n)
Gender (n)	
Male	23
Female	27
Other	-
Prefer not to say	-
Age (n)	
16–17 (customer forums only)	-
18–29	1
30–39	6
40–49	17
50–59	18
60–69	7
70+	1
Location (n)	
Northern Sydney	7
Inner Sydney	11
Southern Sydney and Illawarra	6
Far Western Sydney and Blue Mountains	12
Western Sydney	14
Language other than English, First Nations (n)	
Language other than English	15
Primarily English speaking	35
First Nations people	1
Financial hardship (n)	
Experiencing financial hardship	14
Disability (n)	
Living with a disability	9
Stakeholders (n)	
Government	-
Major developers	-
Business customers	-
Value makers	-
SME	-
TOTAL	50

Appendix 2 Customer outcomes

Customers were clear on values and preferences, making it easy to guide decisions

The remaining eight priorities not described in Chapter 2 are shown below.

Priority 8: Reducing water loss to the ocean by improving stormwater management, capture and storage

> **"We will be facing extremes in the future. We need greater numbers of rainwater tanks, we need to be catching rainwater and storing it, underground storage and recycled water for irrigation."**
> ***Value maker*** **|** *In-depth interview (Phase 1)*

What we heard that customers valued and preferred

Customers think Sydney Water can improve how it handles stormwater by capturing, storing and reusing this water for purposes such as irrigation. This would help save drinking water for people to use (Phase 1).

What we heard from customers guides our actions

We'll **maintain and improve** the volume of recycled water available, including existing and planned recycled water schemes and stormwater harvesting.

Priority 9: Reducing the chances of your drinking water occasionally smelling or tasting different

> **"Take steps to minimise taste / appearance and odour issues"**
> ***Customer*** **|** *Sydney customer forum (Phase 1)*

What we heard that customers valued and preferred

Customers understood that some events impacting water taste, odour and appearance are outside of Sydney Water's control (for example, in extreme weather events). However, they felt that poor network maintenance also leads to more frequent instances of taste and odour events. For many customers, water that is safe to drink was not enough, it also needed to be pleasant to drink.

What we heard from customers guides our actions

We'll also invest in reducing the variation in taste and smell of drinking water across the system where we can deliver **without additional costs to customers**.

Priority 10: Minimising the impact of outages, both planned and unplanned

> **"They should fix the issue ASAP or at least notify the customers what will happen next"**
> ***Customer*** **|** *Sydney customer forum (Phase 1)*

What we heard that customers valued and preferred

Consistent water access is important for homes and businesses, both for livelihood and for supporting economic development. Customers expect us to continue to minimise the impact of both planned and unplanned outages (phases 1, 2 and 5).

What we heard from customers guides our actions

We'll **maintain the service level** in our operating licence for water continuity and wastewater overflows affecting customers' properties.

Priority 11: Contributing to a cooler environment and more pleasant green public spaces through trees and vegetation

> **"You need some green space in each suburb – at least 5km from home. But it shouldn't be watered with drinking water."**
> ***Residential customer*** **|** *Parramatta customer forum (Phase 1)*

What we heard that customers valued and preferred

Customers value community outcomes such as contributing to a cooler environment and more pleasant green public spaces, facilitated by more use of recycled stormwater and wastewater (Phase 1). They dislike the use of drinking water for irrigation, particularly during drought or extended dry weather.

About 60 per cent of customers want public green spaces irrigated with stormwater and/or recycled water. The DCE study showed that home-owning customers were willing to pay an additional $6.20 on their quarterly bills (in addition to the estimated increase) to supply 6.5 billion litres of recycled water to support 1,300 hectares of open green space (Phase 4).

What we heard from customers guides our actions

We'll **maintain and improve active management of our land with natural areas** to provide environmental and ecological outcomes, even as we increase our asset base through new stormwater servicing.

Our most significant investment is to provide stormwater services in Mamre Road and Aerotropolis precincts. We've assumed maintenance of drainage assets is **fully funded via customer cost recovery**.

We'll enhance amenity, aesthetics and ecology of waterways through our Waterway Health Improvement Program and naturalisation where we can deliver these **without additional costs to customers**. We will also continue to **support and work with local councils and government** to improve implementation of water-sensitive urban design and help them increase the use of recycled water for irrigation of public open spaces.

Priority 12: Maintaining a standard of customer service that meets or exceeds your expectations

> **"Customer service, while it's important, it's less important than getting us clean, quality water, all the time, every time."**
> ***Residential customer*** **|** *Customer panel day 1 (Phase 5)*

What we heard that customers valued and preferred

Customers emphasised the need to maintain a standard of service that meets or exceed their expectations, but it is a lower priority compared to providing reliable water and wastewater services (Phase 1 Priority 12).

Customers believe that ongoing improvements to customer service should be included in the standard service offering without additional costs to them (Phase 2). For service-critical businesses and value makers, timely outage notifications are crucial. Major developers face challenges with approval times and servicing timeframes, preferring managed relationships, efficient applications and greater access to information for planning (Phase 2).

What we heard from customers guides our actions

We'll **maintain customer satisfaction** within the top quartile of benchmarked peers, aligned to our five-year historical average performance.

Our focus areas and investment plan identify **key activities to improve** our customer communications and services for developers and other specific customer groups, in line with these preferences.

Priority 13: Reducing net carbon emissions to zero by 2050 or sooner via more energy efficient operations and renewable energy

> **"Yes, they have a responsibility to do this as a big energy user, but they're equally responsible as other energy users, as a natural resource there is a moral obligation at 'top of food chain'."**
> ***Residential customer* | *Parramatta customer forum***

What we heard that customers valued and preferred

Customers think the government should take the lead in reaching net zero carbon emissions. Because of this, they also believe Sydney Water should reduce its carbon emissions to net zero. They value an acceleration of Sydney Water's target from 2050 to 2030, given the relatively low cost to achieve what is perceived as a substantial benefit (Phase 4 DCE study).

Through our DCE study, average home-owning customers placed a value over the next 10 years of $9.50 (in addition to the estimated increase) on their quarterly bill for Sydney Water to achieve net zero carbon emissions by 2030 (Phase 4). Customers recognised the need for Sydney Water to purchase carbon offsets to account for wastewater fugitive emissions, but they had a strong preference for projects within NSW that deliver co-benefits, such as employing Aboriginal and Torres Strait Islander people. After being provided with information about offsets, 70 per cent of customers surveyed supported (subject to cost) Sydney Water purchasing accredited offsets in consultation with the community, with ongoing transparent reporting (Centre for International Economics willingness to pay research 2022).

What we heard from customers guides our actions

We've set an objective of **net zero carbon emissions** to support environmental outcomes in the long-term interest of customers.

In response to our customers' preference to see Sydney Water achieve net zero emissions sooner, we'll progress with a power purchasing agreement to secure greater volumes of renewable electricity. I**n line with economic assessment,** we will continue to generate and extend renewable energy sources at our sites, and we will source high integrity carbon offsets to ensure our achievements are genuine.

Priority 14: Reducing the frequency and duration of severe water restrictions

> **"Do everything that they can so we do not face restrictions again"**
> ***Customer* | *Sydney customer forum (Phase 1)***

What we heard that customers valued and preferred

Customers accept that water restrictions are an option to manage drought, but they value investment to reduce the severity of restrictions and to make them equitable for the community (Phase 1). When considering the trade-offs, the customer panel informed us that they saw value in Sydney Water prioritising investment to reduce the risk of needing to spend more time in water restrictions and having higher-level restrictions applied.

What we heard from customers guides our actions

As outlined in our response against priorities 4, 5 and 6, we'll **improve the resilience of Greater Sydney's water supply** by investing in new rainfall-independent supply, water conservation and leakage reduction.

We'll **improve climate risk maturity of the business** over time in line with new operating licence requirements. We will continue to incorporate climate change assumptions in our water demand models.

Priority 15: Ensuring better-informed customers through improved/modern communications to assist with managing water use

> **"Educate customers on their personal responsibility and water wastage"**
> ***Customer | Sydney customer** forum (Phase 1)*

What we heard that customers valued and preferred

Customers desire more practical, proactive communication from Sydney Water, especially regarding outages, dam levels and water restrictions (Phase 1). This approach is crucial for improving community awareness and encouraging water-saving efforts when necessary. With the rapid transformation of the water industry, customers expect instant services and responses at any time, from anywhere, on any device (Phase 2), with strong interest in engaging with Sydney Water online (Phase 1). Customers see the need for community education to boost knowledge about water and wastewater (Phase 5).

What we heard from customers guides our actions

We'll **maintain our service levels** in our revised operating licence and customer contract, including to respond to outages and provide advance information to residential and non-residential customers among others. We'll **improve water literacy** during the price period through continued education and raising awareness of the importance of water conservation and different sources of water including PRW and desalination, with the aim to achieve a longer-term step change in water literacy to shift in perception. We're planning to replace existing mechanical customer meters with digital meters **only where this can be delivered without an increase in customers' bills** and to facilitate improved customer experience, better water network management and water conservation efforts. This is in line with the preferences our customers have told us.

How we developed customer outcomes

Outcomes and objectives were identified from customer's priorities and themes, shaped with CCRG.

Table 2.1: Engagement phases informing the development of customer outcomes

	Customer ranked priority identified in Phase 1 (and customer theme from Phase 2 shown in brackets)	Customer outcomes (shaped with CCRG)	Objectives (shaped with CCRG)	Measures (informed by phases 3, 4, 5 and CCRG)
01	Maintaining clean and safe drinking water (Quality)	Water quality and reliability	Safe and clean water	Drinking water quality
02	Ensuring bills remain affordable via cost management, payment plans and avoiding future cost spikes (Customer experience)	Customer experience	Fair and affordable bills	Affordability
03	Maintaining clean, safe waterways and water recreation areas by reducing pollution (Environmental protection)	Environmental protection Customer experience	Prevent pollution Safe swimming and recreation	Quality of treated wastewater Pollution and environmental harm incidents Public access and recreation
04	Enhancing the water network's resilience to drought through building water recycling and/or desalination infrastructure (Water conservation)	Water quality and reliability Environmental protection	Saving water together Secure water supply Recover resources Climate resilient systems	Available water supply Drinking water use (residential) Volume of recycled water available Climate risk maturity health check
05	Reducing water loss by minimising leaks and breaks in the water network (Water conservation)	Water quality and reliability	Saving water together Reliable water	System leakage Water continuity
06	Increasing water savings and reducing water usage through community-based water saving programs (Water conservation)	Water quality and reliability	Saving water together	Drinking water use (residential)
07	Improving natural waterways and habitats to protect the environment (Environmental protection)	Environmental protection	Cool, green and natural places	Natural area and green infrastructure land actively managed
08	Reducing water loss to the ocean by improving stormwater management, storage, and drainage (Water conservation)	Environmental protection	Recover resources	Volume of recycled water available
09	Reducing the changes of your drinking water occasionally smelling or tasing different (Quality)	Water quality and reliability	Safe and clean water	Drinking water quality

	Customer ranked priority identified in Phase 1 (and customer theme from Phase 2 shown in brackets)	Customer outcomes (shaped with CCRG)	Objectives (shaped with CCRG)	Measures (informed by phases 3, 4, 5 and CCRG)
10	Minimising the impact of outages, both planned and unplanned (Customer experience)	Customer experience Water quality and reliability	Positive customer experience Reliable water	Customer satisfaction Water continuity
11	Contributing to a cooler environment and more pleasant green public spaces through trees and vegetation (Environmental protection)	Environmental protection	Cool, green and natural places	Natural area and green infrastructure land actively managed
12	Maintaining a standard of customer service that meets or exceeds your expectations (Customer experience)	Customer experience	Positive customer experience	Customer satisfaction
13	Reducing net carbon emissions to zero by 2050 or sooner via more energy efficient operations and renewable energy (Environmental protection)	Environmental protection	Net zero carbon emissions	Net carbon emissions
14	Reducing the frequency and duration of severe water restrictions (Customer experience)	Water quality and reliability	Secure water supply	Available water supply
15	Ensuring better-informed customers through improved/modern communications to assist with managing water use (Customer experience)	Customer experience	Informed and empowered customers	Water literacy

Details on our objectives

Figure 2.1: Objectives for each of our three customer outcomes and two enablers

Customer experience

Fair and Affordable Bills

We provide value for money, keep bills affordable and support those in need

Positive Customer Experience

We are inclusive and helpful, treating all our customers fairly and with respect

Informed and Empowered Customers

We keep customers informed and include communities in the decision-making process

Safe Swimming and Recreation

We support improved community access to lands and waters for safe swimming and recreation

Water quality and reliability

Safe and Clean Water

Our water is kept safe and clean to drink

Secure Water Supply

We build water supply resilience to climate and growth

Saving Water Together

Our water is used more efficiently, and we support the community to save water

Reliable Water

Our water services are reliable every day

Environmental protection

Prevent Pollution

We prevent pollution of waterways and the environment by improving our wastewater and stormwater systems. We support our community to control pollution at source

Recover Resources

We maximise recycling and reuse of water, energy and materials. We minimise and manage our waste

Cool, Green and Natural Places

We contribute to community wellbeing through recycled water to green and cool public spaces. We care for Country, conserve and restore waterways and natural habitats

Net Zero Carbon Emissions

We achieve net zero carbon emissions in our operations from 2030 in response to the increasing impact and risk of the changing climate

Climate Resilient Systems

Our water services and infrastructure (drinking water, wastewater, recycled water and stormwater) can cope with climate change

Accountable, agile, innovative culture

Embrace Ownership and Accountability

We take end to end ownership for outcomes in a safe work environment, while focusing on the vital few priorities

Foster Agility and Adaptability

We have flexible mindsets and a high tolerance for ambiguity, working iteratively to produce outcomes

Inspire and Drive Innovation

We create better lives for customers, communities and each other, generating value from ideation to implementation

Successful and sustainable business

Efficient and Financially Sustainable Business

We enhance operational efficiency, optimise resource allocation, and ensure financial resilience, with a focus on long-term sustainability and effectiveness

Community Trusts & Values Us

We build trust by fulfilling our commitments, amplifying First Nations voices, fostering strategic partnerships, prioritising sustainability and embracing social responsibility

Value-driven Digitalisation

We leverage digitalisation to optimise processes, empower our people, and deliver exceptional value and service to our customers

Details on customer outcome performance measures

Table 2.2: Performance measure calculation details for customer outcomes

Performance measures	Target aim	Measure calculation	Type of related public reporting OL = operating licence 2024-2028, IPART = IPART performance indicators, NPR = national performance report indicators
Customer experience			
Affordability: Average residential customer bill as a percentage of average disposable income for the Greater Sydney Region.	**Maintain** affordability within water industry benchmark, specifically keeping bills within the Australian benchmark.	This is calculated from the Sydney Water average annual residential water bill (200 kL) estimate divided by the weighted annual disposable income for all LGAs in Sydney Water's operating area The target bill amount is based on the proposed price scenario. The benchmark is based on the WSAA survey of member water utilities percentage of disposable income on water and wastewater services that customers currently pay: capital city water ~1.2% and rural water ~1.6% (note these are 2022-23 benchmarks and may potentially rise in the future to reflect the rising cost of providing services across the Australian water industry).	NPR: P7 – Total annual residential customer bill based on 200 kL per annum OL: Payment assistance policy, family violence policy
Customer satisfaction: Measured position compared to the top-quartile of benchmarked peers in the quarterly Brand Tracker Customer Survey (an external survey), based on a customer rating for overall service satisfaction of 8 or more out of 10.	**Maintain** customer satisfaction within the top quartile of benchmarked peers, aligned to our five-year historical average performance.	The score is calculated from the external Brand Tracker customer perception survey. Customer satisfaction measures customers' response to the question A11, 'How satisfied or dissatisfied are you with each of the following in supplying products and services to you?' Responders are scored out of 10, with 9–10 classified as promoters, 7–8 as passive and 0–6 as detractors. Measure reflects percentage of promoters.	NPR: IC13 – Total number of complaints OL: Customer Contract
Water literacy: Literacy score (out of 10) from the quarterly Water Literacy Tracker (an external survey) testing customers' understanding of water, where it comes from, how it's managed, and where it goes.	**Improve** water literacy during the price period to achieve a long-term shift in perception.	The score is calculated from the Water Literacy Tracker, an external quantitative customer perception survey. The literacy score measures the number of correct answers to 10 customised questions, with a particular focus on PRW and desalination.	
Public access and recreation: Annual increase in number of sites with improved community access for recreation (including swimming). This includes sites managed by Sydney Water for temporary or long-term access and sites managed by local councils or other agencies.	**Maintain** a modest increase of sites suitable for community access and recreation, at least one site per year.	This is a count of the number of sites with improved recreational access to land and waterways, in addition to existing Sydney Water–managed sites and existing Beachwatch and RiverWatch swim sites. Note that the 2035 target of ≥0 does not reflect declining performance, as the measure is additional sites (as long as the number is positive, Sydney Water is still adding to the total number of sites).	Sydney Water website: Swim spot locations and suitability – Urban Plunge (https://urbanplunge.sydneywater.com.au/)

Performance measures	Target aim	Measure calculation	**Type of related public reporting** OL = operating licence 2024-2028, IPART = IPART performance indicators, NPR = national performance report indicators
Water quality and reliability			
Drinking water quality: Percentage of systems where drinking water meets health guidelines.	**Maintain** safe drinking water quality to all customers by meeting health guidelines at all our drinking water systems.	This is calculated as the number of drinking water systems compliant with the Australian Drinking Water Guidelines and any requirements relating to drinking water specified by NSW Health divided by the total number of drinking water systems.	OL: Water quality monitoring quarterly reports
Available water supply: Proportion of drinking water demand that can be met by RFIS.	**Improve** the security of our water supply, by increasing the time we have to build a new water supply in drought, reducing the need to use severe water restrictions.	Percentage calculated as the sum of the capacity of RFIS (eg. desalination, PRW) installed and connected to the water supply network (ML/yr) divided by the demand for drinking and non-drinking water, excluding recycled water, under average weather (ML/yr) for the same period. The glidepath assumes the planned RFIS investments as per LTCOP v1.1 and the Run 70 average weather demand forecast.	OL: Greater Sydney drought response plan summary NPR: W1 – Volume of water self-sourced from climate-dependent surface water sources NPR: W8.3 – Volume of drinking and non-drinking water, excluding recycled water, supplied to residential customers NPR: W9.3 – Volume of drinking and non-drinking water, excluding recycled water, supplied to non-residential customers NPR: WR_N2 – Volume of drinking and non-drinking water, excluding recycled water, supplied for own use NPR: W14.3 – Volume of drinking and non-drinking water, excluding recycled water, exported to other service providers (if applicable)

Performance measures	Target aim	Measure calculation	Type of related public reporting OL = operating licence 2024-2028, IPART = IPART performance indicators, NPR = national performance report indicators
Drinking water use (residential): Residential drinking water use per person per day (in LPD, litres per person per day).	**Improve** the efficiency of residential drinking water use to achieve less than 182 LPD by 2030 by helping customers use water efficiently.	Measured as the volume of water used by residential customers from drinking and non-drinking water sources, excluding recycled water, over a rolling 12-month period divided by the estimated population served and the number of days during this period. The glidepath assumes future residential demand as per the Run 70 average weather demand forecast, inclusive of planned water conservation activities. The need to include weather correction to support monitoring of performance against the glidepath is still under consideration. Measure is also dependent on population estimates and forecasts.	OL: Water conservation plan NPR: W8.3 – Volume of drinking and non-drinking water, excluding recycled water, supplied to residential customers NPR: W11 – Total volume of water supplied to residential and non-residential customers NPR: W12 – Average volume of residential water supplied per property IPART: W2 – Quantity of drinking water drawn by the water utility from all sources during the financial year, expressed in litres per person per day (weather corrected)
System leakage: Percentage of drinking water supplied lost as leakage (proposed as ODI, outcome delivery incentive).	**Improve** the efficiency of our network, by reducing the volume of water lost as leakage from our drinking water network.	Percentage leakage is calculated as the 365-day leakage output from the water balance in ML divided by the annual average weather corrected demand in ML (reported as rolling 12-month figure). The water balance compares system inputs to known and estimated outputs. The difference is unaccounted for water and a portion of that is allocated to leakage. The glidepath assumes future residential demand as per the Run 70 average weather demand forecast, which is inclusive of planned water conservation activities.	OL: Economic level of water conservation NPR: A9 – Infrastructure leakage index (ILI): drinking water supply system NPR: A10 – Real losses, per service connection from the drinking water supply system NPR: A11 - Real losses, per kilometre of water main, from the drinking water supply system
Water continuity: Percentage of customers affected by an unplanned water interruption for more than five hours.	**Maintain** the reliability of our water services and minimise the impact of interruptions to customers	This is measured as a proportion of connected water properties in line with the operating licence water continuity standard (properties unaffected by unplanned water interruption), but with the measure inverted to represent the proportion of affected properties divided by the total number of properties with water services.	IPART: A1 – Number of properties that experience an unplanned water interruption that lasts for more than five continuous hours

Performance measures	Target aim	Measure calculation	**Type of related public reporting** **OL = operating licence 2024-2028,** **IPART = IPART performance indicators,** **NPR = national performance report indicators**
Environmental protection			
Quality of treated wastewater (concentration – core pollutants): Percentage of water resource recovery facilities (WWRFs) where quality of wastewater discharged complies with annual concentration limits of core pollutants that treatment plants are designed to treat.	**Improve** the performance of wastewater treatment facility assets focused on quality of treated water discharged to meet annual concentration limits of core pollutants 100% of the time by 2030	count of water resource recovery facilities (WRRFs) that are at or below their allowable concentration limits for all of the following pollutants: ammonia, biological oxygen demand, faecal coliforms, oil and grease, total nitrogen, total phosphorous, total suspended solids divided by the count of WRRFs facilities with concentration limits, represented as a percentage. Limits refers to the Environment Protection Licences.	EPA: Environment protection licence reporting
Pollution and environmental harm incidents: Number of pollution incidents or other incidents that cause, or have the potential to cause, environmental harm, mainly as a result of wastewater treatment and network incidents. This also includes other incidents such as water discharge, vegetation or heritage impacts.	**Maintain** pollution and environmental harm incidents consistent with recent average-weather performance.	Notifiable material harm wastewater incidents (networks) + notifiable material harm wastewater incidents (treatment) + notifiable material harm incidents (water) + notifiable material harm (stormwater incidents) + other (for example, air, vegetation and land). These totals are all of the actual and potential notifiable environmental harm incidents by Sydney Water or our contractors reported to the appropriate regulator. Note: Sydney Water uses the definition of material environmental harm defined in legislation and published by the NSW EPA. It includes incidents that cause actual or potential harm to the health or safety of human beings or to ecosystems where that harm is not trivial or results in actual or potential loss or property damage of an amount over $10,000. Sydney Water is required to report actual and potential environmental harm incidents to the EPA. The severity of environmental impact can vary between incidents. Incidents we count can include wastewater overflows where there is potential for environmental harm but no evidence of waterway impact. We also count incidents where actual environmental harm, such as pollution of waterways or vegetation impacts, is observed. Bands of variability have been incorporated to represent impact of weather variability.	EPA: Environment protection licence reporting IPART: E3 – Total number of controlled wastewater overflows that occur in dry weather that are discharged to the environment, per km of sewer main IPART: E4 – Total number of uncontrolled wastewater overflows that occur in dry weather that are discharged to the environment, per km of sewer main NPR: IA14 – Number of sewerage main breaks, leaks and chokes
Volume of recycled water available: Volume of our recycled water that is available for supply including treated wastewater and harvested stormwater (GL/year).	**Improve** the volume of recycled water available for supply by increased recycled water from treated wastewater and harvested stormwater and reduce water loss to the environment.	This is a measure of the sum of Sydney Water's production of recycled water over a 12-month period. This recycled water (including treated wastewater and harvest stormwater) may be provided for on-site use, recycled water for customer use, recycled water for environmental and agricultural use, and PRW for customer use.	NPR: W26 – Total volume of recycled water supplied IPART: E5 – Estimated total mass of biosolids produced by the water utility IPART: E6 – Percent of solid waste recycled or reused expressed as a percentage of solid waste generated NPR: E8 – Percentage of biosolids reused

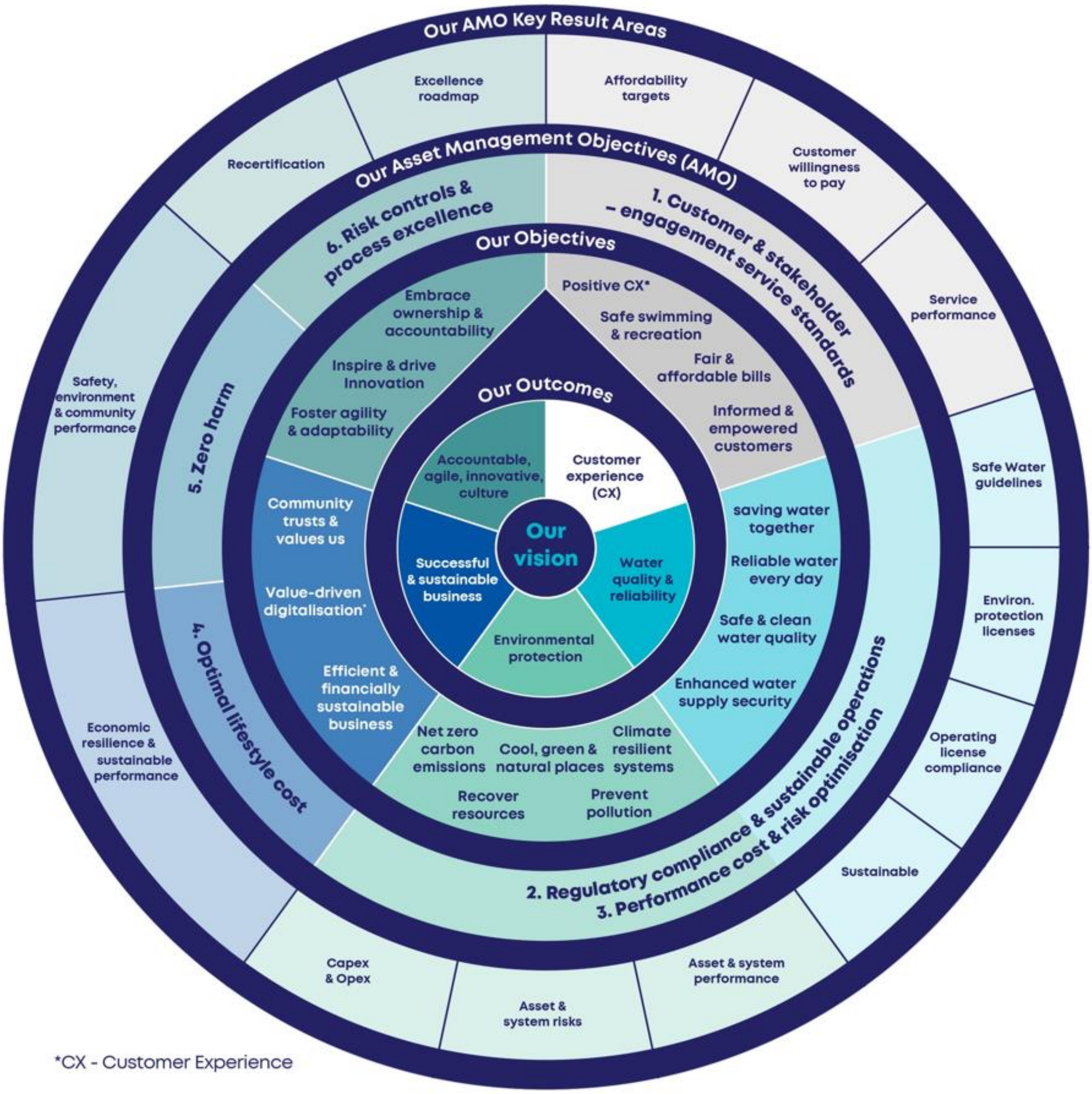
Performance measures	Target aim	Measure calculation	Type of related public reporting OL = operating licence 2024-2028, IPART = IPART performance indicators, NPR = national performance report indicators
Natural area and green infrastructure land actively managed: Percentage of Sydney Water land area with natural values and green infrastructure that is actively managed.	**Improve** active management of our land with natural areas to provide environmental and ecological outcomes, even as we increase our asset base through new stormwater drainage lands.	Total area of Sydney Water sites that have natural values that are actively managed, divided by total area of all Sydney Water sites that have natural values. 'Natural values' means an area of land with formally recognised natural values or functions identified in a study or plan of management (including green infrastructure). 'Actively managed' means the area of land with a formal set of management activities in place to maintain the natural values or functions. For example, it includes a funded Property Environmental Management Plan (PEMP) site or drainage/bushland site that has a clear management plan and allocated funding and implemented.	IPART: E8 – Total area of clearing of native vegetation IPART: E9 – Total area of native vegetation rehabilitated, including due to replanting, weeding and protection by the water utility IPART: E10 – Total area of native vegetation gain due to rehabilitation, replanting, weeding and protection by the water utility
Net zero carbon emissions (tCO_2-e): Volume of Scope 1 and 2 carbon emissions (CO_2-e tonnes per year where CO_2-e refers to 'carbon dioxide equivalent').	**Improve** by continuously reducing the net carbon emissions from our operations, to achieve net zero carbon emissions from 2030.	The net zero carbon measure tracks Sydney Water's carbon emissions reduction towards zero. The net zero carbon target is 2030 across Sydney Water's operations and 2040 in our supply chain. The measure is reported in tonnes of CO_2-e, where CO2-e refers to 'carbon dioxide equivalent'. It is a metric that allows different greenhouse gases to be converted to equivalent CO_2 emissions and bundled together and expressed as a single number. CO2-e includes: • **Scope 1 emissions:** Direct emissions from our operations; for example, plant operations (fugitive), fleet and fuel. Scope 1 emissions counts purchased offsets and the electrification of our vehicle fleet. • **Scope 2 emissions:** Indirect emissions from the purchase of grid electricity and electricity use. Scope 2 counts grid decarbonisation and our self-generated renewables (where renewable energy certificates are surrendered) and a power purchasing agreement (PPA) to offset electricity with renewables while the grid decarbonises. • **Scope 3 emissions:** These are indirect emissions from upstream and downstream, including supply chain and other operations such as employee travel and commuting. (These are reported separately and not included in the Sydney Water 2030 pathway, but some supplier engagement has commenced.)	IPART: E1 – Total energy consumption by the water utility (electricity, fuel and gas) in units provided on energy bills IPART: E2 – Electricity consumption from renewable resources or generated by the water utility expressed as a total percentage of electricity consumption IPART: E11 – Progress towards achieving net zero emissions NPR: HE_N1 – Total greenhouse gas emissions reported under the NGER scheme NPR: HE_N2 – Greenhouse gas emissions reduction target/s
Climate risk maturity health check: Enterprise-scale level of climate risk management maturity, rated through the NSW Climate Risk Maturity Health Check Tool.	**Improve** our systematic level of climate risk management maturity over time in line with new operating licence requirements.	Climate risk maturity is rated through the NSW Climate Risk Maturity Health Check Tool. It is part of the NSW Government's *Climate Risk Ready NSW Guide*. Currently Sydney Water has self-assessed, but assessment is likely to be conducted independently in the future.	OL: Climate-related disclosures

Appendix 4 Asset management

Asset management objectives

The three customer outcomes, covering customer, community and environmental outcomes, and are shown in the wheel below, which translates customer outcomes to asset management objectives and the key result areas to achieve our vision. Sydney Water will work in partnership with our communities to deliver these aims, and we will need to embed resilience along the way. Sydney Water has also identified two internal enabling outcomes for the effective delivery of our customer outcomes, centred around strong financing and governance, and empowered people. This is further outlined in Sydney Water's Strategic Asset Management Plan (SAMP).

Figure 4.1: Our asset management objectives



Asset management planning

Our robust renewal and maintenance plan is built upon delivering what stakeholders require. It is largely dependent on the performance and risks to the assets, and it is reflected in a suite of outputs that measure:

- safety in the context of risk to the public and to our employees
- reliability of the water and wastewater network
- the impact of our assets on the environment
- customer satisfaction.

Delivering stakeholder expectations is complemented by a suite of legal obligations we need to meet. We have developed a new and innovative asset management strategy that takes all of this into account to deliver a risk-based approach across each of the asset groups and builds in:

- asset performance, measured in terms of historical failures including repeat failures
- asset health, an illustration of where an asset is along its life span, when it approaches the end of its life
- probability of failure (PoF), resulting from poor 'health'
- consequence of failure (CoF), measured in terms of the outputs that affect stakeholders.

Our structured approach is designed to deliver value for money for current and future customers by helping us to determine the right intervention on our assets at the right time to deliver the outputs stakeholders require, noting that expenditure and outputs are inextricably linked. **Figure 4.2** is designed to explain the capex and opex trade-off decision-making to define the appropriate intervention at the right time to ensure we deliver the outputs stakeholders require.

Figure 4.2: Capex and opex trade-offs

Capex and Opex trade-off approach

↓CoF PoF→	1 Rare	2 Very Unlikely	3 Unlikely	4 Possible	5 Likely
6 Extreme	Medium - 3	High - 4	High - 4	Very High - 5	Very High - 5
5 Critical	Medium - 3	Medium - 3	High - 4	High - 4	Very High - 5
4 Major	Low - 2	Medium - 3	Medium - 3	High - 4	High - 4
3 Moderate	Low - 2	Low - 2	Medium - 3	Medium - 3	High - 4
2 Minor	Low - 1	Low - 2	Low - 2	Medium - 3	Medium - 3
1 Minimal	Low - 1	Low - 1	Low - 2	Low - 2	Medium - 3

Risk based Capex (rows Extreme–Critical)

Performance based Capex (rows Major–Minimal)

Reactive and Planned Maintenance Opex (columns Very Unlikely–Likely)

The size, value and characteristics of the asset group, together with any internal or external drivers for change, will generally determine the materiality of the business case and the level of planning effort required in the analysis. When assessing the need for investment in the operation, maintenance and improvements of our asset base, the estimation approach differs according to asset characteristics. We have divided our asset portfolio into three distinct categories that correspond with assessment approach, namely: treatment facilities, network facilities, and linear pipes. Methodologies for assessing forward-looking investment requirements for our water and wastewater long-life and shorter-life asset groups are described in **Chapter 4**.

Infrastructure risk management

Our risk management approach consolidates our improved understanding of the probability and consequence of asset failures to forecast maintenance and renewals we will need to carry out over the next decade. These forecasts determine the expenditure we propose to efficiently sustain an appropriate level of current and future services.

Over the period, we have sought to move from traditional, age-based assessments of asset life to a system-wide approach that more accurately accounts for current and forecast asset health. To achieve this, we have developed health-based risk management models.

These models combine asset information, engineering knowledge and practical experience to define risk indicators. This includes current and forecast performance, predicted useful life, probability of asset failure, and consequence of failure. This is used to determine the benefit of and the need for replacement and/or maintenance.

The risk management processes embedded in our business ensure we have a Board-to-shopfloor focus on risk management and support effective asset management and investment decision-making.

Figure 4.3: Our infrastructure risk management processes

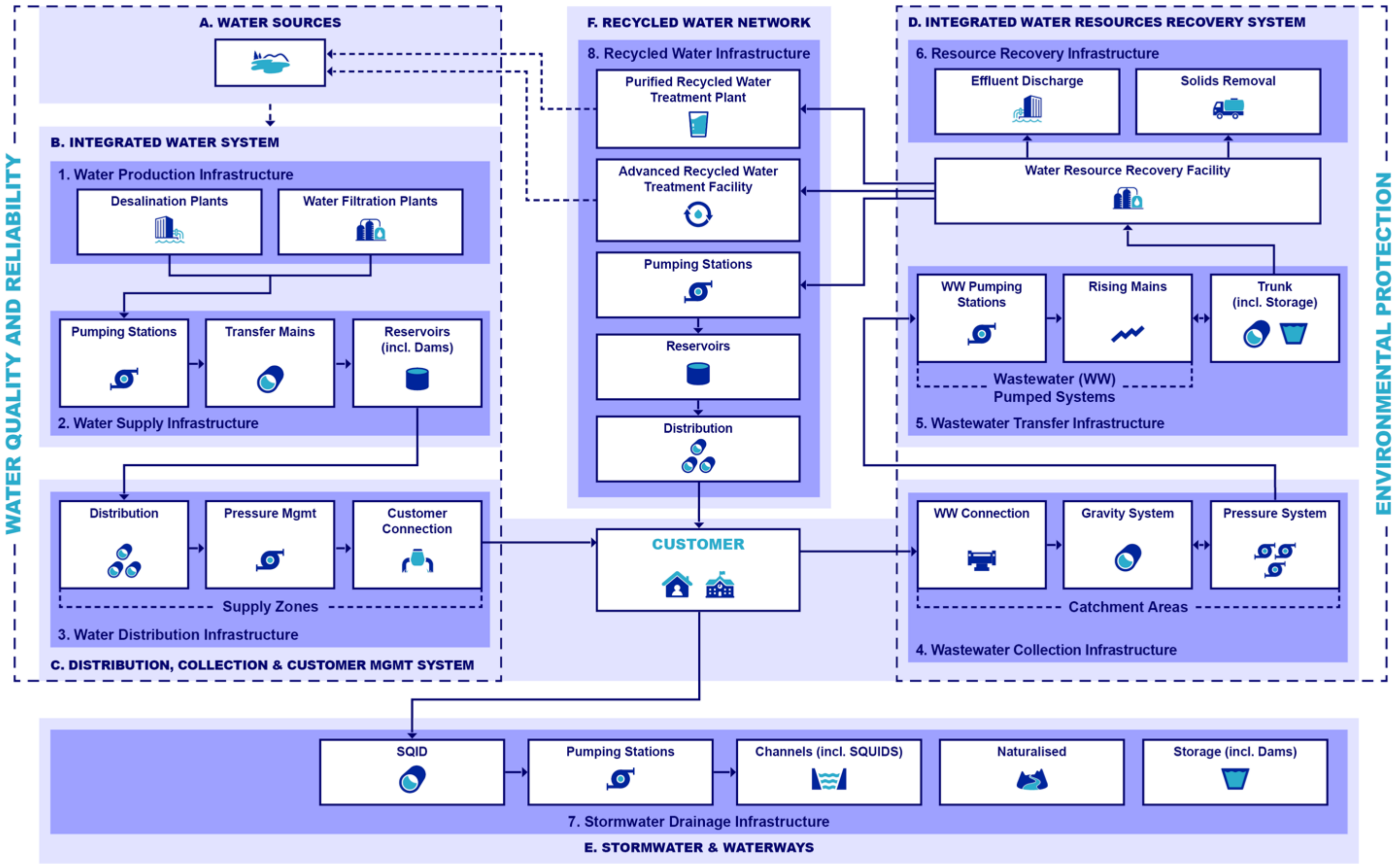
Infrastructure strategies

Each Infrastructure strategy provides guidance on the key strategic concerns to support decision-making for short- and long-term performance at the appropriate level of risk and at lowest cost to customers. These strategies outline the importance of managing each infrastructure unit as a system of assets, where the net value of the system is prioritised, rather than the operation of specific assets within the system.

In keeping with this approach, the performance requirements outlined for each Infrastructure unit are specific to the value each unit contributes to the business, and represent the combined value generated by each element (for example, assets, facility, subsystem) to ultimately provide service to customers.

These strategies provide guidance to the Operational Service Planning function and help support the ongoing development and deployment of the Service Delivery function. The strategies will align with the System Configuration Plans, which will outline how service requirements will be met with future system infrastructure, ensuring consistency across different planning horizons. The infrastructure that supports the three core customer outcomes is divided into eight systems (see **Figure 4.4**), each supported by a specific infrastructure strategy.

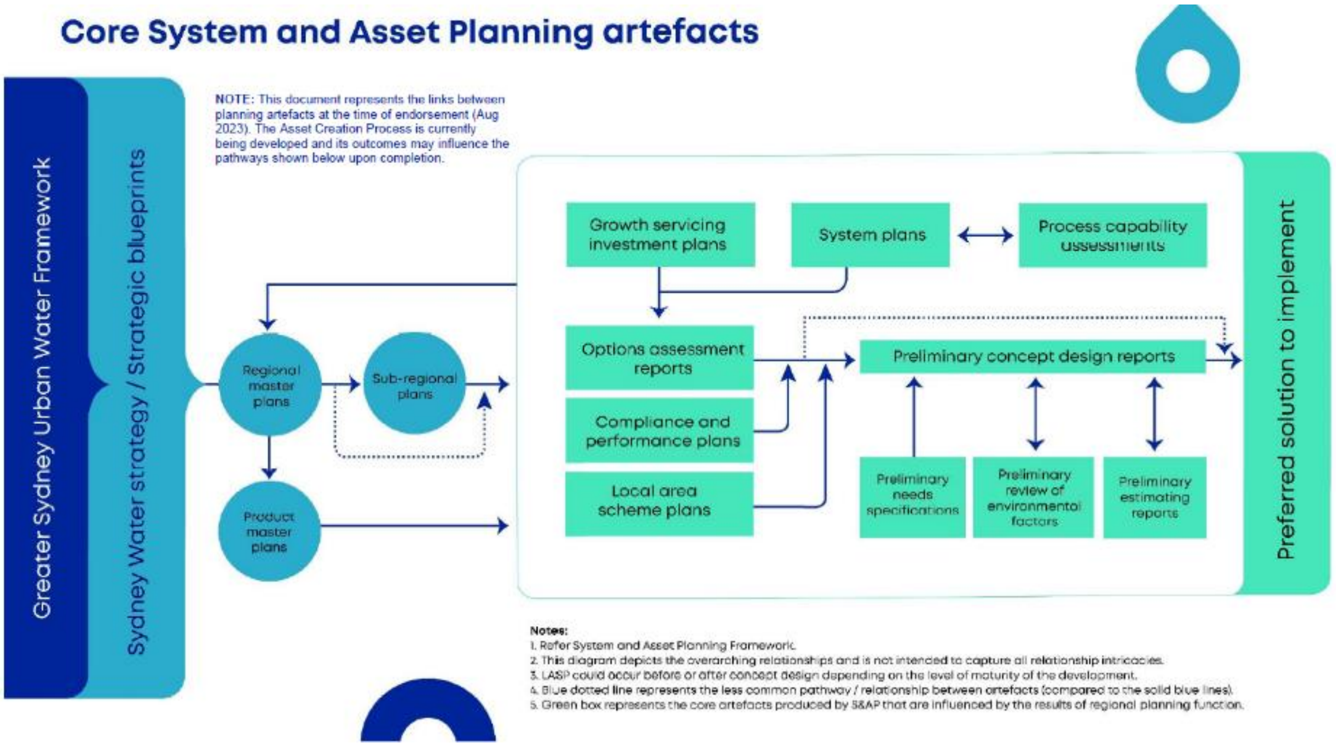
Figure 4.4: Infrastructure strategies



System and asset planning

Figure 4.5 shows the relationships between the different system and asset planning artefacts that identify current and future service needs (such as growth, resilience, reliability, compliance, energy, and net zero carbon) and provide the basis of our infrastructure service strategies and plans.

Figure 4.5: System and asset planning artefacts



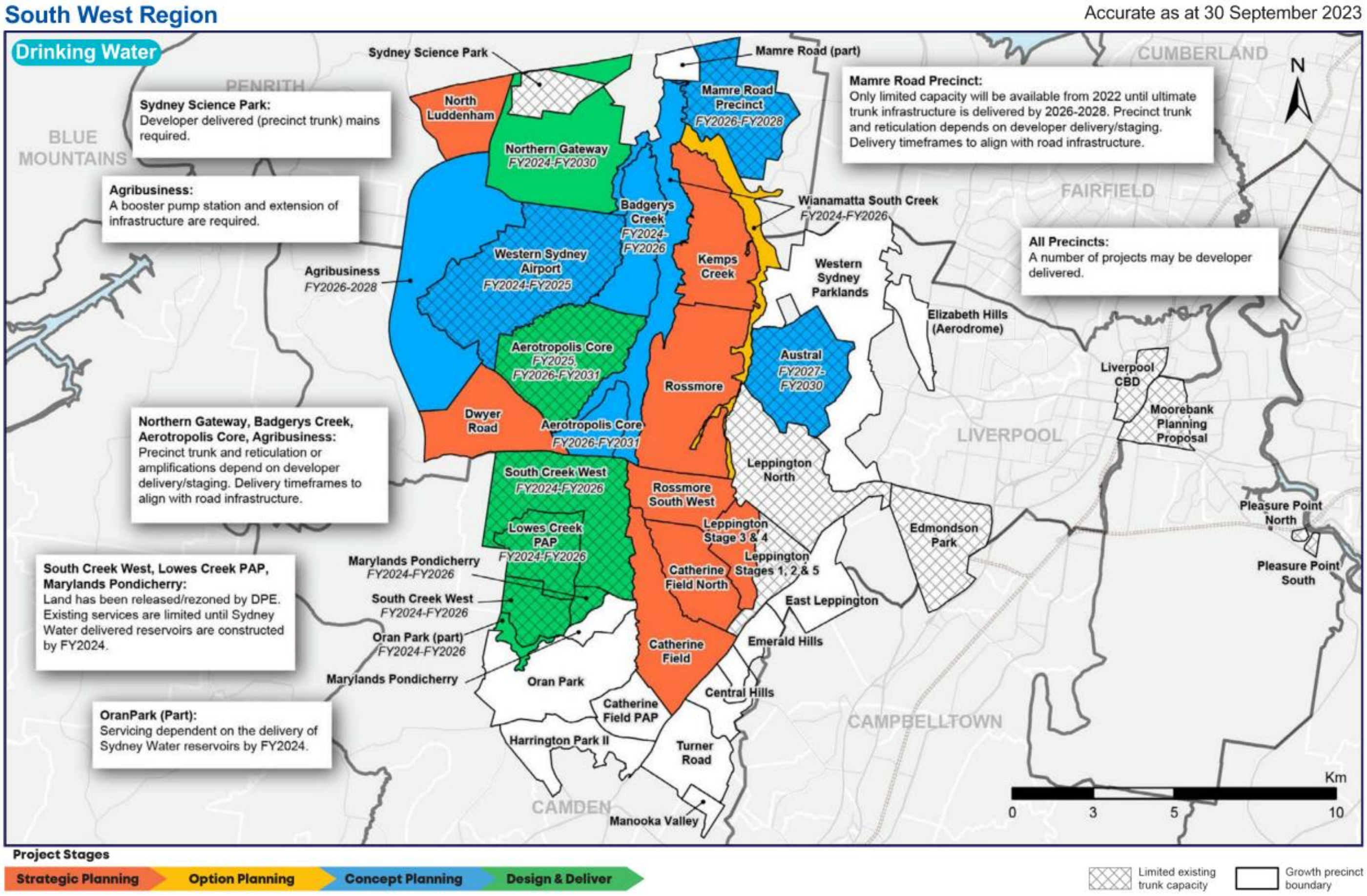
Growth Servicing Plans

Each precinct has its own service commitment dates for when new or upgraded assets will be delivered to facilitate expected growth. We have committed to several precincts to be serviced by 2030, driving the increase in investment required across the next five years. These include key precincts across the Western Sydney Aerotropolis and South West Region, Wilton, Calderwood (the Illawarra), North West Sydney, and Greater Parramatta to Olympic Peninsula.

Our Growth Servicing Plans (GSPs) are published annually, to show the expected availability of water- and wastewater-related infrastructure over the next five to 15 years across the major greenfield and infill areas. In publishing the GSPs, Sydney Water requests the support of the developers to inform on their own plans through the Developer Services or Commercial Agreements teams, as this will support Sydney Water to deliver the right services at the right time.

Each GSP is developed based on the outcomes of LTCOP directions, regional master plans and subregional master plans. They are also reliant on the outcomes of the different System Plans for wastewater and water, and the Growth Servicing Investment Plans (GISPs).

Figure 4.6: Example of water servicing – South West Growth Area



How we develop our Growth Servicing Plans

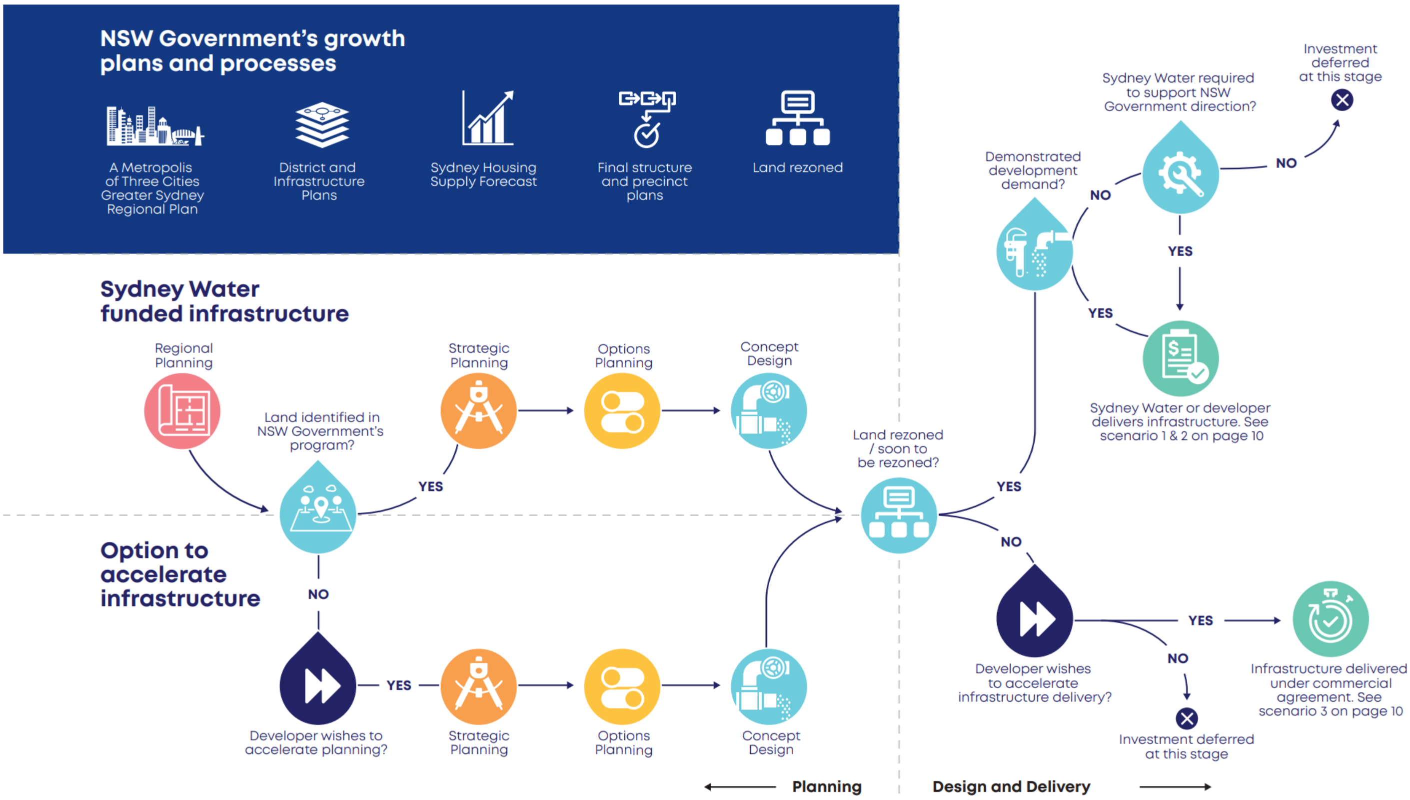
We plan delivery of our services to align with the NSW Government's land release program. Our main guide is the DPHI's lot and dwellings projection forecast, but we also consider:

- NSW Government benchmarks for zoned and serviced land
- subregional analysis of greenfield areas
- development applications activity and dwelling completions
- comparison of annual completion rates to the corresponding dwelling production forecast
- the capacity of existing infrastructure in infill areas
- the level of land fragmentation in greenfield areas
- intelligence from industry stakeholders
- macro-economic trends.

We make investment decisions that are financially prudent, so the timing or our infrastructure investments is critical. Any new infrastructure we fund; Sydney Water will ensure it is substantiated by demonstrated development demand with high certainty of delivery and timing. Our process balances a range of government plans and policies with developer insights to ensure that these investment timings are prudent and timely.

Sydney Water planning and delivery aligns with the NSW Government's land release, with options for developers to accelerate the infrastructure. The diagram below provides an overview of how this alignment works:

Figure 4.7: Responding to growth investment needs in a structured and timely manner



Each **GSP** is developed based on the outcomes of **LTCOP directions, regional master plans and subregional master plans**, also they are reliant on the outcomes of the different **System Plans** for wastewater and water and the **Growth Servicing Investment Plans.**

Long Term Capital and Operational Plan

The LTCOP is an adaptive plan that captures Sydney Water's key infrastructure and operational decisions to 2050 as a response to the Greater Sydney Urban Water Framework. Our plan is aligned with the NSW Government's vision for Greater Sydney and our customer values, both of which actively inform our investment choices. This plan provides the long-term context for future pricing submissions to IPART.

We balance cost and risk in an adaptive plan to ensure it always reflects what our customers expect of us and will support the growth and resilience of Greater Sydney for the next 25–30 years.

Growth Servicing Investment Plan

The GSIP is a strategic assessment of the existing network capacity to cater for current and projected future flows. It identifies gaps based on the latest growth projections and determines strategic solutions to meet performance criteria while servicing growth. The GSIP is not a detailed assessment of the strategic solutions, so it does not consider multiple options and optimisation to solve capacity issues. It focuses on providing an insight into the short-, medium- and long-term strategies and the indicative capital investment plan. The strategies developed are directly dependent on current intelligence about growth and consumption rates.

System Plans

The System Plans facilitate optimal short-term investment decisions in the context of longer-term strategy. A detailed five-year investment plan is developed in consideration of longer-term potential futures to address current and future drivers, such as capacity constraints, growth, renewals, reliability and compliance as well as long-term strategic drivers.

The plan identifies intersection points or synergies between multiple drivers (growth, renewal, reliability and compliance) as optimisation opportunities, and increases our ability to integrate programs of works. Aligning multiple drivers allows for efficient expenditure and provides a holistic view of potential solutions instead of implementing solutions to address one driver at a time.

Regional master plans

Regional planning translates the Sydney Water Strategy and directions (the 'what') into long-term investment needs (the 'how' and the 'when'). It considers growth, integrated water cycle management and other strategic drivers – such as resilience, climate change and adaptation – to develop best-value economic outcomes for Sydney Water and its customers and communities. The economic benefit to cost ratio, flexibility and adaptability are the main tools for the development of these plans.

Figure 4.8: Key planning artefacts that informed each Growth Servicing Plan and investment programs

	Investment Programs	Growth Servicing Plans	Regional Master Plans	Sub Regional Plans	Wastewater System Plans	Water system plans
Long Term Capital and Operational Plan Water Master Plan Wastewater Master Plan	Illawara	Illawara	Illawara Master Plan	n/a	Wollongong (Including Bellambi and Port Kembla) Cronulla Bombo	Illawarra Water System Plan Woronora
	Central and Eastern	Central and Eastern (Bays Precinct Sydenham to Bankstown metro (Eastern city and Metro) (GPOP Epping to St Leonards)	Eastern Sydney Master plan Central city Master Plan	GPOP Epping To St Leonards Eastern Sydney Sydenham Bankstown	Malabar (including Fairfield, Liverpool, Glebfield) Bondi North Head	Prospect East Ryde Potts Hill
	NWGA	NWGA (Northwest Region MWN Redbank)	Western Sydney Master Plan	Metro Northwest Growth Area Northwest Area Servicing Strategy	Castle Hill Rouse Hill Riverstone Richmond North Richmond Winmalee Warriewood West Hornsby Hornsby Brooklyn	Prospect North Ryde Warragamba North Richmond
	GPEC	GPEC (Orchard Hill Glenmore) Infill	Western Sydney Master Plan	GPEC GPEC (Orchard hills)	Penrith St Marys (AWTP) Quakers Hill	Cascade Orchard Hill Prospect south
	WSAGA and SWGA	SWGA (Austral to agri and south Creek)	Western Sydney Master Plan	WSAGA and SWGA	Malabar (including Fairfield, Liverpool, Glebfield) West Camden Wallacia	Prospect south Orchard Hill
	GMAC	GMAC (Glenfield to Wilton, Picton and Appin)	Greater Macarthur Master Plan	Greater Macarthur	Wilton Malabar (including Fairfield, Liverpool, Glenfield) Picton	Nepean Macarthur

Optioneering planning

The optioneering stage is a critical stage in the broader planning framework. It aims to identify and recommend the most effective servicing options or plans to enhance system performance or optimise new or existing assets. This stage ensures prudency and efficiency in investment by conducting a thorough evaluation of potential options, including risk assessments, stakeholder engagement and cost-benefit analyses. The process involves developing a problem statement, generating and evaluating a long list of options, and refining these into a preferred solution or option through workshops and detailed analysis. This structured approach ensures that the chosen option is cost-effective, constructable and aligned with regulatory requirements and strategic objectives.

Concept design

Concept design links optioneering stage to the delivery phase, as planning is progressed while ensuring the key planning outcomes are maintained and upheld. It provides further development and de-risking of the preferred planning outcome or option by incorporating feasible and practical design solutions, and determining asset locations, size, sequencing and specific delivery timeframes. It also investigates opportunities for value engineering and new construction methodologies to maximise the benefit to cost ratio.

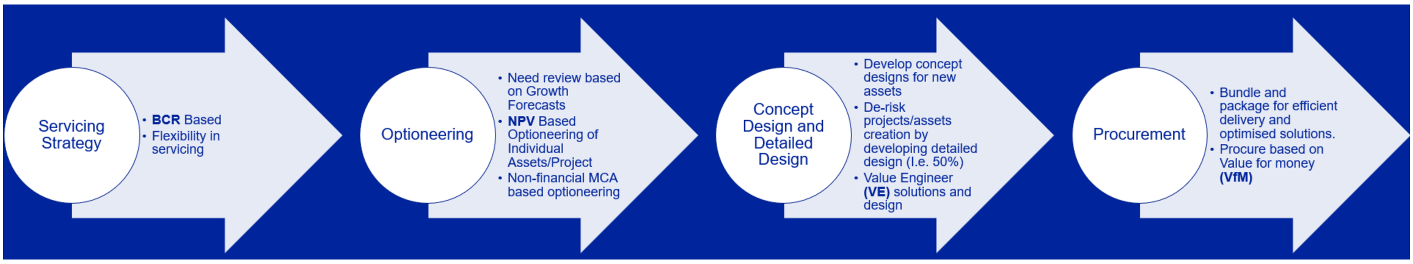
Committing to delivery

Sydney Water will invest to deliver only based on high-confidence growth forecast data. That includes approved Development Applications (DAs), pre-DA referrals and developer intent, to inform in planning for near-term capital investments.

Growth investments are only made once projects have gone through the business case development, assurance and governance process to ensure our final investment decision is prudent and efficient.

The delivery is supported by procurement policy that outlines the principles and requirements for ethical and equitable procurement activities to achieve the best commercial outcomes. It applies to all staff involved in procurement and emphasises: value for money, fair and open competition, ease of doing business, and innovation; and contributions to economic development, social outcomes and sustainability. It aims to support strategic objectives and deliver high-quality services at affordable prices while maintaining transparency, probity and fairness.

Figure 4.9: Prudent and efficient growth servicing through all stages of development



Appendix 5
Key long-term planning choices and alignment with our 10-year plan

Our Long Term Capital and Operational Plan (LTCOP), discussed in **Chapter 5** presents our position on 10 'key choices'. It reflects a least-regrets pathway that addresses future challenges in the longer-term interests of our customers. The process of long-term planning is not static. The analysis and the choices will be updated at intervals, and investments it has influenced will be re-visited when there is new information. The LTCOP itself does not provide approvals. Any investments identified are still required to go through the relevant business case, assurance and approval processes.

In this context, the LTCOP is essential to informing the capital budgeting process and our price proposal. While the key LTCOP choices set the direction for the 2025–30 and 2030–35 expenditure requirements, the 'adaptive pathways' approach retains flexibility so that directions can be refined or changed with new information and analysis.

Table 5.1 shows how the LTCOP's key choices have influenced the forecast and the Price Proposal, particularly in the first five years to 2030. Material investments influenced by these choices are also identified (noting that some of these have other drivers too).

Table 5.1: Major investment aligning to LTCOP choices and how they support the delivery of customers' outcomes

Choice	Customer priority	Recommended option and action	Performance, cost and risk insights from customers	How this is incorporated into our 5- and 10-year capex proposal	Key investments
Enable the government's growth ambitions (~30-40% of capital expenditure to 2050)					
1. How we enable and respond to growth (water and wastewater)	Customers expect Sydney Water to consider the future needs of Sydney, to ensure existing benefits to customers continue to be enjoyed with continuing population growth.	Work with Department of Planning, Housing and Infrastructure (DPHI) and other key stakeholders to improve growth sequencing, ensuring best outcomes for potential home buyers with respect to both cost and availability of services. Implement infrastructure contributions that reflect the true cost to service growth.	We have an opportunity to plan and sequence growth in a way that services more dwellings than the current developer-led program, for nearly half the current water and wastewater cost per customer.	Our growth capital forecast balances the need to service new connections while being mindful of bill impacts on existing customers. On one hand, our process ensures that possible growth needs are considered and planned for, even where there is uncertainty about timing or magnitude. On the other hand, decisions to construct new assets are only taken when there is sufficient certainty about new connections. The 'delivery' part of the forecast is significantly reduced based on a range of uncertainty factors. Growth planning proceeds without including the costs of delivering all possible investments. Portfolio management processes then support flexible responses 'within period'. This latest revenue forecast also takes account of infrastructure contributions. These reduce the customer bill impact of growth. Sydney Water does not choose where growth occurs so there is ongoing government and industry stakeholder engagement to inform and support development prioritisation and phasing.	**Growth programs and projects (water)** Total (2025–30): $4,216 million Total (2030–35): $3,069 million **Growth programs and projects (wastewater and stormwater)** Total (2025–30): $6,170 million Total (2030–35): $5,821 million

Choice	Customer priority	Recommended option and action	Performance, cost and risk insights from customers	How this is incorporated into our 5- and 10-year capex proposal	Key investments
Water Quality and Reliability (Deliver safe water for new and existing customers to protect public health (~5% of capital expenditure to 2050)					
2. Timing of upgrade to manage very poor raw water quality	Maintaining safe and clean drinking water (1) Reducing the chances of your drinking water occasionally smelling or tasting different (9)	Improve water filtration plants' (WFPs') resilience to poor raw water quality by 2030 on a prioritised basis. Upgrade WFPs to service new customers reliably.	Customers expect Sydney Water to consistently provide access to safe, clean water. Ensuring that current standards do not slip was a high priority for customers.	The investment program plans to address this with upgrades and/or the addition of pretreatment, prioritising the water systems with the highest risk. The priority for 2025–30 is the high-risk systems including Prospect, Cascade, Orchard Hills and Nepean. Others will be reviewed and prioritised on a need-by-need basis.[93] Each investment will have a dedicated business case to assess the best option and solution to manage raw water quality risk and consider growth and Australian Drinking Water Guideline (ADWG) implications. These will go through both Sydney Water and external Infrastructure NSW (INSW) assurance and approval where relevant. Expenditure forecasts have been both moderated and deferred within the investment program to account for need, certainty and deliverability risk.	**Water quality – pretreatment program** $1.0 billion over 2025–30; $1.4 billion across 10 years, 4% of total capital expenditure. • Prospect (2029) -: $599 million – in procurement (2029) • Orchard Hills: $219 million – in final DABC stage (2028) • Nepean: $102 million – in delivery (2027) • Cascade: $70 million – in delivery business case stage (2028) • Other pretreatment: $737 million – early planning and business case development (2026–2035)
3. Timing to meet future ADWG requirements		Address new disinfection by-products requirements when required to do so. Assume implementation program of at least 5 years will be agreed with NSW Health.		No specific provision Given significant uncertainty, no provision for asset construction has been made in the 2025–30 forecast.	The various planned and in-progress pretreatment investments (above) are likely to assist with compliance, depending on exactly what work is carried out and how the ADWG is updated.

93 For example, North Richmond, Warragamba, Illawarra and Woronora

Choice	Customer priority	Recommended option and action	Performance, cost and risk insights from customers	How this is incorporated into our 5- and 10-year capex proposal	Key investments
Deliver new water supply for new and existing customers to provide reliable drinking water every day (10~40% of capital expenditure to 2050)					
4. Triggers to build water supply	Enhancing the water network's resilience to drought (4) Reducing water loss by minimising leaks and breaks (5) Increasing water savings and reducing usage (6)	Build new supplies that enable supply resilience though diversification, while also ensuring we have time to progressively augment with new supplies to minimise likelihood of severe restrictions. This includes immediate investment in about 250 ML/d additional desalination capacity and progressing planning for other projects. Purified recycled water (PRW) projects would be implemented within a 10-year timeframe to realise avoided costs.	Customers were supportive of a medium low-risk profile that required Sydney Water to invest in new water supply options. Customers would also continue to conserve water at current levels, however, would be open to enhanced water conservation efforts if supported by Sydney Water to reduce the risk profile further. Customers want Sydney Water to improve the resilience of Greater Sydney's water supply and reduce the frequency and duration of severe water restrictions. Investing in new supply now will address the current shortfall in sustainable supply to meet average demand and will reduce the risk of restrictions and water supply failure in drought. The additional supply will slow depletion of the dam storage during a drought, providing some additional time to construct new supplies.	Investments expected before 2030 create a time buffer so that drought responses can be well considered. The forecast to 2030 includes immediate investment in network upgrades to facilitate the use of ~250 ML/d of new desalination capacity. PRW projects will also be initiated, starting with Quakers Hill, with required and associate network to Prospect.	**Resilient and reliable water supply (RRWS) program** $1.3 billion during 2025–30; $2.7 billion across 10 years • Sydney Desalination Plant – network expansion (2025–2030): $920 million – in planning • Quakers Hill PRW stage 1 : $531 million – in planning (mostly 2025–30) • Prospect works: $216 million in planning (mostly 2030–35) • Quakers Hill PRW stage 2, Liverpool/Glenfield and Camellia: $694 million – in planning (mostly 2030–35, will extend post 2035)
5. Water supply available during deep drought ('enduring supply')		Deliver enduring supply to satisfy minimum restricted demand over time (approximately 60% of normal total demand), through planned supply augmentations and drought triggered investment. Full implementation of this target represents a very high cost. Pre-investment with a climate triggered approach provides substantive risk mitigation and opportunity for	Customers want Sydney Water to seek out improvements where possible, but to not 'go overboard' and chase higher levels of service. Customers said that Sydney Water should increase its efforts to educate the public on how to reduce their water usage. Customers acknowledged the need to invest and the associated impact on bills, particularly when considering the	There are no specific provisions in the price proposal. Analysis and planning in relation to long-term water supply security will continue as a matter of course, supported by the time buffer created (above).	Additional investments for enduring supply are not included in expenditure proposals.

Choice	Customer priority	Recommended option and action	Performance, cost and risk insights from customers	How this is incorporated into our 5- and 10-year capex proposal	Key investments
		moderation of the investment profile to 2050. Achievement of this level of supply with rainfall-independent sources will significantly reduce the risk of water supply failure during drought and will provide enough time to build another supply if needed. This target does not mean we would not continue to build more supply during severe or prolonged droughts.	current economic climate and rising living expenses.		
6. Approach to water system nodal resilience		Implement a combination of investments to minimise single points of failure, additional rainfall independent supply, interconnect systems, digital investment and enhance emergency response. This provides an optimised mix of investment to minimise economic and social impacts if key assets were to fail, addresses highest asset reliability risks and ensures key nodes have a form of additional supply or alternative pathway in case of failure. It aligns with upgrades related to raw water quality, and balances new supply across prioritised systems. It also reduces cyber security threat, although no civil infrastructure solution resolves this fully.	Customers identified their preferred risk settings over the longer term to ensure we adopt a medium- to low-risk profile in the delivery of water and wastewater services.	This planning provision is only to 2035 as part of RRWS – resilience links and critical points of failure planning for 2034+ in the implementation timeframe. Given timing is still subject to change and 8–10 years from now, and that the program is still in development, provision for it is not included in the forecast to 2035. More detailed planning will proceed.	RRWS – resilience links and critical points of failure (planning funding only to 2035)

Choice	Customer priority	Recommended option and action	Performance, cost and risk insights from customers	How this is incorporated into our 5- and 10-year capex proposal	Key investments
Environmental protection (Deliver upgrades to our wastewater services for both new and existing customers to protect our waterways and environment) (~5-10% of capital expenditure to 2050)					
7. Timing and approach to compliance with current wastewater treatment plant licence requirements	Ensuring waterways and water recreation areas remain clean and safe to use (3) Improving natural waterways and habitats (7)	Work with the NSW Environment Protection Authority (EPA) to review selected Environmental Protection Licence clauses (EPLs) where environmental benefits are low, while progressing higher priority planned upgrades. Environmental performance is to be achieved by 2026. Some EPL conditions are based on historic performance rather than environmental outcomes. This approach focuses resources and investment where the most environmental benefit can be derived.	Customers were concerned that the current state is not acceptable, given EPA standards were being breached. However, customers were supportive of a medium-risk profile that would lead to about 90% of water resource recovery facilities (WRRFs) complying with key environmental performance standards (EPLs) within the next 5 years. Customers advocated strongly against activities that would increase the risk of poor performance.	Our Return to Green reporting framework brings together the relevant actions, including: • investments that seek to return to compliance • working with the EPA to refine EPLs in a way that provides the best environmental outcome per $ (e.g. reviewing extreme wet weather requirements) • offsets activities – working with third parties to reduce nutrient pollution for a lower marginal cost (opex).	Investment projects include: • West Camden stage 3 upgrade and amplification (current period): $229 million (2020–25) • Richmond / North Richmond upgrade: $102 million, (2020–25) • North West Treatment Hub (current compliance elements only): $216 million (2020–25) • Picton wastewater management: $166 million, – planning and development (2028).
8. Timing and extent of increased level of wastewater treatment at inland plants		Await further information on future requirements, but in the meantime, increase recycling in all forms where economically viable and investigate greater use of nutrient offsets. Timing and extent of future requirements is highly uncertain but expected to be well over 10 years away given the extent of monitoring and modelling required to support. Potential to scale up water recycling and offsets in the meantime.	Customers wanted Sydney Water to prioritise areas that were urgent and business critical and to seek out improvements where possible, but to not 'go overboard' and chase higher levels of service. Customers are willing to pay more on their quarterly bills to see an increase in the number of healthy waterways above current levels.	Some new regulation is in place, but others are not yet or are uncertain: • Stage 1 Concentration Limit Review – no investment in forecast. Limits set are based on historic performance, not environmental benefit so awaiting robust evidence-based stage 2 targets (see below) to determine value for money upgrades. There is engagement with EPA on interim proposals and license variations. • Stage 2 Concentration and Load Limit Review – no investment included in 2025–30 forecast. Environmental assessment is ongoing. There will be a 2- to 3-year lead-time to understand implications and investment plans will be considered after that. • Hawkesbury Nepean Nutrient Framework (HNNF) – capex projects that are already	Most material investments include: • Richmond / North Richmond upgrade: $67 million (to 2030) • North West Treatment Hub upgrade: $613 million (to 2030) • Upper South Creek Advanced Water Recycling Centre : $553 million (in period to 2030) • Greater Penrith to Eastern Creek (GPEC) wastewater and water growth servicing: $843 million (2032)

Choice	Customer priority	Recommended option and action	Performance, cost and risk insights from customers	How this is incorporated into our 5- and 10-year capex proposal	Key investments
				planned and in-progress are provisioned in forecast to respond to HNNF along with other drivers. Other potentially complex actions and their timing are subject to EPA negotiation (including start date). Some non-compliance is expected in the short term.	
9. Timing and extent of increased level of wastewater treatment at deep ocean outfall (DOOF) plants	Ensuring waterways and water recreation areas remain clean and safe to use (3) Improving natural waterways and habitats (7)	Proactively invest in solutions to remove flow and loads from coastal systems via recycled water and PRW in line with economic assessment,	Customers want to see waterways, including beaches, rivers and creeks maintained in their current state or improved. Customers are happy with the current state of the region's beaches and want Sydney Water to prioritise other areas that are urgent and business critical.	Wastewater treatment requirements at DOOF plants have not been changed. However, plans have progressed on investments that remove some flow and loads to coastal plants – pollution released at ocean outfalls will be less and the cost impact of high future treatment requirements reduced. These are all part of system-wide plans that span 10 or more years. Investments are proceeding on basis of economic analysis (estimated cost savings is $2 billion).	• Camellia Advanced Water Recycling Centre: $195 million to 2030, further $287 million 2030–35 • Malabar Near-Term Program: $541 million (to 2030) • Malabar Mid-Term Program: $624 million (2031+)
10. Extent of wet weather overflow reduction		Linear extrapolation of current wet weather overflow abatement (WWOA) program, which is focused on source control (an estimated additional 26% volume reduction between 2024 and 2050). Program aligned with current EPA expectations. Improved benefits compared to expensive storage solutions, although this takes longer to implement. There is a risk that benefits will be more difficult to realise as areas with highest stormwater ingress are addressed earlier.	Customers were supportive of a medium cost, risk and performance profile to prevent pollution. This included reducing the volume of wet weather overflows to current performance.	Provisions are included in the latest capital forecast, split between the WWOA program (to reduce current high-impact overflows) and growth investment programs (to mitigate impacts of growth).	• WWOA program: $242 million • Other WWOA-related growth investments: $437 million)

Appendix 6.1 Infrastructure growth summary

Western Sydney Airport and South West growth areas

The Western Sydney Airport Growth Area (WSAGA) and South West Growth Area (SWGA) are two of the fastest growing growth areas in Sydney. These regions cover 270 square kilometres of predominantly greenfield area with some brownfield development. To cater for this increase in demand, investment of $4,155 million (20 per cent of total infrastructure growth expenditure) is required within the next 10 years to expand and amplify water and wastewater network and treatment plants.

Investment in the WSAGA and SWGA includes more than 250 kilometres of new trunk and main network, 39 new water and wastewater pumping stations, upgrade of treatment capacities at Liverpool and Fairfield water resource recovery facilities (WRRFs), and the completion of stage 1 construction and development of stage 2 of the new Upper South Creek (USC) Advanced Water Recycling Centre (AWRC).

These investments will service 70,000 additional dwellings and 300,000 new jobs in the WSAGA by 2035, and 210,000 additional dwellings and 565,000 new jobs in the SWGA by 2056.

Figure 6.1.1: Western Sydney Airport & South West growth areas

Key major investments over the next 10 years include:

24. USC wastewater network, $1,408 million, 2026–34 (staged), delivery – wastewater network to transfer flows from the WSAGA and SWGA to the new USC AWRC, to meet updated growth forecast and provide services for 90,000 dwellings and 200,000 jobs by 2056. The USC network will achieve compliance to EPA in West Camden catchment by transferring flows from West Camden WRRF catchment to USC AWRC, reducing wet weather overflows to meet environment protection licence (EPL) compliance. Engineering, procurement and construction management (EPCM) procurement is underway. To be approved and delivered in tranches.

25 (a) & (b). USC AWRC and pipeline, $177 million, 2026 (stage 1), delivery – construction stage 1 of the USC AWRC. The USC AWRC is required to service the Western Sydney International Airport; treat wastewater flows that would put the Liverpool and West Camden WRRFs under severe operational pressure and increase the risk of non-compliant overflows; provide a reliable supply of recycled water to support the government's liveability vision around greening and cooling Wester Sydney; and improve the resilience of water supply in Sydney.

25 (c). USCAWRC, stage 2, $736 million, 2034, initiation – the USC AWRC's ultimate capacity of 80 ML/d to be delivered across two stages.

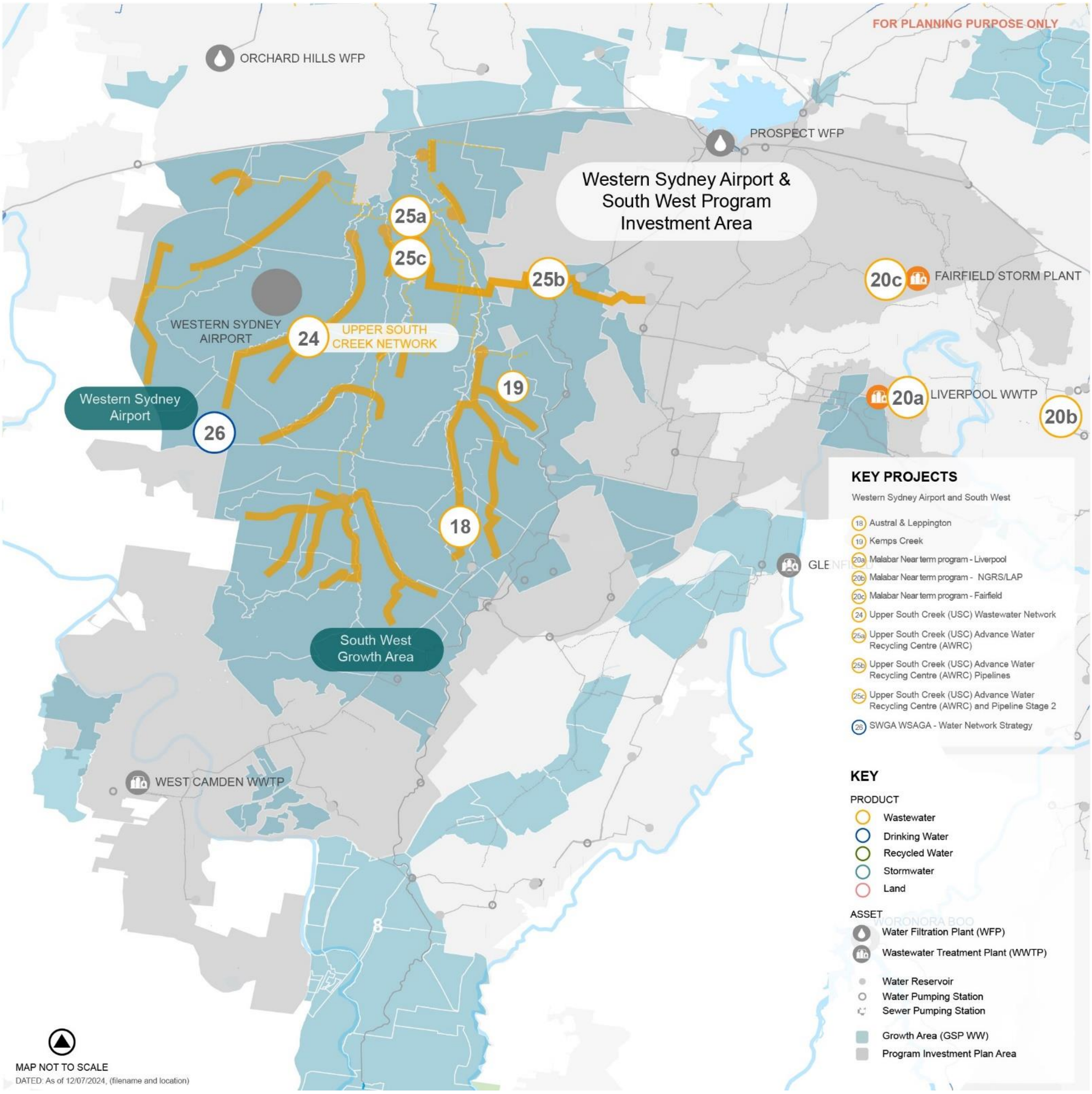
26. SWGA WSAGA water network strategy, $647 million, 2027–30 (staged), initiation – Program of work to deliver the drinking water network in the WSAGA and SWGA, required to enable growth over the next 15 years; will be delivered in two stages, the short-term servicing to 2031 and long-term servicing to 2056.

20 (a), (b), (c). Malabar near-term program – Liverpool, Fairfield, Northern Georges River sub-main (**NGRS)/Liverpool to Ashfield Pipeline (LAP)** – refer to Malabar System (page 393).

18. Austral Leppington, $182 million, 2027, delivery – Delivering the wastewater network in the eastern front of the SWGA and parts of the WSAGA. This project is expected to service around 38,000 new dwellings and is being delivered in multiple stages. Phase 1 was delivered in 2023 and has delivered service to approximately 1,700 dwellings. Phase 2 will provide further wastewater infrastructure by 2026 and provide service to 28,000 dwellings by 2036 and up to 38,000 by 2056.

19. Kemps Creek, $116 million, 2026, delivery – deliver the wastewater pipeline to transport the flows from Austral to the new USC AWRC plant; construction phase started in 2024 and is forecast to be completed in 2026.

Figure 6.1.2: Key projects in the Western Sydney Airport and South West growth areas

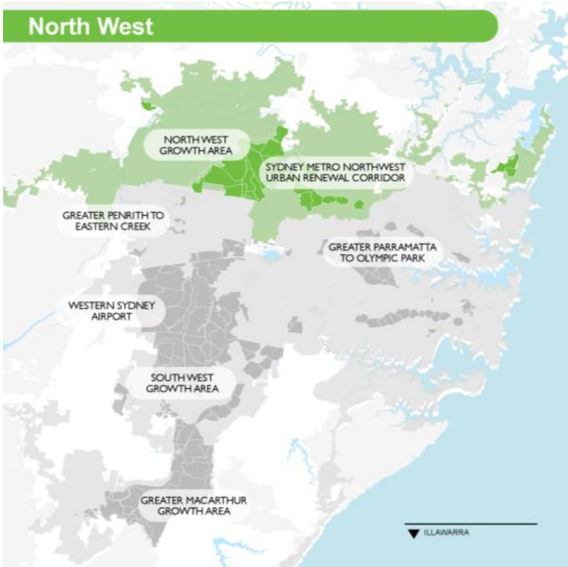


North West Growth Area

The North West Growth Area (NWGA) covers 789 square kilometres and includes a mix of greenfield and brownfield development. The region is forecast to see growth of an additional 85,000 new dwellings and 100,000 jobs by 2035; and 150,000 new dwellings and 495,000 jobs by 2056.

The NGWA accounts for $3,253 million of capital investments, or 16 per cent of the total growth servicing costs. Significant expansion of network and treatment services are required to service growth and achieve system compliance to the NSW Environment Protection Authority (EPA). Investment over the current 2020–25 period ($720 million) has focused on amplification of Riverstone (lower south creek) and Winmalee WRRFs, as well as an increase in the number of plant upgrades that will continue over the 2025–30 period through the North West Treatment Hub program (Rouse Hill, Castle Hill, Riverstone), Hornsby, West Hornsby and Richmond.

Figure 6.1.3: North West Growth Area



Planning for amplification of water trunk infrastructure will continue with an increase in the delivery of near term works at Thornleigh Reservoir and longer term works for WP200. This investment plan for the next 10 years (2025–35) aligns with the servicing direction set out in Sydney Water's Long Term Capital and Operational Plan (LTCOP). We are forecasting to spend $3.3 billion over this period. Fifty-six per cent of the investment will be in the amplification of the wastewater system, including upgrades to six treatment plants, upgrades to 15 pumping stations, 20 kilometres of wastewater mains, 49 kilometres of water mains, two new reservoirs (14 ML) and one water pumping station of 20 ML/day.

Key major investments over the next 10 years include:

27. North West Treatment Hub, $1,194 million, 2035 (staged), delivery – this project aims to service growth and maintain compliance across Castle Hill, Rouse Hill and Riverstone treatment plants with investment approved in discrete tranches. Tranche 1 has been approved for delivery including upgrade of treatment capacity and dewatering at Rouse Hill and to increase biosolids processing and increase inlet capacity at Riverstone. Tranche 2 is in procurement/planning and will provide for Riverstone WRRF Liquid Stage 1 upgrade and wet weather upgrade at Riverstone and liquid stream upgrade at Castle Hill. Further upgrades at Rouse Hill and Riverstone are under investigation. Overall upgrades are planned to increase capacity across the three plants from current 56 ML/day to 96 ML/day.

33. Metro North West Urban Renewal Corridor, $163 million, 2027, planning and development – a 23 km corridor between Epping and Rouse Hill focused on servicing growth around the Sydney Metro North West Rail Link. Detailed planning for amplification of wastewater, water and stormwater services has been completed. Delivery is scheduled to commence in 2025 with work staged to align with revised growth forecasts. This includes upgrade of SP1022 Pumping Station and new rising main, 7 km of drinking water mains, 0.5 km of wastewater mains and upgrade of 2.3 km of creek remnant channel.

32. NWGA, Metro North West Growth Servicing, $559 million, 2035 (staged), planning and development – the continuation of NWGA 4A and Metro NW Renewal Corridor and previously delivered growth servicing projects in NWGA. Servicing is required from 2027 onwards and will include 42 km of water and wastewater mains, upgrades to five sewer pump stations, one new water pump station and two new reservoirs.

28. Thornleigh Reservoir – *Refer Prospect North and Ryde Water Supply System (page 392).*

30. Water Pump station no 200 'WP200' – *Refer Prospect North and Ryde Water Supply System (page 392).*

Figure 6.1.4: Key projects in the North West Growth Area

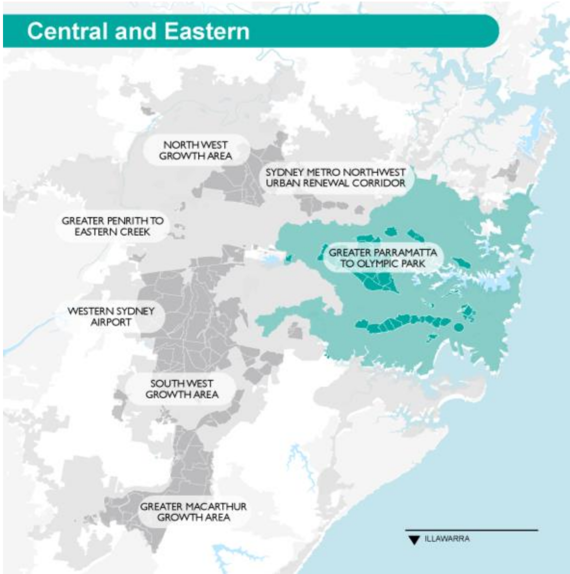
Central and Eastern Growth Area

This Central and Eastern Region presents the largest concentration of infill growth in the Greater Sydney Region. The region is forecast to see growth of an additional 119,000 new dwellings and 300,000 jobs by 2035; and 375,000 new dwellings and 820,000 jobs by 2056.

The Central and Eastern Growth Area account for $2,128 million of capital investments or 10 per cent of the total growth servicing costs. Sixty-eight per cent of the investment will be in amplification of the wastewater system. This includes a new AWRC at Camellia to service the growing Greater Parramatta and Olympic Precinct (GPOP), deferring the need to duplicate the NSOOS and expansion of North Head WRRF and providing a pathway for future PRW.

The 10-year investment also includes the Malabar Mid-Term project that seeks to address trunk capacity constraints beyond 2031 either through duplication of the South West Ocean Outfall Sewer (SWOOS) or through disconnection of the Glenfield and Liverpool WRRF and adoption of river release.

Figure 6.1.5: Central and Eastern Growth Area



Various other water and wastewater upgrades and amplification across Central and Eastern regions including approximately 43 km of new trunk water and wastewater mains, 8 new or upgraded water and wastewater pump stations, one new water reservoir delivered across various projects for Epping St Leonards Water and Wastewater systems, and the reinstatement of RP03 Ryde to Pymble Main to address trunk water capacity constraints within the Prospect North Water Distribution System.

Key investments over the next 10 years include:

1. GPOP Stage 1 Growth Precinct, **$109 million, 2026 – 29 (staged), delivery –** this bundle of approximately 30 projects is forecast to service an additional 24,500 new dwellings by 2035. The current scope provides for localised amplifications of water and wastewater networks including 1.6 km of wastewater mains, 1 km of water mains, upgrades to six sewer pump stations, and 14 emergency relief structures.

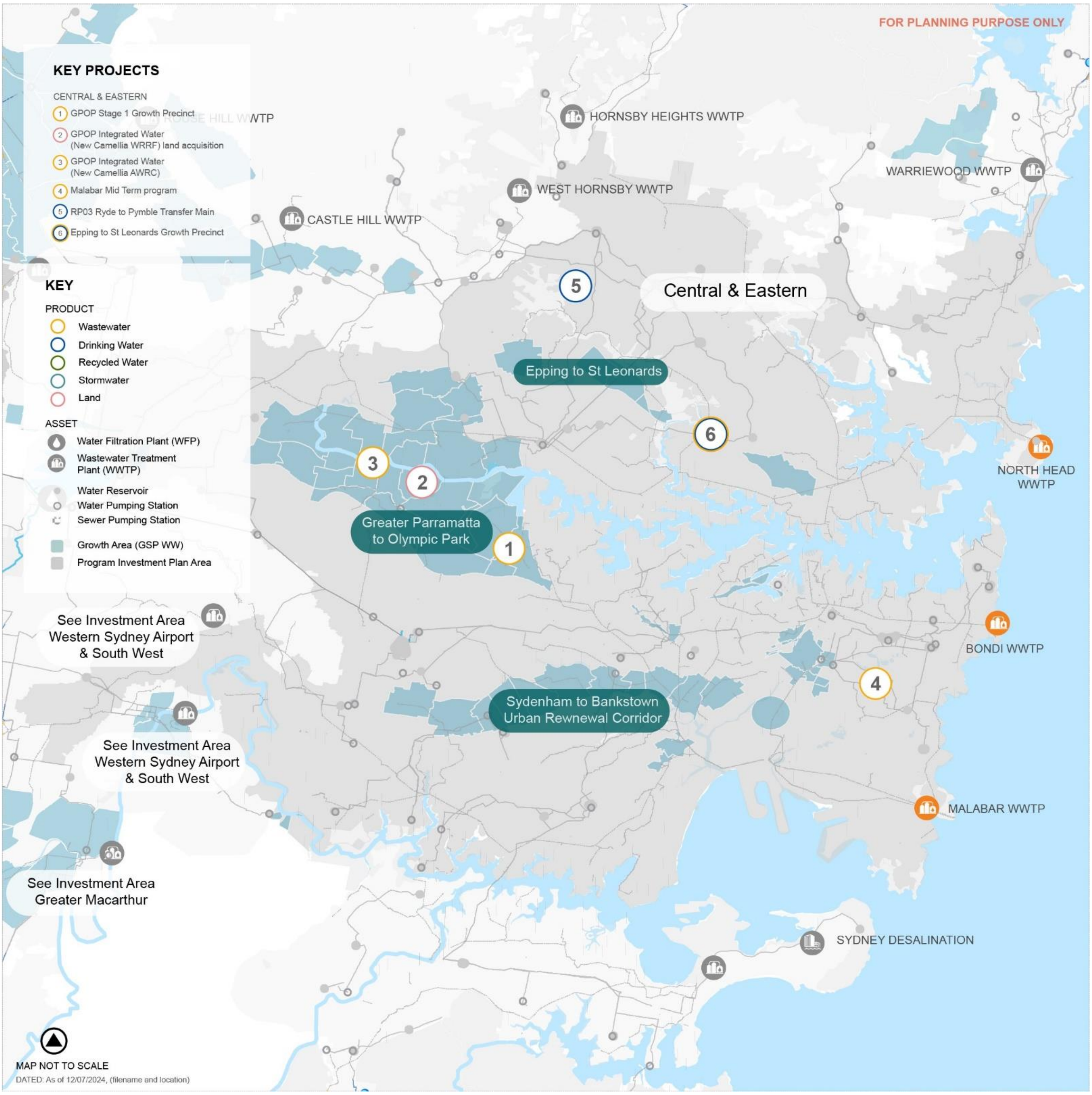
2/3. GPOP Integrated Water Project (New Camellia AWRC), $482 million, 2031 (Stage 1) 2039 (stage 2), planning and development – will address capacity constraints in the North Head Wastewater System through the delivery of a new 15 ML/day AWRC (Stage 1) with river release pipeline. This will defer the need to duplicate the NSOOS, defer expansion of North Head WRRF and provide a pathway for a future purified recycled water (PRW) scheme. Gazetting of land has been completed in May 2024. Future amplification to a 40 ML/day plant is forecast by 2039.

4. Malabar Mid-Term program – *Refer Malabar System (page 393).*

6. Epping to St Leonards Growth Precinct, $134 million, 2026–28 (staged), planning and development – this bundle of eight projects is required to service an additional 24,500 new dwellings across the precinct by 2035 through the delivery of localised amplifications of water and wastewater networks. This includes 2.9 km of wastewater, 2.4 km of water mains and upgrades to two sewer pump stations.

5. RP03 Ryde to Pymble Transfer Main – *Refer Prospect North and Ryde Water Supply System (page 392).*

Figure 6.1.6: Key projects in the Central and Eastern Growth Area



Prospect North and Ryde Water Supply System (*part of NWGA and Central and Eastern Growth Areas*)

Prospect North and Ryde delivery systems serves a combined population of approximately 1.6 million people. This is forecasted to increase to 2.1 million by 2031 and 2.4 million by 2056. The Prospect North trunk network has experienced capacity limitations and challenges due to growth, operability and maintainability, exposing the system to the possibility of a water continuity breach under Sydney Water's operating licence. The system needs significant investment over the next 10 years to service growth and increase system resilience.

The most efficient approach is for staging of amplification networks and treatment systems. Treatment amplification is captured in the Water Filtration Plant Initiative (Prospect WTP Pre-Treatment). Near-term network upgrades will leverage capacity of up to 80 ML/day in the Ryde Water Delivery System and upgrade system resilience to service growth up to 2031. These works are collectively enabling deferral of WP200 and trunk mains to 2031. Beyond 2031, the preferred strategy is to service parts of the Prospect North system via a new pump station WP200 located at Prospect Reservoir and new trunk water infrastructure.

<u>**Near-term works**</u>

5. RP03 - Ryde to Pymble Transfer Main, $172 million, 2029, planning and development – replacement of approximately 10 km of DN900 main (RP03) will enable rezoning of Wahroonga and Ryde delivery systems to free up capacity in the Prospect North system, improving resilience by accessing capacity within the Ryde system.

28. Thornleigh Reservoir, $112 million, 2026, Delivery – Thornleigh Inlet/Outlet project will improve water quality, increase operational flexibility, and decrease water age in Thornleigh reservoir, which supplies water to 800,000 customers. The scope will deliver a new 1.4 km DN1800 pipe.

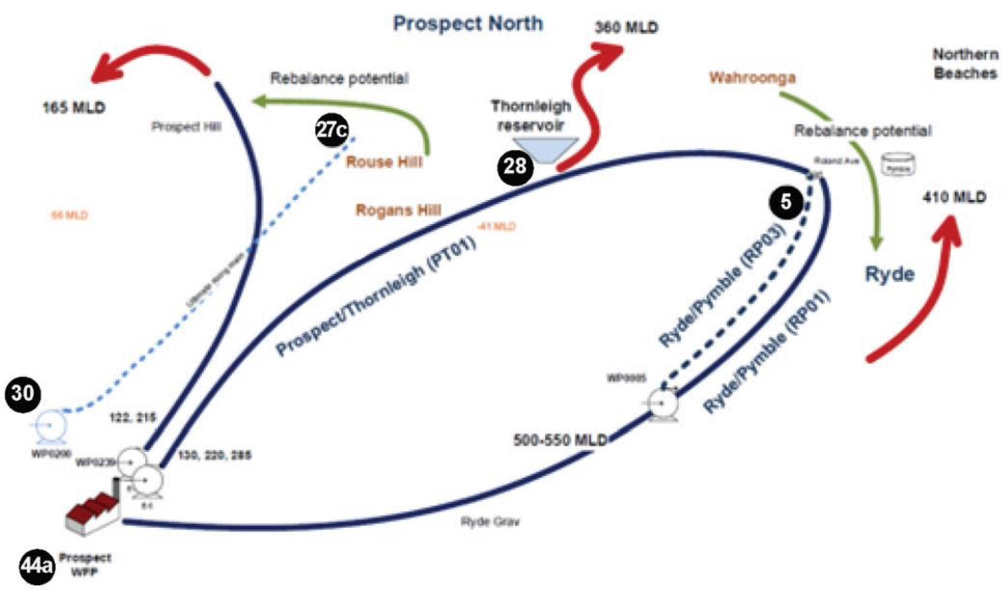
44a. Prospect WFP Pre-treatment (*Renewal IPART driver)*, $599 million, 2027, delivery – upgrades to address reliability and capacity constraints. *Refer Water Treatment Program – under Renewal.*

Other works include valving upgrades to provide operational flexibility rezoning of Rouse Hill are covered under smaller programs of work in the North West Growth Area program.

<u>**Long-term works**</u>

30. Water Pump Station no 200 'WP200', $721 million, 2031 +, planning and development – this long-term strategy provides for construction of new trunk water system to service parts of the Prospect North system. The baseline option from the 2022 system plan provides for a new 220 ML/day water pumping station at Prospect Reservoir, and 20 km of trunk water main >750mm. Planning and value engineering is underway with a decision point required by 2026.

Figure 6.1.7: Prospect North Water System



Malabar System (*part of Central and Eastern City, South West and Western Airport, and Greater Macarthur Growth Areas*)

The Malabar Wastewater System is the largest and one of the oldest wastewater systems in Sydney. It includes the South and Western Suburbs Ocean Outfall Sewer (SWSOOS) with emergency relief structures discharging into the Mill Stream and Botany Wetland. The Malabar system is reaching capacity (see **Chapter 3**). With the population expected to grow from 1.8 million to 2.9 million by 2056, short-, mid- and long-term investment plans following an adaptive pathway (see **Chapter 5**) are required to manage growth and compliance requirements. Near-term works are required by 2031 to address capacity constraints, with mid-term works providing a pathway for future expansion of the system and use of PRW.

The current investment allows for disconnection Liverpool & Glenfield WRRFs from the Malabar system and river release encompassing networks and treatment process, providing a pathway to PRW. Silt management and source control works will be implemented to further improve wet weather flow into Malabar Wastewater System. Under this pathway Mill Stream Wet Weather Overflows, SWOOS, and Malabar WRRF amplification will be deferred. Should river release not proceed as planned the upgrades of SWOOS system and Malabar WRRF and Mill Stream wet weather upgrades will be required resulting in additional investment of an estimated $1.5 billion.

Near-term (up to 2031)

Four discrete projects have been progressed to delivery approval. Combined, these projects will address capacity constraint in the Malabar system up to 2031, as well as addressing current compliance issues and environmental performance. This is to support growth in Liverpool, Glenfield and Fairfield catchments and allow for desilting the NGRS.

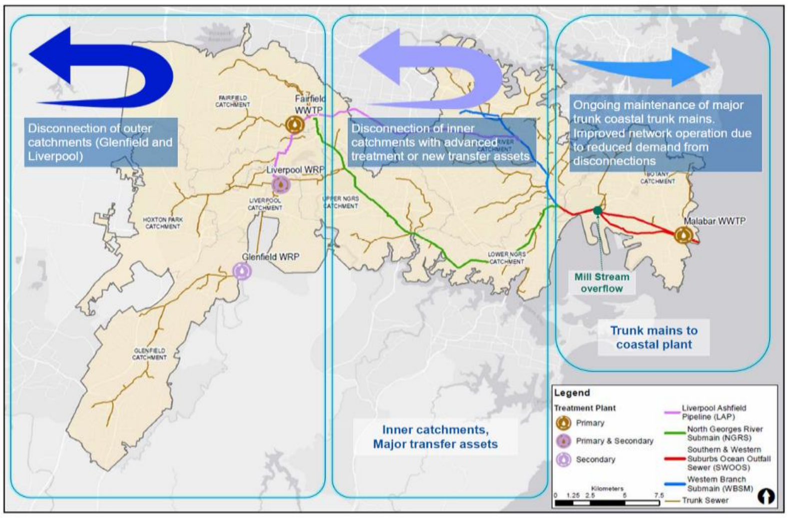
20 (a), (b), (c). Malabar near-term program – Liverpool, Fairfield, NGRS/LAP $541 million, 2030, delivery – the Malabar near-term upgrades are required to service the demand growth in the WSAGA and SWGA. Driven by compliance requirements (overflow and odour), growth servicing requirements, they will include upgrades to the Glenfield, Liverpool and Fairfield WRRF, and the provision of additional latent capacity in the NGRS.

12. Malabar near-term program – Glenfield WRRF Upgrade, $376 million, 2028, delivery – works at Glenfield WRRF to improve EPL compliance for odour contour, augment treatment and network capacity to service 320,000 Equivalent Population by 2046 and enabling future solution alignment to the Malabar System Plan.

Mid-term (2031+)

4. Malabar mid-term program, $624 million, 2031+, initiation – will address trunk capacity constraints in the Malabar Wastewater Network beyond 2031 either through 1) duplication of the SWOOS and major amplification of Malabar WRRF, or 2) disconnection of the Glenfield and Liverpool WRRF and river release (current preferred pathway). Planning is currently underway with a decision point required by 2026.

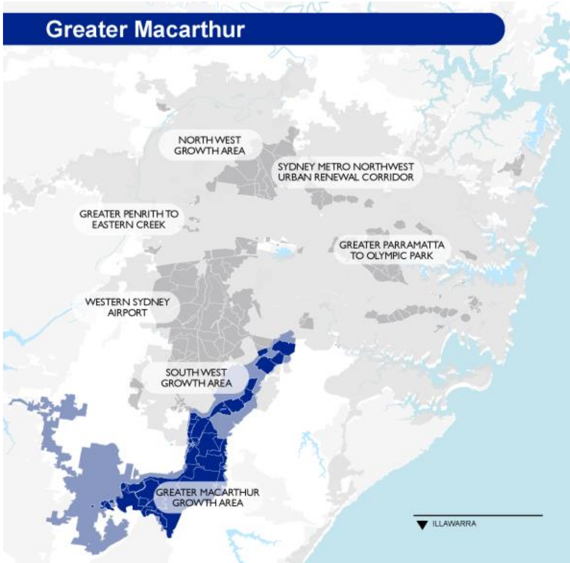
Figure 6.1.8: Malabar system plan



Greater Macarthur Growth Area

The Greater Macarthur Growth Area (xxxx) covers 320 square kilometres of predominantly greenfield area with some brownfield development. The GMAC region is forecast to grow with an additional 50,000 new dwellings and 40,000 new jobs by 2035, and 78,000 new dwellings and 58,000 new jobs by 2056. To cater for this increase in demand, investment of $2,596 million (13 per cent of growth investment) is required within the next 10 years to expand and amplify our water, wastewater, and recycled water network and treatment plants.

Figure 6.1.9: Greater Macarthur Growth Area



The investments will include approximately 195 km of new water and wastewater trunk and mains network, 34 new sewer pumping stations, 11 new water pumping stations, 11–14 new reservoirs and upgrade of treatment capacities of two WRRFs, and the construction of the new Upper Nepean AWRC.

The option of centralising the treatment at the Upper Nepean AWRC has been nominated as the preferred option as it provides greater opportunity for water resilience, improved environmental outcomes, and the lowest cost. This option also enables the Wilton servicing strategy to be optimised, where the capital forecast for stage 1 has been reduced by more than 40 per cent.

There is also significant investment over the next 10 years in the Wilton Growth Servicing and Bingara Gorge program to provide additional wastewater treatment capacity, develop recycled water, water, and wastewater networks, and upgrade the Bingara Recycled Water Plant.

Key investments over the next 10 years include:

9. Upper Nepean AWRC, $1,011 million, 2031 (stage 1), planning and development – this project will provide a wastewater treatment plant required to service the increasing growth in the GMAC area. This treatment plant is expected to start treating flows in 2031. The development of the plant will be staged, where the plant will start becoming operational by 2031, reaching full servicing capacity by 2035.

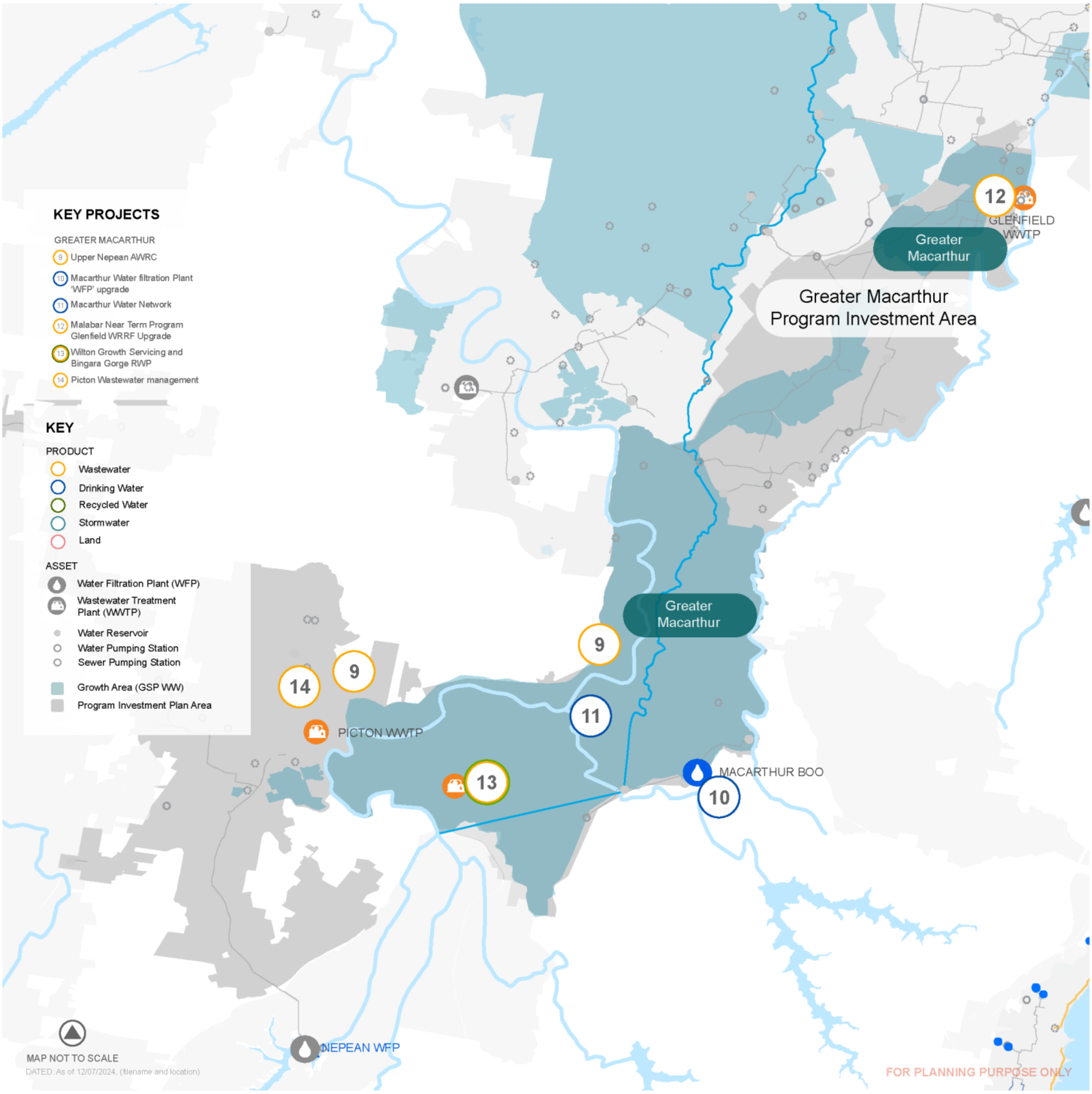
13. Wilton Growth Servicing and Bingara Gorge RWP, $570 million, stage 1 2024–27, stage 2 2032, delivery – to provide additional wastewater treatment capacity, develop recycled water, water, and wastewater networks, and upgrade the Bingara Recycled Water Plant. This program will provide additional wastewater treatment capacity up to 2.1 ML/day to cater for growth to 2032 at Wilton. It will also the develop water, wastewater and recycled water networks in Wilton Southeast, Wilton West, Wilton Junction and Wilton North, and provide an effective interim effluent management solution for Bingara WRRF.

12. Malabar near-term program – Glenfield WRRF Upgrade – *Refer Malabar System (page 393).*

10/11. Macarthur Water Filtration Plant 'WFP' upgrade and water network, $396 million, 2031, planning and development – required to address reliability and growth requirements in at Macarthur by 2031. The short-term scope will include pre-treatment options (not included in pre-treatment renewals program) to address capacity needs and improve reliability to manage declining raw water quality. The Macarthur Water Network project will address the amplification to the drinking water network in the GMAC area, including the mains and water pumping stations in the new growth servicing areas such as Appin and Wilton. This project will also expand and amplify the drinking water network in some of the infill areas due to the increasing demand.

14. Picton Wastewater management, $166 million, 2028, planning and development – a wastewater amplification project required to address EPA non-compliance at Picton WRRF, exacerbated since 2016, including load and concentration limits non-compliances. The project will also investigate the infrastructure needed to secure greater flexibility on current EPL discharge restrictions, ensure the plant can maintain compliance with the proposed discharge regime/limits, and accept new connections resulting from growth, which will increase the inflows to the Picton WRRF.

Figure 6.1.10: Key projects in the Greater Macarthur Growth Area



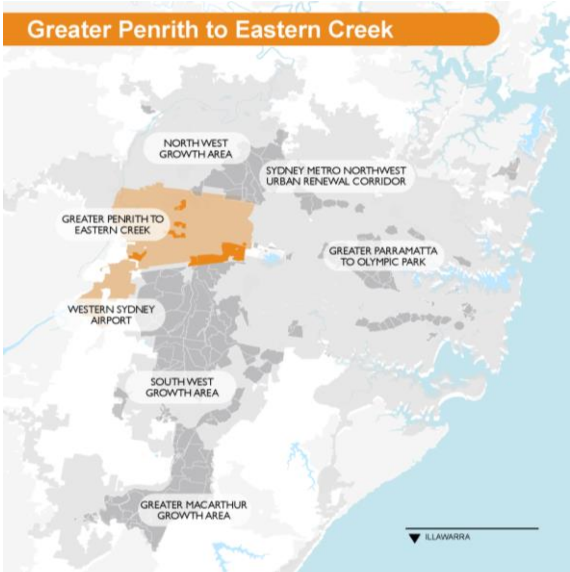
Greater Penrith to Eastern Creek Growth Area

The Greater Penrith to Eastern Creek (GPEC) growth region is in the early stages of planning to support growth in Sydney, with an expected additional 54,000 dwellings and 33,000 new jobs by 2056. An estimated investment of $1,282 million (6 per cent of growth investment) is required over the next 10 years.

Growth requirements are driven by developers in Orchard Hills, the NSW Government's growth forecast and the impending Hawkesbury Nepean Environmental Compliance Framework.

Investment includes 83 km of new water and wastewater trunk and mains network, six new sewer pumping stations, three new reservoirs and the upgrade of the treatment capacities of the Wallacia, Quakers Hill, St Marys and Penrith treatment plants.

Figure 6.1.11: Greater Penrith to Eastern Creek Growth Area

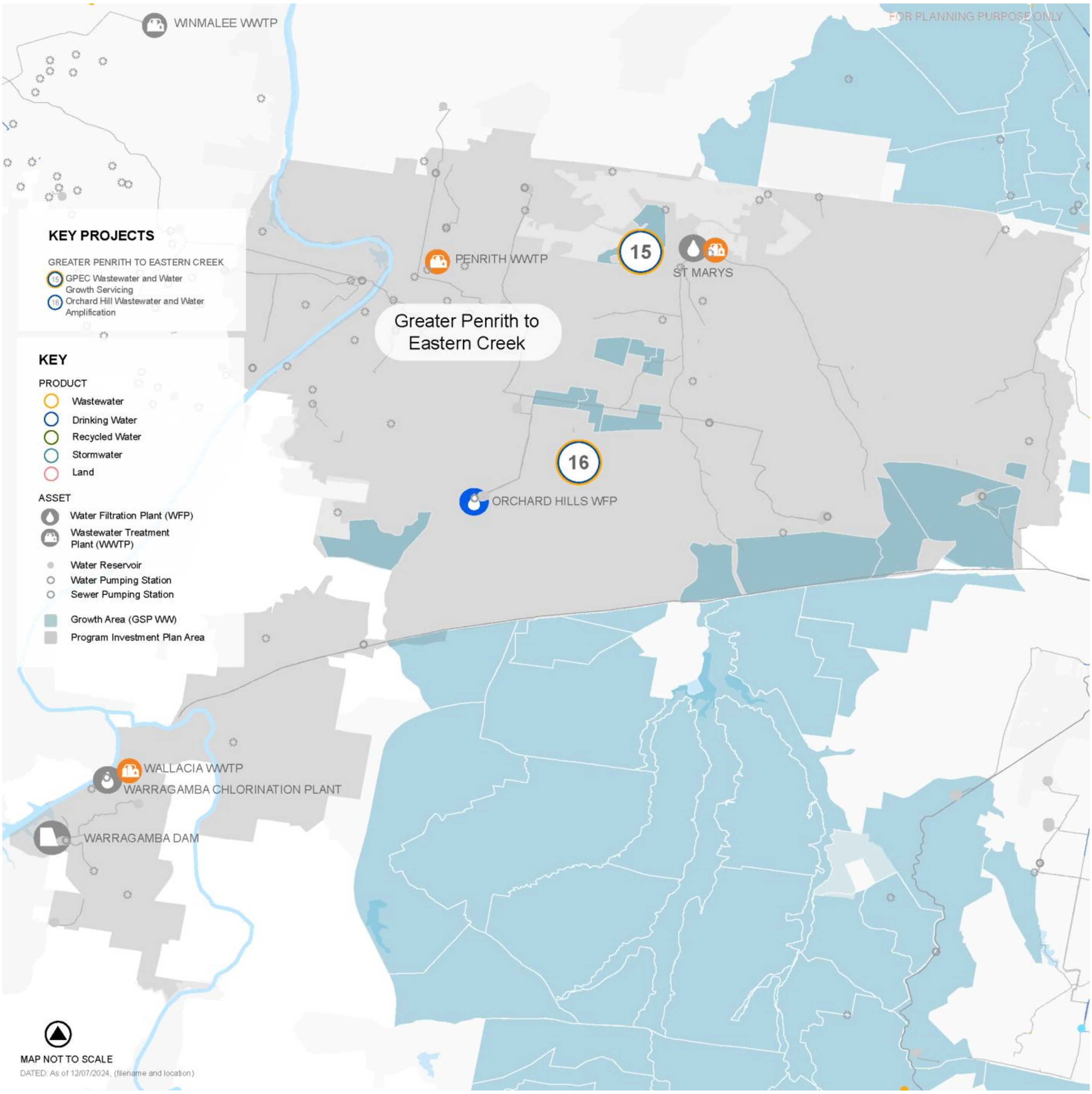


Key investments over the next 10 years include:

15. GPEC Wastewater and Water Growth Servicing, **$843 million, 2032, initiation** – a program of work to develop an integrated servicing plan and associated investment needs for Penrith, St Marys and Quakers Hill WRRF, and Wallacia WRRF to meet growth and EPL requirements. The program will also investigate the amplification and performance requirements of the water and wastewater network at St Marys and Penrith.

16. Orchard Hill Wastewater and Water Amplification, $333 million, 2031, **planning and development** – a project to develop and amplify the water and wastewater network at Orchard Hills. Sydney Water is considering the best mechanism to deliver this project, with some strategies involving the provision of a significant percentage of the assets under commercial agreements with the local developers. The options are still being investigated to ensure progression with the most optimised and cost-efficient strategy.

Figure 6.1.12: Key projects in the Greater Penrith to Eastern Creek Growth Area



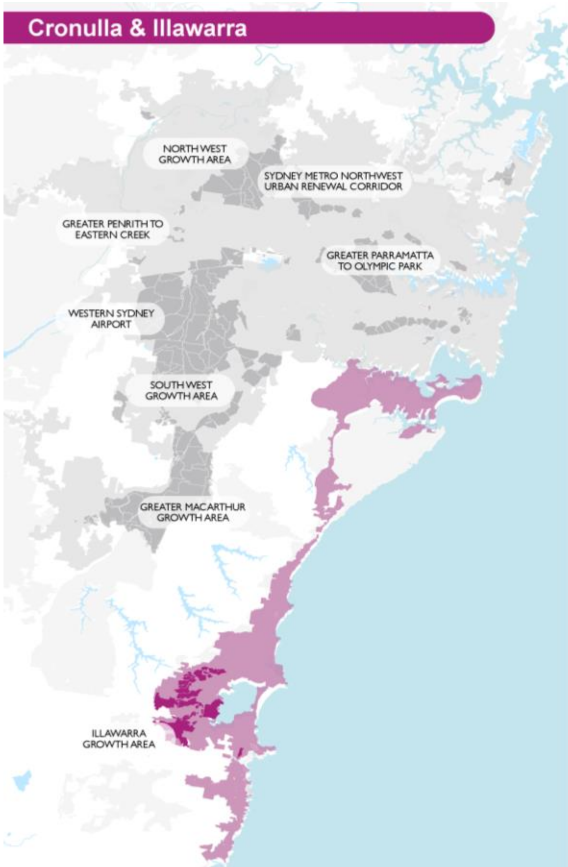
Illawarra and Cronulla Growth Areas

This Illawarra and Cronulla Region covers 303 square kilometres of predominantly greenfield area, with some brownfield development, requiring $1,234 million (6 per cent of growth investment) over the next 10 years. The region is forecasted to grow with an additional 15,700 new dwellings and 15,900 new jobs by 2030, and 50,000 new dwellings and 82,300 jobs by 2056. Investments will include approximately 43 km of new trunk and main network and eight new or upgraded water and wastewater pumping stations.

Total investment over 2020–25 is forecasted to be $148 million. While investment over the first three years was modest, there has been a significant ramp up over 2024–25 to service new greenfield developments. This ramp-up will continue over 2026–30 as new greenfield developments (West Dapto, Yallah Marshall and Calderwood) progress alongside smaller greenfield developments (Dunmore) and minor infill (Kiama). This is driving a need to amplify water and wastewater network services within the region. With strong growth is forecasted over the next 15+ years, there is a need to begin planning for future growth.

The strong greenfield growth within the region is also driving a need amplify the treatment plants in the region. These are reaching capacity and will require amplification over the next few years to service growth and meet compliance targets. This has resulted in an increased investment at key treatment plants (Shell Harbour and Wollongong) with planning for an integrated approach to meet future needs.

Figure 6.1.13: Cronulla and Illawarra Growth Area



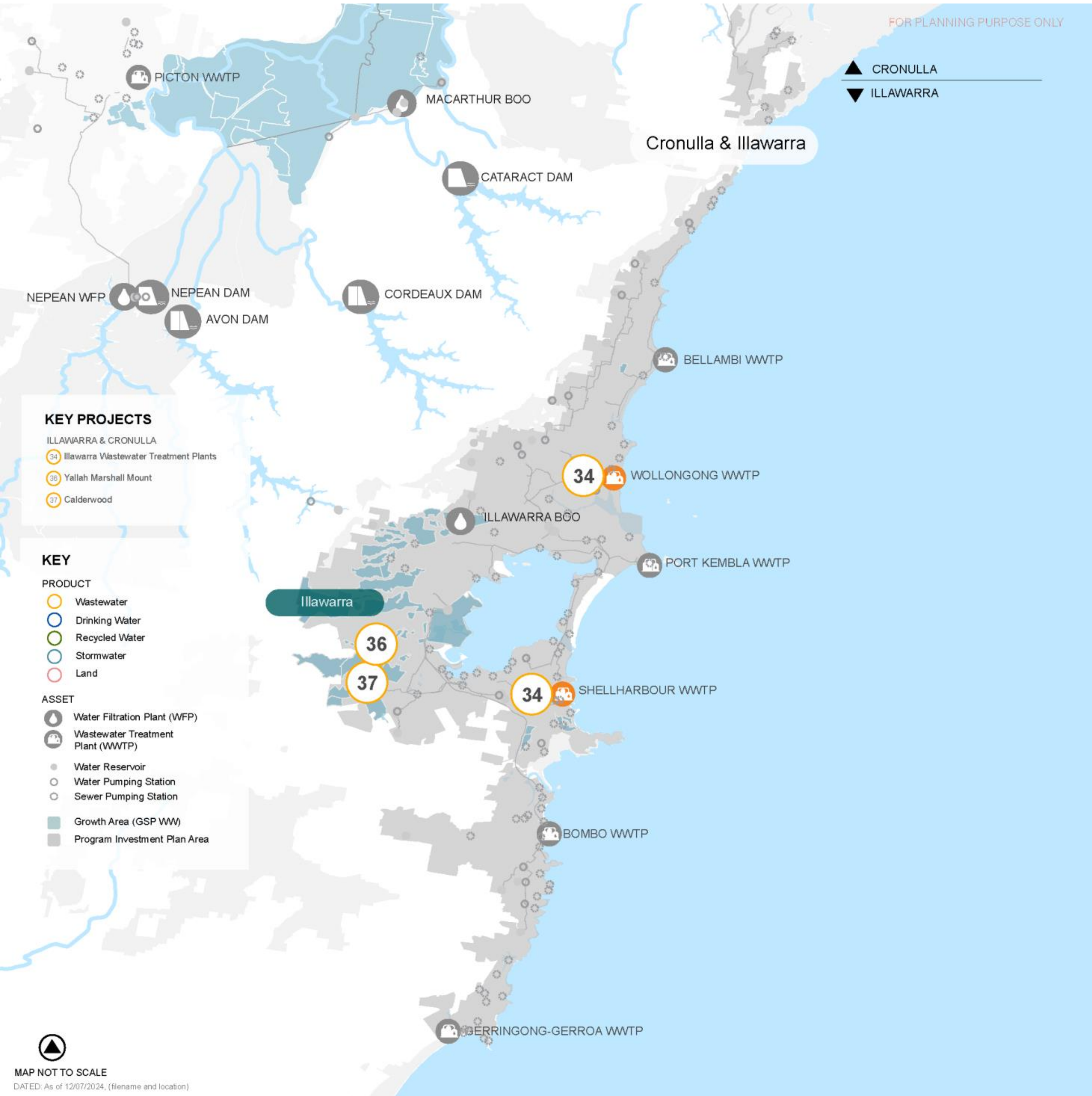
Key investments over the next 10 years include:

34. Illawarra Wastewater Treatment Plants, $395 million, 2031–35, planning and development – staged amplification of Wollongong WRRF (increase of 7 ML/day) and Shell Harbour WRRF (increase of 2 ML/day) are required to service growth in the catchments with population project to increase by 46 per cent for Wollongong and 31 per cent Shell Harbour. Plant-wide upgrades are required with preferred options due 2025, including strategy for an integrated approach to meet future needs, including biosolids management and staging of the upgrade.

36. Yallah Marshall Mount, $119 million, 2027, delivery – the Yallah Marshall Mount Precinct is forecasted to service an ultimate capacity of 4,300 new dwellings. Initial servicing of 2,300 new dwellings (Stage 1) will be delivered by Sydney Water and developers. Sydney Water will deliver 4.7 km of water mains, 4.6 km of wastewater mains and one new sewer pumping station. Developers will develop lead-in and reticulation infrastructure including low pressure sewer system.

37. Calderwood, $108 million, 2027, delivery – the Calderwood Urban Release area is forecasted to experience growth of up to 8,300 new dwellings. Stages 1, 2 and 3A1 have been delivered. The current stage, Calderwood Pkg 3A2, will service of 2,200 new dwellings, including trunk infrastructure for ultimate servicing. Sydney Water will deliver 3.4 km of water mains, 2.9 km of wastewater mains and one new sewer pumping station. Developers will deliver lead-in and reticulation infrastructure.

Figure 6.1.14: Key projects in the Illawarra Growth Area



Integrated water cycle management (stormwater) for Mamre Rd and Aerotropolis precincts

Over the next 10-years, $3,145 million of capital investment (15 per cent of growth investment) in Mamre Road and the Aerotropolis will be required to deliver recycled water, and incremental stormwater infrastructure to offset the impacts of development in the region. This will provide the most long-term, most economically efficient option for providing water, wastewater and stormwater servicing in the region. This is required to meet Sydney Water's obligations as the declared precinct stormwater manager. The investments includes both stormwater infrastructure and land purchase. Integration of the delivery and management of stormwater services, drinking water, wastewater and recycled water, such as is occurring in the Mamre Road and the Aerotropolis precincts, is known as integrated water cycle management (IWCM).

The NSW Government appointed Sydney Water as the Regional Stormwater Authority for the Mamre Road and Aerotropolis precincts (covering around 8,000 ha) in Western Sydney in March 2022. This means Sydney Water is responsible for delivering, managing and maintaining the regional stormwater network along with the drinking water, wastewater and recycled water networks.

The next 10 years in the Aerotropolis region accounts for 82% of the investment, at $2,580 million. The smaller Mamre region accounts for around 18% and $565 million. Land acquisition across the two regions is considerable and accounts for nearly $1,226 million or 39% of the investment required.

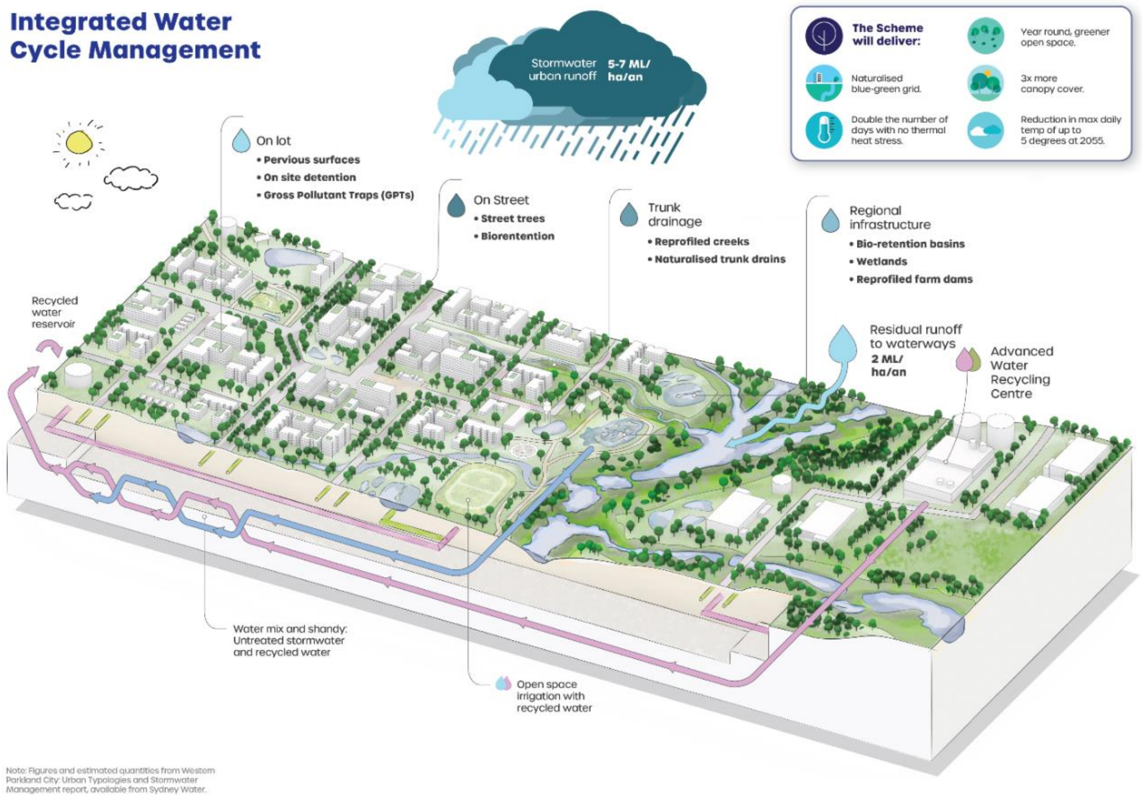
Should the program not proceed, it would likely result in on-lot solutions with risk exposure to operating licence through an inability to meet waterway health targets, and reduced resilience to water supply and ability to integrate water management in the region.

This integrated approach will significantly minimise the amount of private stormwater infrastructure required within a site, freeing up land for housing and other developments that would otherwise have been used for infrastructure.

The Wianamatta South Creek catchment is already one of the most degraded catchments in the Hawkesbury-Nepean River. Large-scale industrial development in Mamre Road will likely make the degradation worse without a different approach to the management of stormwater runoff. The NSW Government has waterway targets that are part of the development control plan for Mamre Road.

Demand for water due to growth in the area will put pressure on current water sources, which are mainly rainfall-dependent. There are opportunities for stormwater harvesting and recycled wastewater to be used to supplement for irrigation, cooling and greening.

Figure 6.1.15: Integrated water cycle management



Resilient & Reliable Water Supply Program

Since building the Sydney Desalination Plant (SDP), available capacity in our water system has enabled us to meet our cities' water demands and manage an acceptable level of water security risk while avoiding the need for significant investment. However, growth in our cities and population have now consumed this surplus, and there is an increasing risk of climate volatility (drought and flood). This requires supply augmentation and interconnection of our water systems to maintain an appropriate level of water security and supply.

Our Resilient and Reliable Water Supply Program (RRWS) focuses on delivering a more rainfall-independent water supply (RFIS) providing the least-cost approach to meeting our cities' water demands and the level of water security our customers and communities value. RFIS slows the rate of depletion and ensures a sustainable water supply during the severe climatic events that we are experiencing more frequently due to climate change.

The development of systems to produce PRW will also help to avoid significant wastewater system augmentation (*in particular, the North Head treatment plant and NSOOS, and the Malabar treatment plant and SWOOS*). The value of PRW improves dramatically if environmental requirements at our coastal wastewater plants become more stringent avoiding several billion dollars of incremental investment.

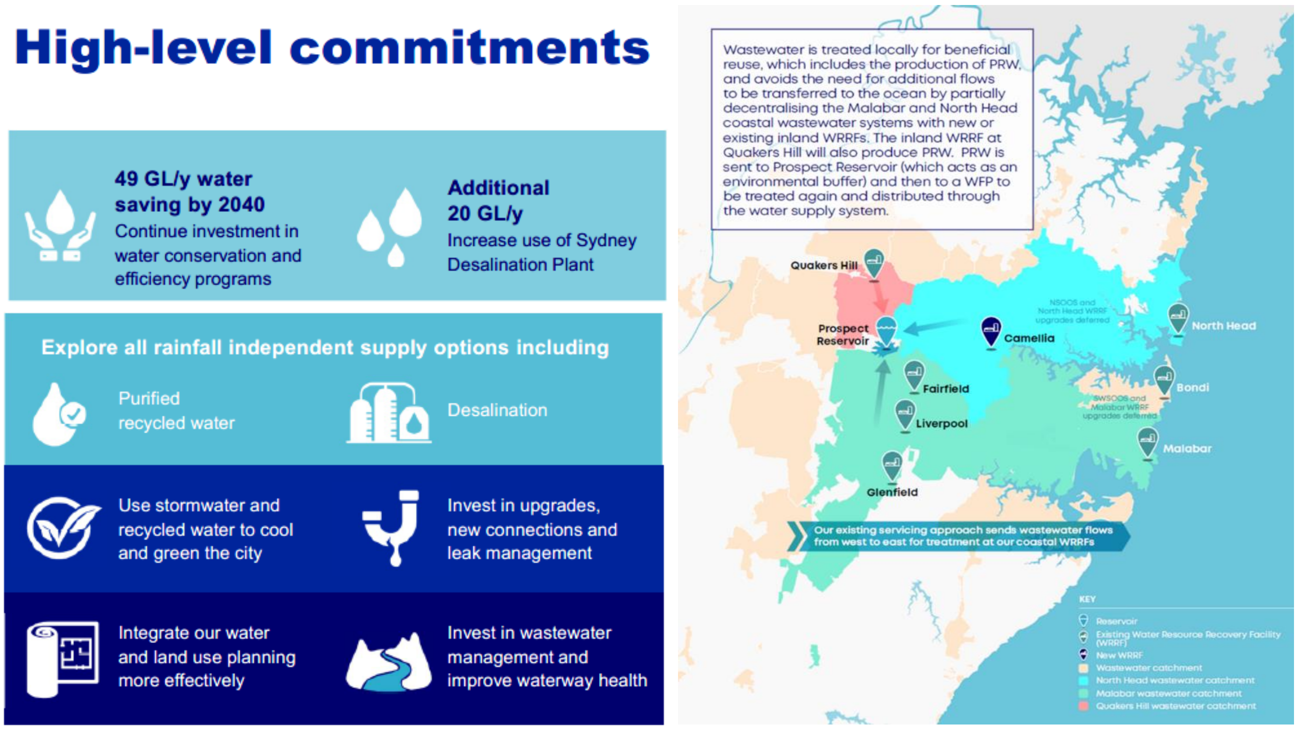
The RRWS program requires $2,670 million (13 per cent of growth infrastructure capital) over the next 10 years. The program is staged to support increased RFIS and manage increasing wastewater coastal system demand and loads. PRW could provide up to 25 per cent of Greater Sydney's water needs by 2056. The program covers three core areas of required investment:

1. **Desalination water network expansion** – primarily duplicating parts of the Sydney water network to be capable of receiving the additional capacity produced by an expanded SDP (2030) and some expenditure to continue strategic planning and potential land acquisition for a new Desalination Plant in North Beaches and/or Illawarra

2. **Purified recycled water** – building PRW systems that provide services to Quakers Hill (2032), Camelia (2035), and Liverpool and Glenfield (2037).

3. **Water system resilience** – addressing single points of failure in our system towards the end of the decade (expenditure provisioned for planning only).

Figure 6.1.16: Resilient and Reliable Water Supply Program



Appendix 6.2 Infrastructure renewals summary

Wastewater network

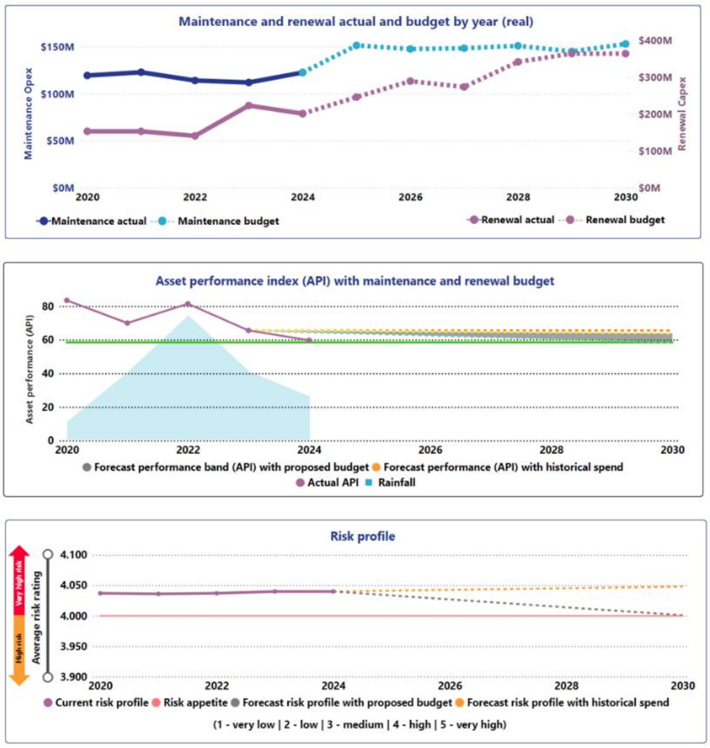
Wastewater network renewals program investment of $1,629 million across the next five years is to maintain system compliance and performance while managing environmental risks across the wastewater network.

Table 6.2.1: Wastewater network investment initiatives ($24-25, $millions)

Investment initiatives	Period 0 2020-25	Period 1 2025-30	Period 2 2030-35	Total 10 yr 2025-35	Wastewater Network (%)	Renewal driver (%)
Critical sewer	428	1,110	1,094	2,204	64%	19%
Northern Suburbs Ocean Outfall Sewer (NSOOS) program^	*118*	*514*	*411*	*925*		
Bondi Ocean Outfall Sewer (BOOS) program^	*4*	*67*	*73*	*140*		
Southern and Western Suburbs Ocean Outfall Sewer (SWSOOS) program^	*19*	*98*	*83*	*181*		
Airport grit pits relocation^	*6*	*90*	*–*	*90*		
Wastewater pumping station renewals	163	236	317	553	16%	5%
Reticulation sewer	266	203	284	487	14%	4%
Wet weather surcharge	92	80	98	178	5%	1.5%
Wastewater networks renewal program	**948**	**1,629**	**1,793**	**3,422**	**100%**	**29%**

^ Individual project actuals/forecast unadjusted – moderations and adjustments made at the initiative level

Figure 6.2.1: Wastewater network performance, cost, risk



This investment in wastewater networks enables progress towards meeting service objectives (maintaining continuity and addressing failures) and compliance performance outcomes (dry and wet weather overflows), as well as returning to acceptable risk levels.

Specifically, this investment will support our customer's priority to protect the environment and improve the condition of Sydney's waterways.

The majority (64 per cent) of the investment over the next 10 years is for renewal or refurbishment of critical wastewater system mains (particularly significant assets such as SWSOOS, NSOOS, BOOS, and Northern Georges River sub-main and branches) as well as pressure mains.

A sustained increase in wastewater pumping station renewals is also required due to deterioration in asset condition, changes to electrical standards and flood design requirements, as well as the need to address renewal requirements in some of our larger and more complex pumping stations.

These two asset groups are critical for transporting wastewater to the treatment facilities without polluting the environment or endangering public health and it is appropriate that their renewal and refurbishment constitute most of the forecast (80 per cent) over the next 10 years. This uplift in investment is essential if we are to do the right thing for customers and the environment within the current policy and regulatory framework.

Water resource recovery facilities

We propose to spend $1,255 million renewing our water resource recovery facilities (WRRFs) and regulated water recycling plants (WRPs) over the next period 2025–30 (period 1). This will mitigate environmental risks, support wastewater treatment system compliance and performance, manage recycled water supply safety and reliability, and address safety obligations. This asset renewal program is required for our 31 sites that treat the 500–600 GL of wastewater we manage each year, including three new facilities since the last determination.

Table 6.2.2: WRRF investment initiatives ($24-25, $millions)

Investment Initiative	Period 0 2020-25	Period 1 2025-30	Period 2 2030-35	Total 10 yr 2025-35	WRRF (%)	Renewal driver (%)
WRRF general renewals initiative	907	1,255	1,617	2,872	100%	24%
*BOOS program^*	147	701	30^^	731	25%	6%
WRRF Program	**907**	**1,255**	**1,617**	**2,872**	**100%**	**24%**

^ Actuals/forecast unadjusted – moderations and adjustments to shown figures applied based on risk, cost and performance prioritisation at the overall program level.

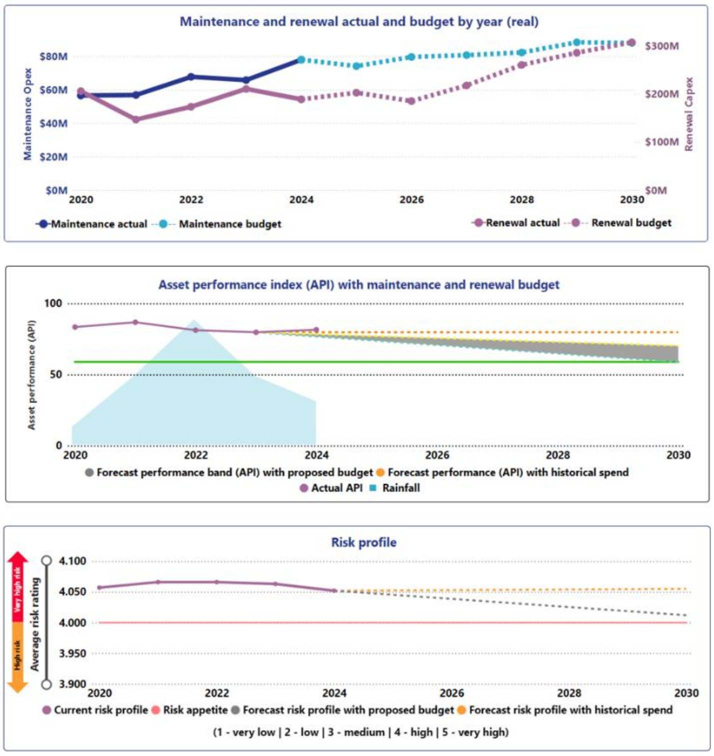
^^ $30 million forecast for Period 2 predominantly represents the existing initiated projects; expenditure forecast for additional renewal and reliability works required at Bondi WRRF is included in the WRRF general renewals initiative Period 2 expenditure forecast.

With this very large and critical group of assets – some of which are well over 50 years old – at or reaching capacity, and subject to climate change extremes, there is a high risk of not meeting our asset performance requirements and regulatory and licence obligations. We, therefore, continue to prioritise and mitigate the risk as far as reasonably practicable through asset maintenance and repair, rehabilitation, renewal and replacement. Where practical we also assess changes or innovative solutions to mitigate risks and impacts.

The condition of WRRFs is unfavourable as indicated by ongoing unacceptable asset performance, with investment programs needing to be fast tracked to manage the ongoing performance and compliance risk.

The modelling and condition assessments have shown an increasing number of assets are approaching the end of their useful lives. In many cases, they require either modernisation or first-time replacement due to obsolescence or poor condition to address failure risk.

Figure 6.2.2: WRRF performance, cost, risk



While a significant proportion of the investment will be concentrated in larger projects, like the BOOS program, the balance of the forecast includes a high volume of smaller projects across many sites, including over 250 active projects and over 1,000 candidate projects that will be actively prioritised to address the most prudent needs over the forecasted 10 years.

The planned investment is roughly evenly divided between:

- large programs of works to address multiple needs at our major coastal WRRFs relating to aging assets and declining condition, new standards and requirements, and emerging risks to resilient operations at Bondi, Cronulla, Wollongong and North Head WRRFs; and
- renewals of core WRRF assets across all our other 26 plants, including the screening, sedimentation, biosolids, odour and site services assets.

Water network

The water networks renewals program investment of $1,176 million across the next five years is to manage water supply reliability and public health risks, and to maintain compliance and performance across the water network.

Table 6.2.3: Water network investment initiatives ($24-25, $millions)

Investment initiative	Period 0 2020-25	Period 1 2025-30	Period 2 2030-35	Total 10 yr 2025-35	Water networks (%)	Renewal driver (%)
Water pumping station	92	127	146	274	11%	2%
Water reservoir	233	306	340	646	27%	5%
Reticulation watermains	182	208	207	415	17%	4%
Critical watermain	239	241	236	477	20%	4%
Water metering	84	293	307	600	25%	5%
Water networks	**829**	**1,176**	**1,237**	**2,412**	**100%**	**20%**

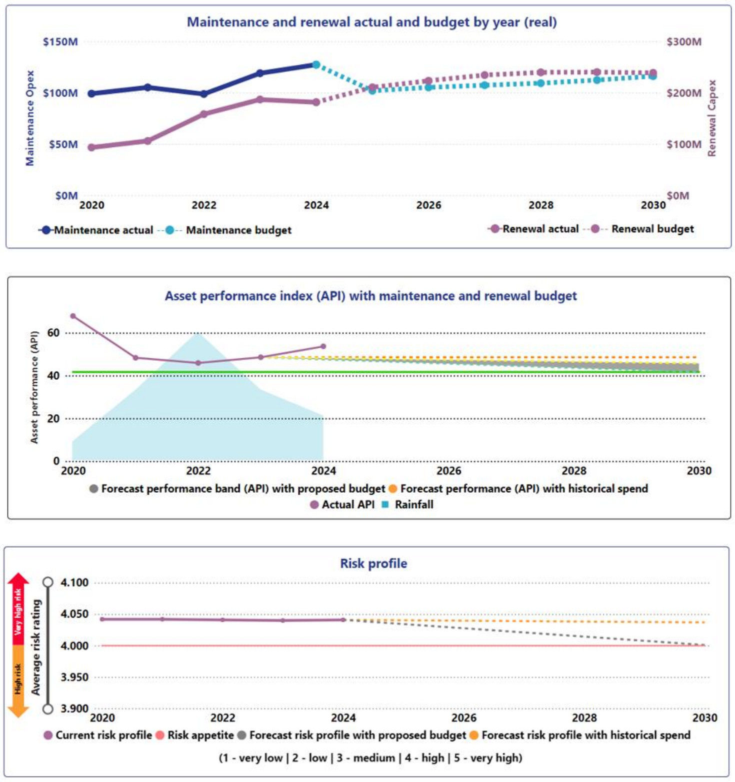
This program is required to address our customers' highest priority by reliably delivering safe and clean drinking water, while meeting relevant legislative and regulatory requirements at the lowest life-cycle cost and at an acceptable level of risk.

In general, water network service performance has been acceptable; however, there are notable gaps in specific aspects of system and asset performance. These gaps are primarily due to ongoing challenges in not meeting leakage targets and an ageing network contributing to declining asset condition.

Improving leakage performance requires a holistic response. This response combines a focus on timely leak repair and renewals, when required, with a risk-based proactive condition assessment and renewals approach, supported by data-driven asset monitoring to find and stop leaks more effectively.

Asset performance, condition and risk at water pumping stations and reservoirs has declined during the current period. This requires an increase in the next period (38 per cent and 32 per cent, respectively) to manage risk to water continuity and quality.

Figure 6.2.3: Water network performance, cost, risk



In addition, the customer water metering initiative will be ramping up to install smart meters in new developments and replace failed/end-of-life mechanical meters. Smart metering will enhance our ability to manage the water supply network by proactively identifying and resolving issues such as leaks and breaks, and will give customers greater ability to understand and manage water usage.

Water filtration plants

WFP program investment of $1,276 million across the next five is years required for water system compliance and performance, mitigation of public health risks and reliability of supply risk mitigations across our WFP asset base.

Table 6.2.4: WFP investment initiatives ($24-25, $millions)

Investment initiative	Period 0 2020-25	Period 1 2025-30	Period 2 2030-35	Total 10 yr 2025-35	WFP (%)	Renewal driver (%)
WFP renewals initiative	85	274	287	561	28%	5%
Pretreatment initiative	204	1,001	435	1,436	72%	12%
Prospect WFP Pretreatment project^	*128*	*599*	-	*599*		
Orchard Hills WFP Pretreatment project ^	*5*	*219*	-	*219*		
Nepean WFP upgrades and pretreatment project^[1]	*109*	*102*	-	*102*		
*Cascade WFP Pretreatment project^*	*5*	*69*	-	*69*		
*Other – pretreatment candidates^*	*0.4*	*597*	*140*	*737*		
WFPs	**289**	**1,276**	**722**	**1,998**	**100%**	**17%**

^ *Individual project actuals/forecast unadjusted – moderations and adjustments made at the program level*

[1] *Nepean has a component of expenditure allocated to the IPART growth driver.*

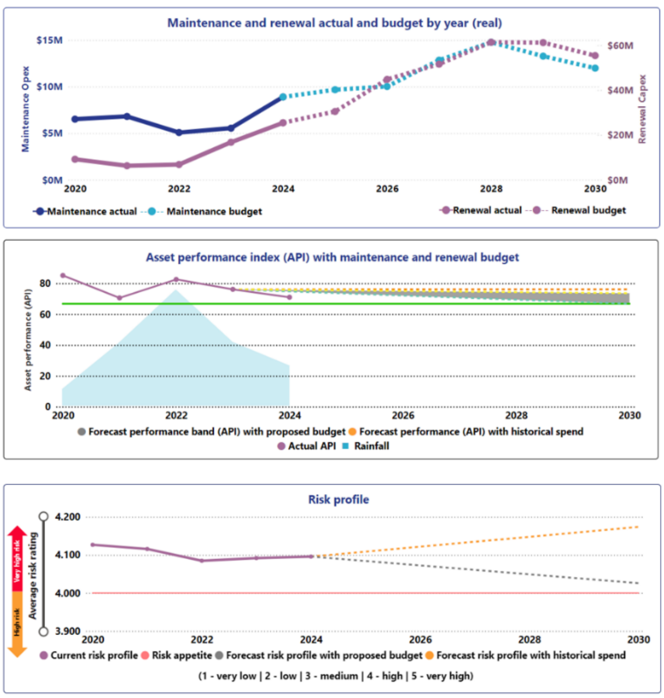
Our water filtration systems are under increasing risk of non-compliance due to the increased occurrence of poor raw source water quality.

Safe and clean drinking water is the highest priority for Sydney Water and our customers. Significant degradation of source raw water quality has resulted in filtration plants operating outside their design envelopes. We have been managing this risk since 2010. Drought helped in 2017–20, but recent experiences during heavy rainfalls means we are now at unacceptably high-risk levels.

The resulting pretreatment program prioritises the water systems with the highest risk with upgrades planned for Prospect, Orchard Hills, Nepean and Cascade. Pretreatment will support reliable supply of safe and clean drinking water to bring plants back within requirements.

Asset condition and performance has improved slightly during the current period due to increases in renewal and maintenance investment over the past two years. However, to manage performance risk, we need to sustain the increased level of renewal investment over the next five years and into the following period.

Figure 6.2.4: WFP performance, cost, risk



Our water filtration asset base has a larger number of assets coming to end of life over the 2025–30 period than ever before. This is reflected in a larger volume and cost of renewals even after application of deferral and value maximisation considerations. As many of these assets will require replacement for the first time, the risk is significant and the costs in many cases also require modernisation of the assets to current standards.This will support our objectives of water system compliance and performance, mitigation of public health, climate, and reliability of supply risks.

Property

Investment in our property portfolio aims to achieve efficient management of land (excluding where related to infrastructure capital), facilities, worksites and other (predominantly non-core) assets that enable the operation of our business and delivery of our services.

Table 6.2.5: Property investment initiatives ($24-25, $millions)

Investment Initiative	Period 0 2020-25	Period 1 2025-30	Period 2 2030-35	Total 10 yr 2025-35	Property (%)	Renewal driver (%)
Laboratory	52	49	-	49	8%	<1%
Bondi WRRF administrative building	10	58	-	58	9%	<1%
Thrive program	7	-	-	-	0%	0%
Property asset management portfolio	71	167	179	346	54%	3%
Other – property	114	109	75	183	29%	2%
Total	**254**	**382**	**254**	**636**	**100%**	**5%**

Over the next period, we plan to invest $382 million in property renewals, comprising the following key investments:

- **Laboratories ($49 million)** – Our laboratories help us manage public health and environmental risks through critical sampling and analysis of water (recycled, raw and potable), wastewater, environmental waters (rivers, beaches and ocean sediment), stormwater, biosolids, air quality and atmospheric quality. We are investing to replace our West Ryde facility due to building compliance, deficiency in accommodation, workplace health and safety and capacity issues. Leasing and fitting out of new labs at North Ryde will provide a future-proof and functional working space to enable us to continue providing safe essential services to our customers.
- **Finalising redevelopment of administrative sites at our Bondi WRRF ($58 million)** – Accommodation assets at our Bondi WRRF are in poor condition. Various levels of deficiency in accommodation and safety standards have been identified, with many not meeting modern building compliance codes and standards. The objectives of the project are, therefore, to support the provision of a safe and compliant working environment. This upgrade also aims to ensure functional workplace amenities, improve asset life cycle and security, along with avoiding increasing ongoing costs of maintaining deteriorating assets.
- **Sustaining our property asset management portfolio ($167 million)** – This relates to the role of property asset management in delivering facilities management activities across Sydney Water’s substantial asset base (around 3,000 sites with over 4,500 land lots and 1,500 facilities). Of these assets, much of our investment relates to refurbishing sites to achieve land and building compliance. This uplift is driven by asset condition assessments made across our entire property asset base, identifying a need to invest to make worksites and land management compliant with safety standards (such as upgrades to heating, ventilation and air conditioning systems, fire management and fencing).
- **Other property ($109 million)** – which primarily relates to:
  - environmental – maintains compliance with other safety and environmental regulations, including *Work Health and Safety Act 2011* (NSW) requirements related to asbestos and other hazardous building materials; the *Contaminated Land Management Act 1997* (NSW), the *Protection of the Environment Operations Act 1997* (NSW) (linked to waste management on related projects) and elements of the *Biosecurity Act 2015* (NSW) on sites without environmentally sensitive bushland subject to property environmental management plans. Key priorities over the next period include remediation of asbestos, other hazardous building materials, and structures that have degraded and are in an unsafe condition (due to their age, increased rainfall in recent years and other factors); remediation of several contaminated sites identified as part of due diligence and contaminated land management program activities; and land rehabilitation activities.
  - workplace – manages the working environment in a safe and sustainable manner that complies with work health and safety and environmental obligations including worksites that were initially planned to be upgraded as part of our Thrive program.

Stormwater

The stormwater renewals program seeks to ensure communities are safe, properties are protected, and the ecological and societal benefits of local environments are improved through water sensitive urban design. This program aims to ensure stormwater obligations are met at the lowest life-cycle cost with acceptable risk, while satisfying the environmental and quality expectations of local communities and many other external stakeholders.

Investment of $494 million (4 per cent of the total renewals forecast) is required over the next 10 years to maintain and renew stormwater assets so that rainwater can continue to be safely transported away from urban environments. It also aims to manage flood risk and, when investment is undertaken, allow design to take account of ecological and societal benefits. The investment includes renewal of approximately 7 km of open channel, 3 km of pipe and one wetland.

Table 6.2.6: Stormwater investment initiatives ($24-25, $millions)

Investment initiative	Period 0 2020-25	Period 1 2025-30	Period 2 2030-35	Total 10 yr 2025-35	Stormwater (%)	Renewal driver (%)
Stormwater renewals	138	274	183	457	93%	4%
Stormwater - flood risk	6	6	30	36	7%	0%
Stormwater	**144**	**280**	**213**	**494**	**100%**	**4%**

Sydney Water owns and maintains major trunk stormwater assets in 73 local catchments across Sydney, which provide stormwater services for over 640,000 properties. This includes an extensive network of artificial and natural channels that feed into and from water storage locations and bioretention systems. Waterway health is supported by existing stormwater quality improvement devices (SQIDs) and riparian land that hosts natural vegetation. These assets play a vital role in providing the stormwater service, maintaining public safety, and protecting property and the environment.

Stormwater assets typically have long design lives due to the materials used and these lifetimes can be achieved with careful condition-based asset management. However, approximately 70 per cent of the assets were built prior to 1950 and their poor condition is leading to an increasing level of renewals that must be completed to minimise risk. One of the important risks to be considered is that a large asset failure, like a channel collapse, can trigger an unplanned emergency renewal, which is much more expensive than a planned renewal.

The stormwater renewals program seeks to maintain the integrity of the network through condition-based asset management. This includes ‘like-for-like’ renewals as well as renewing concrete open channels with naturalised assets, which can be last longer than reinforced concrete while providing additional community and ecological benefits. This period, the renewals program is forecast to deliver like-for-like renewals including 5.9 km of open channel and 3.3 km of conduit pipe across approximately 25 sites. Naturalisation renewal works will also be completed across three sites; in total 1.7 km and one existing wetland will be rehabilitated.

Our stormwater infrastructure interfaces with stormwater infrastructure managed by councils and other government agencies. We work with councils to identify and implement measures to reduce the impact of flooding on customers and the community, and protect property and infrastructure from flooding. The stormwater – flood risk program provides for planning and delivery of solutions in collaboration with council-led flood risk management committees to reduce the impact of flooding. Two sites are under review with work targeted to start in Period 2.

Energy

This program is focused on investment in electricity generation and energy-efficiency projects to manage energy consumption and costs and the impacts of growth on these. Our operations are energy intensive and these investments to reduce grid reliance also mitigate against electricity price volatility.

Table 6.2.7: Energy investment initiatives ($24-25, $millions)

Investment Initiative	Period 0 2020-25	Period 1 2025-30	Period 2 2030-35	Total 10 yr 2025-35	Energy (%)	Renewal driver (%)
Energy	**49**	**77**	**24**	**101**	**100%**	**1%**

While managed separately with the objective of managing energy costs, this investment program is a key pillar of the Net Zero Carbon Plan, in line with the Customer Outcome, Environmental Protection, Objective 4, explained in **Chapter 2**.

As one of the larger electricity users in NSW, it is in Sydney Water's and customer's interests that electricity use and exposure to potentially volatile prices are actively managed. Investment activities to achieve this include:

- a rolling program of energy efficiency audits to identify possible opportunities and implement these where viable – with forecast investment of $52 million.
- planned solar generation installations planned; although previously ambitious plans have been moderated – with forecast investment of $25 million.
- no further cogeneration renewals after the current large projects complete ($4 million) .
- energy efficiency improvements – normally via equipment or control upgrades.

Looking ahead to the 2025–30 period, the forecast investment is $77 million, with most of this currently planned to focus on energy efficiency and solar generation. For context, over Period 0 our renewable energy generation of over 300 MWh (the equivalent annual usage of 170,000 homes) has contributed to:

- estimated avoided electricity and renewable energy certificate costs of around $50 million[94].
- savings in equivalent carbon emissions of 20,000 tonnes (tCO_2-e).

If the investment program proceeds as planned, it is expected that the new assets will contribute to more renewable energy generation (estimated at 550,000 MWh), with further cost savings and avoided carbon emissions.

94 The renewable energy certificate savings are related to the terms of our existing electricitiy supply contract.

Appendix 6.3 Cost-estimating and forecasting accuracy

Despite market cost escalation pressure, the majority of projects were delivered within +/–20 per cent of original approved P50 budget from Delivery Approval Business Case (DABC) stage.

On an average, approximately 70 per cent of the infrastructure portfolio's project's out-turn costs were in the range of +/–20 per cent of their P50 estimate done at the DABC stage. This is also within a period of volatile construction cost escalation over the past two years, where Sydney Water had to actively manage the risk–return of higher costs.

Sydney Water is continually engaging in estimation improvement practices and conducting a routine review of lessons learnt on projects with higher overspends or underspends, to analyse areas for improvement in our estimations and uncertainty considerations of P50 evaluation.

There is a contingency release policy to manage P50 and P90 contingency use, and variation business case and governance to control and approve any forecast spend over P90, with an escalating delegation approval requirement.

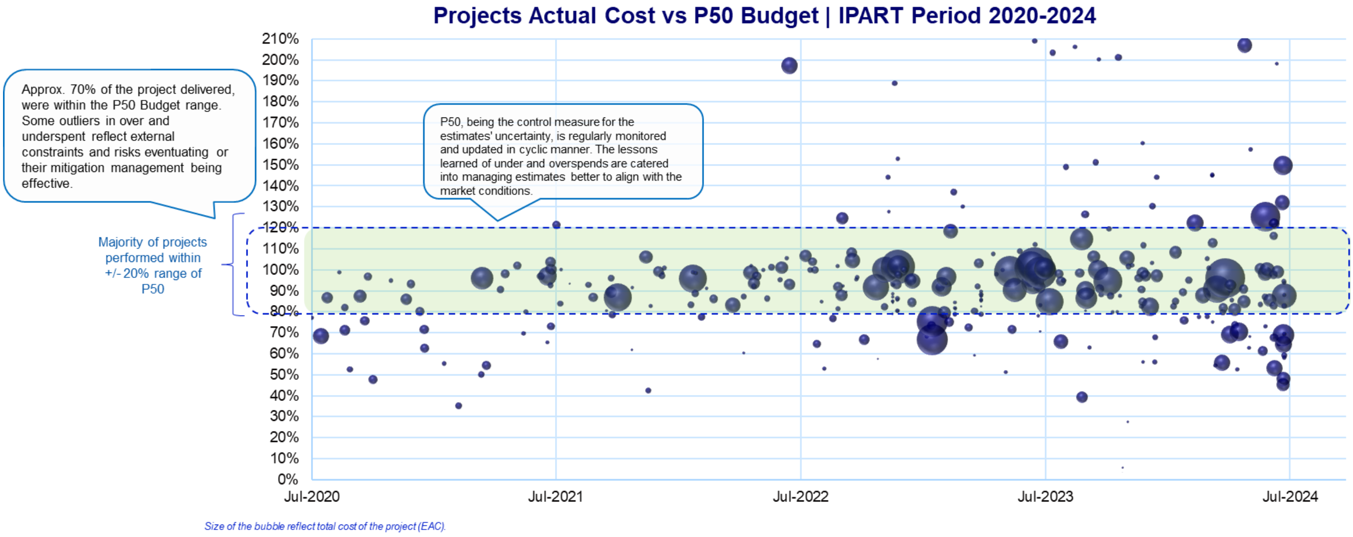
Our capital infrastructure portfolio forecast accuracy for each financial year has been close to +/–10 per cent of final actual expenditure over the past two years.

Sydney Water's ability to forecast accurately is improving each year, along with the capacity to deliver more projects, small and large. The forecast at start of FY2023 was $1.6 billion, and final actuals for the year were $1.4 billion (–12 per cent). The forecast at the start of FY2024 was $1.9 billion, and final actuals for the year were $2 billion (+7 per cent).

All investment programs and major projects are reviewed monthly, and forecasts adjusted and updated across each investment initiative. Some investment initiatives can have 200–300 projects in flight at any one time across different stages of the project cycle, with 2,000+ individual in-flight projects across the entire portfolio. Relevant adjustments are then made across projects, programs and the portfolio to incorporate the level of certainty, risk and productivity trends.

The continuous improvement in both cost estimation and forecasting accuracy provides confidence in the forecasts put forward for our 2025–30 price proposal.

Figure 6.3.1: Project final out-turn costs vs original P50 cost estimate



Appendix 8.1 Infrastructure contributions

Infrastructure contributions

As discussed in **Chapter 3**, in March 2021 the NSW Government accepted a recommendation from the NSW Productivity Commission to rescind the Government's previous Nil Developer Charges Policy for Sydney Water and Hunter Water. The change in policy means that developers will once again contribute towards the cost of new infrastructure needed to serve their developments, ultimately reducing the share of costs that needs to be recovered via regulated prices.

Drinking water, wastewater and stormwater charges had been set to zero in December 2008 during the Global Financial Crisis, although recycled water charges could continue to be levied. In a report in 2020 the NSW Productivity Commission found that the decision to set some charges to zero in 2008 mainly benefited holders of developable land, had acted to distort investment decisions and opportunities for greater competition in the water sector, and would add a growing amount to customer bills if the policy was retained.

The Nil Developer Charge Policy was formally rescinded with effect from 1 January 2022. Under the applicable IPART determination, Sydney Water would need to recommence levying infrastructure contributions from 1 July 2023, 18 months after the change in Policy. However, the Government also announced a staged timetable for the reintroduction of infrastructure contributions to give the market time to adjust to the change in circumstances.

Under the Government's transition plan:

- Drinking water, wastewater and stormwater contributions would remain at zero for an extra 12 months until 30 June 2024.
- Contributions prices would be phased in from 1 July 2024, with the following discounts in place:
  - 75 per cent discount from 1 July 2024 to 30 June 2025 (i.e. developers pay no more than 25 per cent of the relevant price)
  - 50 per cent discount from 1 July 2025 to 30 June 2026
  - 0 per cent discount from 1 July 2026
- Stormwater contributions for the Initial Aerotropolis Precincts, where Sydney Water had been declared as the regional stormwater authority, would commence from 1 July 2024 with no transition period. This recognised that developers would have had to pay a similar contribution to the relevant council and the charge payable to Sydney Water is therefore not a 'new' charge.

If we had been able to levy the full infrastructure contribution prices registered with IPART from 1 July 2023 then we may have been able to collect around $535 million in additional revenue from infrastructure contributions across the transition period (see **Table 8.1.1).** This is equivalent to around 15 per cent of the infrastructure contribution revenue we forecast we will receive in the five years to 2029-30.

Table 8.1.1: Indicative estimate of foregone infrastructure contribution revenue under the phased reintroduction of charges ($24-25, $millions)

	2023-24	2024-25	2025-26	Total transition period
Foregone drinking water IC revenue	62.7	49.9	31.4	144.0
Foregone wastewater IC revenue	167.7	130.4	91.5	389.6
Total foregone IC revenue	230.4	180.3	123.0	533.6

A multi-year transition period of zero or reduced prices was not considered as part of the IPART methodology. Rather, and as discussed in more detail below, IPART's method sets a common price that is charged to all developers at the time they seek to connect to our system. The calculated price does not vary in real terms and is only subject to annual CPI indexation each year.

Our final set of Development Servicing Plans (DSP), which outline the charges by geographic area to recover the cost of assets needed to serve development, consisted of four drinking water DSPs (see **Figure 8.1.1**) and 13 wastewater DSP areas (see **Figure 8.1.2**). The plans can be found on our Infrastructure contributions public consultation page.

Figure 8.1.1: Drinking water Development Servicing Plan areas registered with IPART

Figure 8.1.2: Wastewater Development Servicing Plan areas registered with IPART

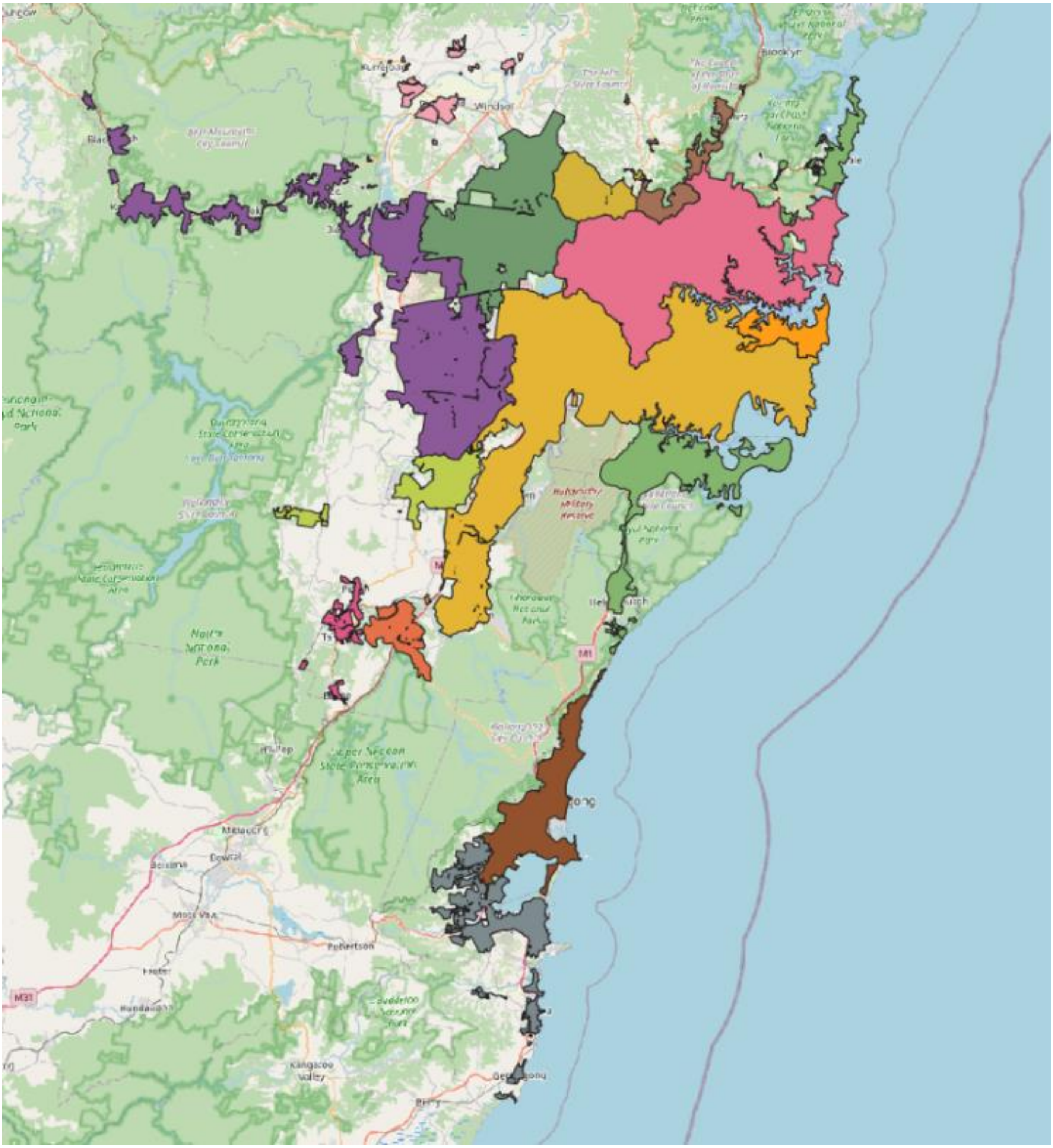


Table 8.1.2 and **Table 8.1.3** show the infrastructure contribution prices that were registered with IPART in December 2023 as adjusted for inflation in accordance with IPART's determination. The prices and DSP areas will be reviewed every five years, and the next set of DSPs must be registered with IPART no later than December 2028.

Table 8.1.2: Drinking water Infrastructure Contribution prices ($24-25)

DSP area $ per equivalent tenement (ET)	1 July 2026 onwards (no discount)	1 July 2024 to 30 June 2025 (75% discount)
Greater Sydney	$3,399.99	$850.00
Potts Hill	$0	$0
Prospect East	$0	$0
Illawarra	$0	$0

Table 8.1.3: Wastewater Infrastructure Contribution prices ($24-25)

DSP area $ per equivalent tenement (ET)	1 July 2026 onwards (no discount)	1 July 2024 to 30 June 2025 (75% discount)
North Head	$608.95	$152.54
Malabar	$833.68	$208.42
Bondi	$0	$0
Outer Sydney Costal	$2,467.44	$616.86
Southern Illawarra	$13,917.61	$3,479.40
Northern Illawarra	$0	$0
Berowra Creek	$6,715.47	$1,678.87
Norwest	$4,104.20	$1,026.05
West Camden	$4,968.14	$1,242.03
Picton	$42,195.11	$10,548.78
Wilton	$22,964.98	$5,741.25
Nepean River	$16,597.14	$4,149.28
Lower South Creek	$6,405.92	$1,601.48

How IPART's infrastructure contribution pricing method shares costs between developers and customers

Infrastructure contribution prices are set using a methodology regulated by IPART (see **Figure 8.1.3**). The methodology seeks to share costs between customers and developers depending on whether development is occurring in a region with higher than average servicing costs.

Under IPART's pricing method, regulated prices and infrastructure contributions are linked via the 'reduction amount' component of the IC price and, more specifically, the future revenue Sydney Water will collect from each new connection.

Each connection to our network pays for services using some combination of usage and availability charges, which have been set by IPART to recover the revenue requirement calculated using the building block approach. As discussed above, the building block model produces a revenue allowance that is sufficient to recover all the costs necessary to provide services to customers, including operating costs, an annualised amount for the cost of long-lived assets, and a rate of return. The revenue requirement is then converted into a set of regulated prices, which are set on a 'postage stamp' basis – that is, the regulated price for a service is the same in all locations.

As regulated prices recover the total cost of providing the service, we can think of the regulated price as a proxy measure of the city-wide average cost of providing a service to a single connection to our system. For example, over a 30-year period a single residential dwelling will pay around $9,100 in regulated prices for drinking water services and $9,800 for wastewater services (in present value terms)[95].

When development results in new connections to our system, those new connections will pay the same regulated prices as everyone else. However, each new connection will also add some costs to the total. Three broad outcomes are possible:

The extra costs to provide a service to each new connection are lower than the current average (eg, less than $9,100 per new connection). Development in these areas will reduce regulated prices over time, as the increase in costs is smaller than the increase in the number of connections meaning costs can therefore be shared over a larger number of properties thereby reducing prices for everyone.

The extra costs to provide a service to each new connection are about the same as the current average. Development in these areas will keep regulated prices more or less steady over time.

The extra costs to provide a service to each new connection are higher than the current average. Development in these areas will increase regulated prices over time, as costs rise faster than the increase in new connections.

IPARTs pricing methodology essentially states that an infrastructure contribution is not required if the servicing costs are at or below the current system-wide average (i.e., scenarios 1 and 2 above). New connections in these locations are considered 'self-funding', with the extra revenue from regulated prices fully offsetting the extra costs of extending services to those new connections. An infrastructure contribution is therefore only required under scenario 3.

Consistent with IPART's funding hierarchy, which favours an impactor-pays approach in the first instance, new connections in these high-cost areas are required to make up the shortfall in regulated revenue via a one-off payment at the time they wish to connect.

The impact of growth-related investment on regulated customer prices is therefore heavily dependent on whether the development being served is in a high- or low-cost location. For example, $1 billion in new investment in a low-cost area will flow straight to customer bills with no developer contributions, while $1 billion invested to serve a high-cost area may be partly shared between developers and regulated customer prices or allocated fully to developers.

[95] This includes the impact of the Nil Developer Charge Policy that has applied since 2008. In other words, the reduction amount applied today is higher, and therefore IC prices today will be lower, due to the on-going effects of the Nil Developer Charge Policy.

Figure 8.1.3: IPART's infrastructure contribution pricing method

The NPV of this difference, discounted at rate r_3, is called the **"Reduction Amount"**

Value of pre-1996 assets (K_1), calculated on an NPV basis, discounted at rate r_1 from 01/01/1996

Value of post-1996 assets (K_2), calculated on an NPV basis, discounted at rate r_2

Estimate of future periodic revenues received from new customers

Estimate of future operating, maintenance and administration costs to serve new customers

$$MP_{Sch1} = \frac{K_1}{L_1} + \frac{K_2}{L_2} - \frac{NPV(R_i - C_i)}{L_3}$$

Maximum **Developer charge (DC)** per **equivalent tenement (ET)**

NPV of the number of ETs for pre-1996 Assets, discounted at rate r_1

NPV of the number of ETs for post-1996 Assets, discounted at rate r_2

NPV of the number of ETs for the reduction amount, discounted at rate r_3

Some of the key features of IPART's method include:

- Both past and future assets are included, as past assets can provide capacity to serve development for many years into the future.
- Because we are dealing with past and future quantities, all inputs are converted to a common base year using a process known as discounting. Discounting converts past or future values into their equivalent value today.
- Discounting means that, everything else held constant, all developments pay the same (real) price regardless of when they occur.
- Costs are shared based on demand for services. The unit of demand is an 'equivalent tenement', which is defined as the total annual demand of a single, detached residential dwelling.
- Credit is given for the future revenue we will receive from new connections over the next 30 years, less O&M costs.
- If development can be served at a low cost, the infrastructure contribution price in some locations may be zero.

The sharing of growth-related costs between developers and customer bills can be estimated from information in the Development Servicing Plans (DSPs) registered with IPART. The DSPs provide details of the total cost to serve new connections in a DSP area, consisting of:

- A share of existing assets commissioned before 1 January 1996;
- A share of existing assets commissioned on or after 1 January 1996;
- The cost of new uncommissioned assets yet to be constructed; and
- Additional operating costs needed to meet the extra demand for our services.

Re-arranging the terms in IPART's pricing methodology, the final infrastructure contribution price in a DSP area is equal to the total cost to serve minus the additional 'postage stamp' revenue from new connections.

It follows that the share of growth-related costs allocated to customer bills is equal to revenue from new connections divided by the total cost to serve. **Table 8.1.4** below reports these values for each of the registered wastewater and drinking water DSPs.

The table shows there is a wide variation in the recovery of costs from developers (via an explicit IC payment) as compared to customers. For example, in greenfield areas with few existing services developers are required to fund around 90 per cent of growth-related costs via an infrastructure contribution. However, in other parts of the city, the share of costs allocated to developers is quite low, even in locations where Sydney Water must invest significant amounts to serve growth.

In systems such as Malabar and North Head, for example, the revenue we derive from new connections is well above the current average cost-to-serve, and the surplus revenue acts to reduce the charges payable by developers. In part this is an artefact of postage stamp pricing, where each new connection pays the same amount regardless of location or location-based differences in costs, and systems like Malabar and North Head have very low operating costs compared with the amount allowed in regulated prices. As each new connection in these systems covers most of the cost of investing in new infrastructure, the developer that facilitated those connections is only required to make a relatively small cash contribution.

The sharing of costs between developers and customer bills means that a significant amount of growth-related capital expenditure is not recoverable from developers in the form of IC payments. As shown in **Table 8.1.4**, for example, around $7.8 billion of future wastewater capital investment in the DSPs (which covered the period 2022 to 2032) is not recovered from developers via IC revenue and instead must be recovered via customer bills from both existing and new customer connections. For drinking water, the equivalent figure is $2.2 billion of capital investment in new assets that are needed to serve growth.

Our significant increase in stormwater growth in Mamre Road and Aerotropolis precincts has led us to find new ways to optimise infrastructure delivery. One of the ways we are doing this, is to investigate frameworks which more closely mimic the way Councils deliver stormwater assets. That is, Councils utilise a 'developer delivered' model, where, developers can build trunk assets (or provide land) which is then gifted as an off-set to the total infrastructure contributions they pay. The framework we are setting up would cover delivery of water, wastewater and stormwater assets, based on agreements with developers which result in no increase, in present value terms, to the share of costs paid by customers. That is, this change will be implemented in such a way that Sydney Water, our shareholder, and our customers are in-different to whether assets are contributed in-kind or purchased. As such, our proposal reflects all contributions for growth assets being cash contributions (as the default position), as we expect the annual revenue requirement calculations and resulting customer funding should be identical to if some of these contributions are made 'in-kind'.

Forecasting infrastructure contribution revenue

Infrastructure contributions are levied on a development at the time Sydney Water approves each connection to our systems. The total amount payable by any given development depends on the number of equivalent tenements (ETs) in that development and the registered IC price ($ / ET) in the relevant DSPs for that location. In most cases a development will need both water and wastewater services, which means that two separate IC payments would be required.

Under IPART's pricing method, one equivalent tenement (ET) is equal to the demand of a detached single residential dwelling. Each DSP contains assumptions about how much drinking water is used by a single residential dwelling, and how much of this drinking water is ultimately discharged to the wastewater system. By applying these benchmarks we can determine the total number of ET's for any type of development, and therefore the total amount that needs to be paid.

Importantly, the construction of new housing and other structures that will use each approved connection happens later in the development process. For example, most residential dwellings can be constructed in around 6 to 9 months, but construction can only start after Sydney Water has confirmed that services are available and the IC has been paid. Many non-residential developments will take even longer to be completed before the new land use can commence, and consists of many hundreds of ET’s but often only one or two large connections. As a result, the development forecasts that underpin the IC revenue forecast are unlikely to align precisely with forecasts that we use in this price proposal for other key inputs such property connections and water demand.

Finally, the capital expenditure profile used to create the DSPs and associated IC prices registered with IPART were based on information available as at mid-2023 and will differ from the capital expenditure forecasts used in this price proposal. The registered DSP prices are also fixed in real terms for five years and can’t be updated to reflect variances except with IPART approval to prepare a new DSP. Our IC revenue forecasts from 2028-29 onwards include estimates of how the DSP prices might be revised in future to reflect changes in investment priorities and costs since the DSPs were first prepared.

The total IC amount payable by any development is very dependent on the exact form of the development, which we do not know in advance. For example, a development with 400 detached residential houses is equal to 400 ETs, and the developer will simply pay 400 times the registered DSP price for that location. However, a development with 400 flats will pay a lower amount in total, because occupants of flats tend to use around 30 per cent less drinking water than those in single, detached houses. A development with 400 flats may therefore convert to 267 ETs, or even less if the density of flats is very high (further reducing water use). In these cases, a developer would instead pay 267 times the registered DSP price.

For non-residential developments we need to determine the expected annual volume of water and wastewater demand of the proposed land use. We divide this estimate by the benchmark demand of a single residential dwelling in order to estimate total ETs for the development. For example, if the benchmark single dwelling uses 200 kL of drinking water a year, then a non-residential development that uses 10,000 kL of drinking water consists of 50 ETs. The developer would therefore pay 50 times the registered DSP price.

Our IC revenue forecasts are therefore subject to a high degree of uncertainty.

Table 8.1.4: Cost sharing of growth capex between developers and customers in our registered Development Servicing Plans ($23-24)

Development Servicing Plan	(A) Pre-1996 assets ($ / ET)	(B) Post-1996 commissioned assets ($ / ET)	(C) Post-1996 new assets ($ / ET)	(D) Operating costs ($ / ET)	Sum (A) to (D) Total cost to serve ($ / ET)	Revenue from new connections ($ / ET)	Share of total costs recovered from developers (%)	New capex in DSPs allocated to customer bills ($m)
Picton Wastewater	$0	$16,697	$24,375	$4,690	$45,761	$5,032	89%	$36.2m
West Camden Wastewater	$356	$1,820	$3,896	$3,249	$9,322	$4,526	51%	$127.4m
Wilton Wastewater	$0	$2,722	$20,118	$1,728	$24,568	$2,401	90%	$29.7m
Nepean River Wastewater	$2,094	$2,190	$11,666	$1,975	$17,924	$1,904	90%	$264.4m
Richmond Wastewater	$196	$2,571	$22,752	$2,215	$27,734	$6,347	77%	$44.5m
Lower South Creek Wastewater	$976	$2,446	$4,385	$1,363	$9,169	$2,986	67%	$439.9m
Norwest Wastewater	$535	$2,234	$5,053	$2,755	$10,597	$6,905	35%	$441.8m
Berowra Creek Wastewater	$739	$1,522	$6,083	$2,802	$11,146	$4,664	58%	$93.7m
Bondi Wastewater	$3	$577	$723	$468	$1,770	$3,022	0%	$216.8m
Malabar Wastewater	$458	$1,124	$3,926	$1,199	$6,707	$5,902	12%	$3,118.6m
North Head Wastewater	$388	$1,040	$3,594	$1,181	$6,203	$5,615	9%	$2,349.6m
Outer Sydney Coastal Wastewater	$1,984	$2,206	$2,635	$2,190	$9,015	$6,633	26%	$191.7m
Southern Illawarra Wastewater	$1,179	$3,296	$12,181	$2,320	$18,975	$5,541	71%	$297.7m
Northern Illawarra Wastewater	$111	$1,963	$1,914	$3,225	$7,212	$7,365	0%	$177.5m
				Total wastewater capex funded by regulated prices:				**$7,829.5m**
Greater Sydney Drinking Water	$700	$499	$2,487	$2,216	$5,984	$3,114	48%	$2,218.7m
Potts Hill Drinking Water	$147	$283	$39	$1,632	$2,101	$3,483	0%	$32.1m
Prospect East Drinking Water	$251	$170	$2	$2,153	$2,576	$4,680	0%	$0.2m
				Total drinking water capex funded by regulated prices:				**$2,251m**

Development forecast for estimating infrastructure contribution revenue

Forecasts of new demand for our services are based on intelligence known to Sydney Water, which is sourced from:

- published government data such as
  - the April 2023 release of the Sydney Housing Supply Forecast (SHSF) which was prepared and published by the (then) Department of Planning and Environment (DPE),
  - Employment forecasts prepared by Transport for NSW, as updated in late 2022,
- Section 78 development referrals[96],
- precinct-specific forecasts provided by the Department of Planning and/or local councils,
- development- or site-specific information obtained directly from our developer customers, including size, staging and anticipated land use.

This is the same base data that we use to prepare forecasts for new connections and water and wastewater demand.

As discussed in **Chapter 3**, the NSW Government has signed up to ambitious targets under the National Housing Accord for the creation of 377,000 well-located homes across NSW by 2029, with longer-term targets still to be announced. Just under 265,000 of the new homes needed by 2029 will be in Sydney's Local Government Areas (LGAs), with a mix of infill and greenfield development. More than 50,000 new homes would be needed every year to meet the Sydney targets, significantly above the largest number of annual new connections that Sydney Water has ever experienced (which was around 36,000). As set out in Chapter 10, our demand forecast assumes around 30,000 to 32,000 new dwellings out to 2028, dropping to around 28,000 a year (+/- 500) on average thereafter.

If our forecast of infrastructure contribution revenue is set too low, customer bills will necessarily be higher to ensure that Sydney Water can fully recover our costs. In addition, if actual development is above the level assumed in the forecast, this may result in a windfall gain to Sydney Water. In other words, customers would bear a greater share of development risk if forecast infrastructure contribution revenue is set too low, particularly if there is upside potential in future rates of development. Conversely, if our IC revenue forecast is set too high and the expected revenue does not occur, Sydney Water may not have sufficient revenue to fund the provision of essential services.

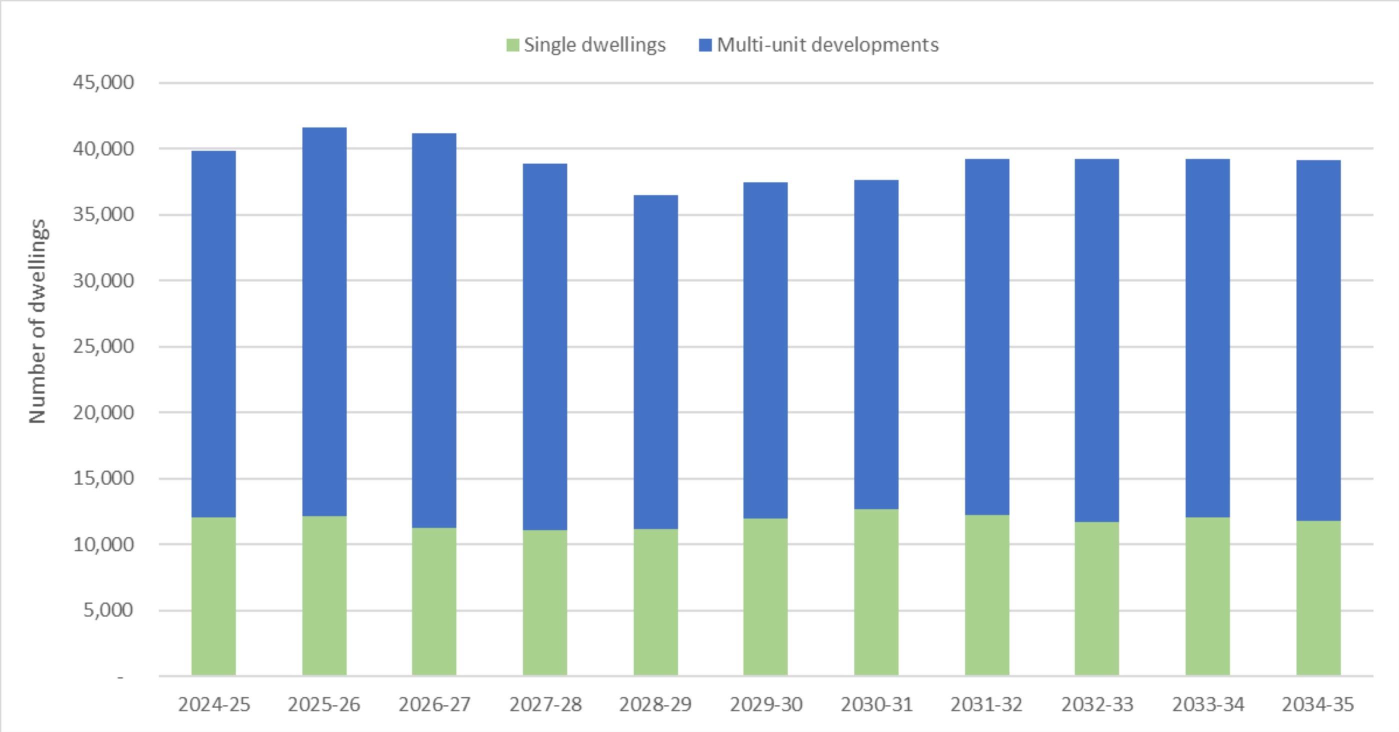
The development profile we have used to estimate infrastructure contribution revenue attempts to find a reasonable middle-ground that shares risk appropriately between Sydney Water and our customers. The adopted dwelling forecast is shown in **Figure 8.1.4** and is around 8,000 to 10,000 dwellings per year higher than the figures that underpin our demand forecast, but also around 10,000 dwellings a year less than the level of development needed to meet the Housing Accord targets.

Consistent with our demand forecasts in Chapter 10, multi-unit developments make up the largest component of the overall forecast, with rising rates of development initially before stabilising in later years. The key difference is that our IC revenue forecast assumes an overall higher rate of development in the coming period, which reflects some of the upside risk due to the National Housing Accord targets.

Figure 8.1.5 shows the increase in non-residential developments over the forecast period, converted to equivalent tenements. The forecast shows a modest rising trend across the period. Although the non-residential ET forecast could potentially be converted to a volumetric forecast of extra water or wastewater demand, this would not be directly comparable with the demand forecasts in Chapter 10 as the latter would reflect the conversion of non-residential land to residential which may result in negative demand growth in some years. For the purposes of estimating infrastructure contribution revenue, however, what matters is the gross estimate of extra demand.

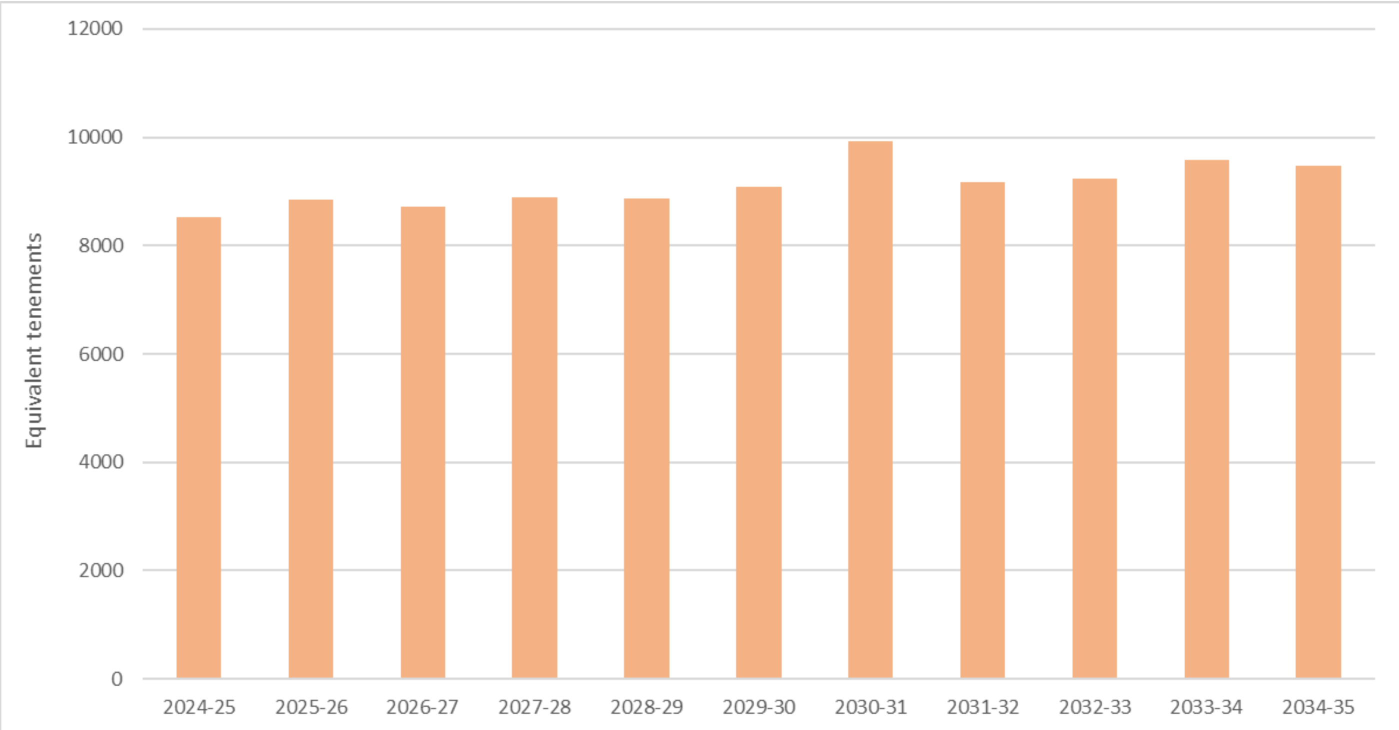
[96] Under Section 78 of the Sydney Water Act, consent authorities such as the Department of Planning and local councils must refer impactful development applications to Sydney Water. These referrals alert Sydney Water to upcoming development and any potential impacts to our assets.

Figure 8.1.4: Forecast residential dwellings supporting the infrastructure contribution revenue forecast



In the case of stormwater, the infrastructure contribution forecast reflects the anticipated rates of development across the Initial Aerotropolis Precincts and our preliminary estimate of the infrastructure contribution prices that will apply in each precinct. We intend to formally exhibit Development Servicing Plans for these areas across late 2024 and into 2025, and estimates may therefore vary as IPART works through the retail price determination process.

Figure 8.1.5 Forecast non-residential equivalent tenements supporting the infrastructure contribution revenue forecast



Appendix 8.2 Integrated Water Cycle Management (IWCM)

Least-cost Integrated Water Cycle Management (IWCM) growth servicing

Over the past 30 years, our investment in least-cost IWCM servicing has been significant. To support the rapid expansion of Sydney, we will once again need to invest heavily in IWCM infrastructure. To support this critical investment, as outlined in the final report which accompanied IPART's 2019 recycled water determination[97], we are proposing three IWCM schemes are funded as least-cost going forward: Rouse Hill, Wilton/Bingara and Mamre Road/Aerotropolis Precincts. In relation to least-cost proposals, IPART stated in their 2019 final report:

> *...we will carry out a single efficiency test of the investment decision at the subsequent retail price review, as we do with traditional water, wastewater and stormwater investments. The efficiency test considers whether, given the circumstances and information available at the time, the decision to invest in a scheme was prudent.*

Although funding for the Rouse Hill scheme has been ring-fenced to varying degrees since its inception, we consider a least-cost assessment is still appropriate at this time because this was not an option before IPART's 2019 determination. This means no such assessment has yet been proposed for this scheme.

What is IWCM and why propose least-cost treatment

Integrated Water Cycle Management (IWCM)[98] has been used to optimise delivery of essential water services for almost a century[99]. The Productivity Commission defines it as:

> *a whole-of-system, multidisciplinary approach that aims to manage the entire urban water cycle by integrating the delivery of water, wastewater and stormwater services to contribute to the full suite of water security, public health, environmental and urban amenity outcomes that the community seeks.*

IWCM was first used by Sydney Water in the early 1990s to deliver economically efficient growth servicing to the Rouse Hill Development Area (RHDA). At Rouse Hill, the NSW Government nominated Sydney Water to plan, deliver and manage all water services: water, wastewater, trunk stormwater and recycled water. All Sydney Water's servicing options assessments now explore how integrated servicing might be used to optimise delivery of the outcomes the community needs. However, there have been limited examples of **fully** integrated water servicing since IWCM at RHDA was adopted over 30 years ago. This is largely due to the legacy of disjointed responsibility for stormwater planning and management. The NSW Government's Greater Sydney Water Strategy (GSWS) has recognised this problem:

- Responsibilities for stormwater management are not assigned appropriately—for example, organisational capabilities are not aligned with regional or local waterway health objectives.
- The stormwater drainage network typically does not meet contemporary standards throughout most of Sydney's established suburbs.
- There are inconsistencies in the design standards, performance and monitoring of stormwater drainage and water sensitive urban design across Greater Sydney.
- Most local councils have limited access to advice and expertise regarding the application of water sensitive urban design.
- There is significant room to improve through actions such as more effective planning controls and governance.

One of the key actions to address these problems occurred on 25 March 2022, when the NSW Government nominated Sydney Water as trunk drainage manager for the Mamre Road and Initial Aerotropolis Precincts. This and other actions to protect waterway health will ensure development in the Western Parkland City, one of the fastest growing areas of Sydney, is provided with water

[97] IPART 2019 *Review of pricing arrangements for recycled water and related services – final report.*
[98] Also known as Integrated Water Resource Management (IWRM)
[99] The Tennessee Valley Authority in the 1930s is a good example, and has been extensively studied.

services in the most economically efficient manner. IWCM servicing delivered by Sydney Water has been estimated to deliver up to $2 billion more economic value than alternative servicing options[100].

In support of improved cost allocation associated with IWCM growth servicing and in response to customer preferences, we also propose to change what customers pay for in our existing stormwater catchments. That is, we propose the costs of the Waterway Health Improvement Program should be shared by all customers (rather than by a limited subset of stormwater customers). This will enable all waterway health related services (wastewater, stormwater and recycled water) to be reflected in a single postage stamp charge.

Customers and Government have paid funding shortfall

The requirement to largely ring-fence funding to customers within the Rouse Hill scheme had led to higher bills for customers living in the RHDA. Following the 2008 NSW Government decision to set developer contributions to zero, IPART introduced a land charge at Rouse Hill in 2012 to help recover the costs of stormwater infrastructure. This meant bills paid by new customers in Rouse Hill were almost double that paid by other customers.

Given the highly controversial nature of this differential, on the advice of the then Housing Supply Taskforce, the NSW Government directed IPART to allow Sydney Water to reduce this charge in 2013, principally through a reduction in the amount of flood-prone land purchased by Sydney Water and reserved for trunk drainage. However, even with this change Rouse Hill customer bills were still 20% higher than average. In addition, the change in our land acquisition program means some property owners of flood-prone land had their land purchased for trunk drainage while others did not, which may be inequitable.

Our analysis shows that ring-fenced funding at Rouse Hill has cost the NSW Government over a billion dollars in lost dividends over the last 30 years[101]. Although this loss is partially a result of the Government's decision to set infrastructure contributions to zero, it is still at odds with the principle of full cost recovery for prudent and efficient services which has applied to all other growth funding and the intention that the scheme was to be at no cost to Government.

Ring-fencing increases risk to the environment

The Government's direction to reduce the Rouse Hill land charge was predicated on a plan to reduce the area of drainage land that Sydney Water acquired by around 50 hectares by making amendments to both planning requirements in the area, and to the *Sydney Water Act (1994)*. These changes were subsequently found to be impossible to implement or have otherwise not occurred. This means large areas of drainage land in Rouse Hill remains in private ownership and it is not clear if Sydney Water can access and manage these areas to ensure their condition does not harm downstream waterways nor place downstream properties at risk of flooding. This would not be the case if Sydney Water purchased this land, however, under current ring-fenced funding, acquiring this land is not financially viable.

100 CBA conducted by DPE/Frontier Economics (2022), Sydney Water/Marsden Jacobs (2023)

101 Present value including opportunity cost calculated using the WACC in each year over that period.

What customers have said about IWCM services

Our customers have been clear with us that they think stormwater services should not change based on location nor which entity provides this service[102]. That is, there was a strong preference for everyone across Sydney to pay the same amount for stormwater regardless of where they live. The reasons given for this preference were:

- Essential infrastructure such as stormwater should not work on a user pays basis. Rather, it should be paid for equally by all – similar to health, public transport and education.
- Everyone has to use different infrastructure, including stormwater, in different locations at different times and everyone should contribute equally to this in the same way they do for other essential infrastructure.
- People move in and out of different areas, so equal charging removes the element of luck of where you live.
- Everyone has to contribute to the future liveability of Greater Sydney; stormwater infrastructure is an important part of this and financial contribution to its provision should be shared equally across the city.
- The desire for a simpler, more streamlined system of stormwater infrastructure provision and charging arrangements that are more transparent, that would enable greater accountability, and would be more efficient by reducing intergovernmental duplication and administration costs.

The last of these reasons – the need for simpler, more efficient provision of infrastructure and charging – is also echoed in the Greater Sydney Water Strategy (GSWS) *Priority 4: Our waterways and landscapes are healthy*. Sydney Water considers that equitable charging for stormwater services will remove one of the funding barriers to implementation of Priority 4, in the plan for a new, more streamlined and better coordinated model for stormwater governance and management controls. Equitable, secure and stable funding will enable improvements to be made to waterway health where they are needed most, for the benefit of all customers.

More recently, we conducted the extensive *Our Water, Our Voice* engagement. We found a shift in community perceptions towards more future focussed, preventative and community benefit related values associated with water services. In Phase 1, customers' four highest priorities in relation to water services were[103]:

- Maintaining clean and safe drinking water
- Ensuring bills remain affordable via cost management, payment plans and avoiding future cost spikes
- Maintaining clean, safe waterways and water recreation areas by reducing pollution
- Building infrastructure for water recycling and/or desalination for drought resilience

The adoption of least-cost servicing supports customers' second highest priority for affordable bills so that they only pay for the most efficient way for us to deliver services. Furthermore, least-cost IWCM servicing delivers the key outcome of maintaining clean safe waterways and water recreation areas by reducing pollution and degradation (customers' third highest priority). In addition, it also increases the opportunity for water recycling which contributes to drought resilience, customers' fourth highest priority. As such, the services we provide and propose to expand at our IWCM schemes are strongly supported by our customers in Phase 1.

In Phase 3 of *Our Water, Our Voice*, we gained further evidence of customer support for least-cost IWCM servicing as this protects waterways and supports cooling and greening and a more resilient water supply. For example, when asked about their preferred service levels during the next five years, customers indicated that for:

- **Healthy waterways**: Most customers prefer an **improvement** to current service levels and support a moderate increase in the service level in exchange for a modest bill increase.
- **Swim access, safety, and pollution prevention**: Most customers prefer to maintain the current service levels without a bill increase or a modest bill increase and moderate improvement.
- **Creating cool, green landscapes**: Customers prefer that Sydney Water take action to improve our levels of service, with an understanding that this may increase bill prices. Preferences include investment in stormwater and recycled water for non-drinking purposes.
- **Resilience of our water supply**: Customers prefer service levels be maintained as they understand that even maintaining services into the future will incur a bill increase. Customers told us the cost of improving service levels was too high.

[102] University of Technology Sydney (2015) Stormwater Customer Research – Research Findings, Prepared for Sydney Water.

[103] Our Water, Our Voice Phase 1 final report

Again, the evidence strongly supports implementation of least-cost IWCM servicing as this will contribute to healthier waterways, swim access, pollution prevention, help create cool, green landscapes and improve the resilience of our water supply in a cost-effective way.

Least-cost IWCM services are the most efficient way to deliver the essential services our customers need. However, in Phase 4 we found that customers have **additional** willingness to pay for an increase in water sourced from recycling and for improved waterway health. Even though customers understood they may already see an underlying 36% bill increase for essential water services when IPART next reviews Sydney Water's prices, they voiced strong willingness to pay an additional $27.20 per quarter (10% more) for improved healthy waterways and increased water recycling.

As noted above, although least-cost IWCM services are prudent and efficient essential services (i.e., the most economically efficient way to deliver the basic level of service customers require that meets all regulatory requirements), this recent demonstration of additional willingness to pay to increase recycled water and improve waterway health underscores how highly customers value the outcomes delivered by IWCM servicing. Sydney Water estimates the postage stamp price bill impact to fully fund all existing and future mandatory IWCM infrastructure that delivers healthy waterways (at Rouse Hill, Bingara/Wilton and Mamre Road and Aerotropolis and our existing stormwater catchments) would be close to 2%. Importantly, this bill impact is far smaller than the total contribution customers pay to protect waterway health from other growth-related pollution[104].

In Phase 5 Sydney Water investigated the preferred performance, risk, and associated cost profiles customers are willing to accept and the trade-offs customers apply when deciding between these levels. In relation to Sydney Water's efforts to prevent pollution, customers preferred a medium level of performance, risk and cost. This preference included[105]:

- **Performance:** There over 100 stormwater devices, frequently maintained, removing up to 1,500 m3 of litter and debris from stormwater
- **Risk:** Some swim sites are not safe for swimming after periods of heavy rainfall but more than 85% of Beachwatch and Harbourwatch sites are good or very good. There is no major change in the rating of urban waterways across Sydney in the short term, and some specific sites may gradually get better.
- **Cost:** Between $15 and $20 per quarter (on top of $90 that an average customer now pays on their bill to prevent pollution).

Although water, wastewater and stormwater are essential services for all communities, only water and wastewater have been consistently funded via postage stamp pricing. This is partly due to the disjointed governance of stormwater which has exacerbated the erroneous view that best practice stormwater services are somewhat discretionary and that customers in some locations benefit more from stormwater services than others. However, as discussed above, this does not recognise that best practice stormwater servicing plays an essential role in protecting waterway health which is how customers view this service[106]. This is why, based on customer sentiment gathered over almost ten years, we propose to allocate all growth and existing program costs related to waterway health to the wastewater building block as this allows:

- efficient and equitable sharing of the net impact of these costs, at well under the amount customers have indicated they are willing to pay, and
- postage stamp prices for flood protection costs going forward across all connected stormwater customers.

[104] Sydney Water estimates that since 2008 when the NSW Government set infrastructure contributions to zero, growth related costs have increased average customer bills by around $200 per year. Much of this cost is to protect waterways from the effluent from greenfield growth areas. As described in the following section, the recent reintroduction of infrastructure contributions should progressively address this issue going forward.

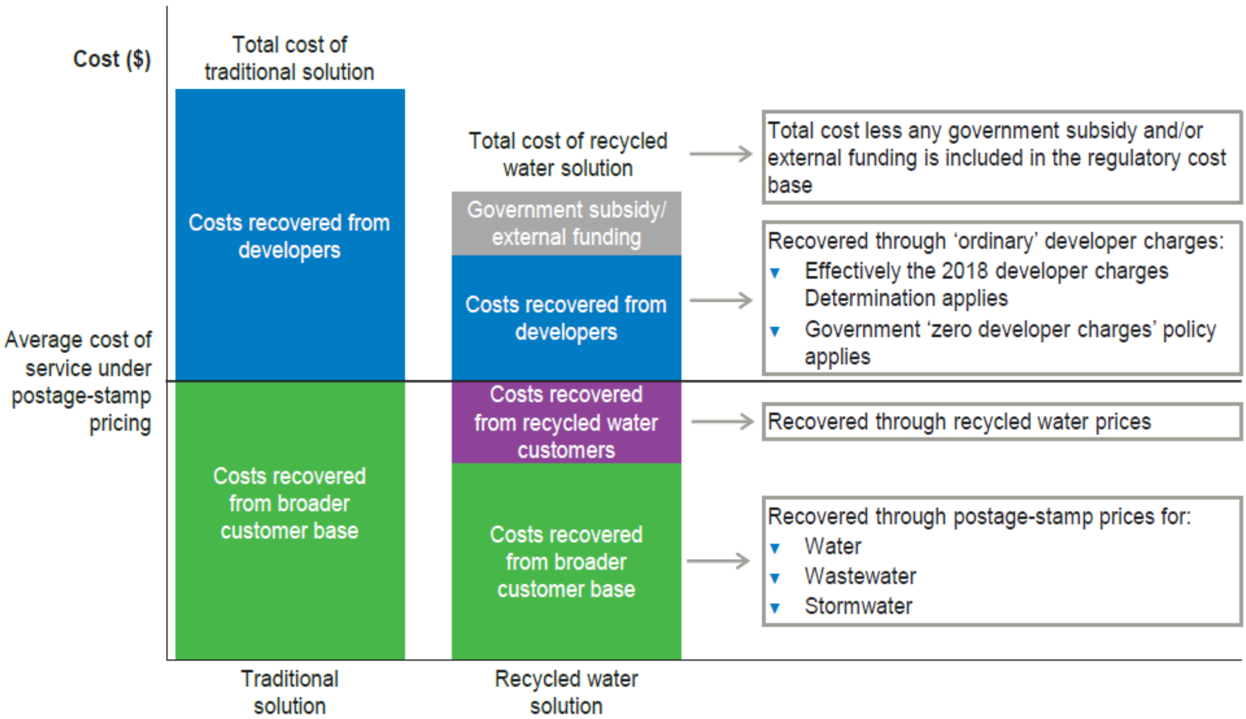
[105] Our Water, Our Voice Phase 5 final report

[106] Although there is low general knowledge of best practice stormwater servicing, the UTS customer engagement in 2015 and in more recently in Our water, our voice, shows that once this knowledge gap is addressed, customers view this as an essential service.

IPART's new funding framework for least-cost schemes

IPART's 2019 determination sets out how least-cost schemes should be funded, based on the funding hierarchy of impactors (developers), then beneficiaries, then wider customer base and/or taxpayers if the first two options are not feasible or practical. This is shown graphically in **Figure Figure 8.2.1**.

Figure 8.2.1: Funding framework for least-cost recycled water schemes[107]



Sydney Water has adopted IPART's funding framework for least-cost schemes in our proposal. Our proposal also ensures all efficient costs are allocated according to National Water Initiative (NWI) pricing principles.

EPA's new nutrient off-set licencing framework

In 2019, the EPA introduced a new licensing framework to regulate nutrients in the Hawkesbury-Nepean River catchment. This framework aims to reduce the risks of algal blooms and aquatic week outbreaks that might result from pollution generated by significant population growth in this catchment. It also recognises that both wastewater and stormwater pollute waterways. The framework incentivises a least-cost approach to deliver waterway health by capping nutrient loads that are discharged from wastewater treatment plants at 2019 levels (with some allowance for growth) while allowing load-trading between treated wastewater loads with other types of load, for example from urban and agricultural stormwater.

Sydney Water has implemented several pilot projects to demonstrate how alternative infrastructure can reduce the total cost to deliver wastewater services by protecting waterways at a lower cost than traditional wastewater system upgrades. These pilots enable a deeper understanding of how nutrient offsets work, experience of working with a range of delivery partners, and honing techniques to quantify the benefits of an offset project. The current offset projects include:

- A raingarden project at Glenbrook to reduce nitrogen and phosphorus in stormwater flows.
- A riverbank stabilisation project on the Nepean River at Camden to prevent nutrient laden soil being eroded into the river.
- A creek bank stabilisation project on Stonequarry Creek to compare the effectiveness of a bank stabilisation project on a tributary of the Nepean River.

[107] IPART 2019 *Review of pricing arrangements for recycled water and related services, Final report p 22.*

The framework will be reviewed in the lead-up to IPART's regulatory pricing cycles, but the EPA has flagged that load limits are likely to be further reduced over time to reflect technological advancements and to offset the impacts of a growing population[108]. Ultimately, the EPA aims to set sustainable nutrient load limits based on sound scientific evidence. Sydney Water is collaborating with the EPA and the Department of Climate Change, Energy, Environment and Water (DCCEEW) through a scientific working group to deliver research projects to improve our understanding of the impact of nutrients in the Hawkesbury Nepean River. The information from this working group will be used to improve the Hawkesbury Nepean and South Creek Water Quality Model. The improved model will better predict the impact of nutrients in the Hawkesbury Nepean River, provide a justification for new load limits, and guide where to locate offset projects.

Sydney Water's proposal to transition all residual waterway health related costs into the wastewater charge paid by all customers aligns to the EPA's new framework which focuses on delivery of the waterway health customer outcome at least cost rather than ring-fencing infrastructure costs according to traditional asset classes (water, wastewater, stormwater).

Cost allocation for IWCM servicing

Given the strong support our customers have shown for the outcomes least-cost IWCM servicing delivers, we propose residual costs (not funded by impactors/developers) are allocated in recognition of the essential services it provides.

IWCM stormwater and recycled water infrastructure provides three distinct essential services to customers: waterway health protection, flood protection and a fit for purpose water supply. The same or similar benefits are also provided by the three classes of traditional infrastructure. That is:

- **Waterway health** can and must be protected from the effects of urbanisation (the essential service), but this can be achieved by a combination of wastewater, stormwater and recycled water infrastructure.
- **Flood protection** can and must be provided for people, properties and communities (the essential service), but this can be achieved by a combination of traditional and IWCM stormwater infrastructure.
- **Safe, reliable, fit-for-purpose water** can and must be provided to the community (the essential service), but this can be achieved by a combination of drinking water and non-potable recycled water networks.

Given the three-fold nature of the benefits provided, Sydney Water proposes funding is allocated in recognition of these benefits.

We have based our proposal on the NWI pricing principles[109] which are also reflected in IPART determinations of Sydney Water's prices. IPART has already allowed some IWCM costs to be funded by the wider customer base for similar reasons to those presented in this proposal. For example, in IPART's 2012 determination, IPART allowed the equivalent of $5 million and $45 million ($24-25) recycled water costs to be added to the water and wastewater RABs respectively and a further $39 million ($24-25) stormwater costs to be added to the wastewater RAB because:

> **For recycled avoided costs added to the wastewater RAB:** ***We agree with Sydney Water that the option they chose [to expand the Rouse Hill recycled water network to reduce the nutrient load on the Hawkesbury-Nepean river system] was the least expensive option of those it surveyed***
>
> **For recycled avoided costs added to the water RAB: In recognition of the savings water customers realise due to delays in water supply augmentation.**
>
> **For stormwater to wastewater RAB:** ***This reflects our assessment that the capital expenditure on drainage related civil works in the Rouse Hill Development Area improves the quality of water discharged into the Hawkesbury-Nepean river system. This water quality improvement benefits all residents of the Sydney basin and under the beneficiary pays principle, all Sydney Water's sewerage customers should share the associated costs[110].***

[108] NSW EPA (2019) Regulatory Assurance Statement 2018-19

[109] NWI Pricing Principles guide rural and urban pricing practices and assist jurisdictions to implement their pricing commitments under the NWI in a consistent way. They were developed as part of the NWI, which was agreed in 2004 by the Council of Australian Governments and represents a commitment to increase the efficiency of Australia's water use. https://www.dcceew.gov.au/sites/default/files/sitecollectiondocuments/water/national-water-initiative-pricing-principles.pdf

[110] IPART (2012) Review of prices for Sydney Water Corporation's water, sewerage, stormwater drainage and other services, p 130-134 and p 85.

Again in 2016, IPART decided to allocate further equivalent of $58 million ($24-25) Rouse Hill stormwater related costs to the regulated wastewater RAB because:

> ***This would share the capital costs (both land and civil works) for Rouse Hill equally between residents in Rouse Hill and Sydney Water's broader customer base. This reflects the integrated water management system in Rouse Hill, which performs dual stormwater (specific to Rouse Hill) and wastewater functions (costs to be shared across Sydney).[111].***

The reasoning behind these previous, partial avoided costs allocations has now, for the first time, been applied to the whole Rouse Hill scheme. Our least-cost proposal is equivalent to a 100% avoided cost claim, that is, we are proposing the full net cost of the scheme is, and has always been, the lowest cost to deliver essential water services in this location so should be funded in an equivalent way to traditional servicing solutions, through ordinary customer periodic charges and developer infrastructure contributions for water, wastewater and stormwater services. This also allows consistent funding and pricing at this existing least-cost scheme (Rouse Hill) with that proposed for our new least-cost schemes at Mamre Road/Aerotropolis and Wilton/Bingara.

Primary funding source: Developer infrastructure contributions

Sydney Water proposes that developers should be the primary source of funding for growth infrastructure as this aligns with the principle that it is preferable to seek funding from impactors first before funds are sought from beneficiaries or the wider community. This is indicated in a number of NWI pricing principles including:

> ***Urban water tariffs - Principle 8: Setting developer charges: Developer charges should reflect the investment in both new and existing assets required to serve a new development and have regard to the manner in which ongoing water usage and service availability charges are set.***

The proposed approach also aligns and complies with IPART's 2018 developer charges Determination[112] (and associated 2019 Recycled Water Determination[113]) and the NSW Government exemptions from the zero developer charge policy and phase-in of ordinary developer contributions for recycled water and stormwater respectively.

As can be seen in **Table 8.1.4**, developers tend to fund a greater share of infrastructure in new, greenfield growth areas than in infill areas. As our IWCM infrastructure is predominantly in new greenfield growth areas, the funding will largely come from developers (over 70% of the net increase in costs). In addition, both types of IWCM infrastructure (stormwater and recycled water) are exempt from the discounted phase-in of infrastructure contributions, so less cost will need to be made up in customer bills than for regular water and wastewater growth costs.

Sydney Water plans to publicly exhibit the Mamre Road IWCM Development Servicing Plan (DSP) in late 2024 so that it can be registered with IPART in time for charges to commence early 2025. At Rouse Hill, we already have an active recycled water DSP, and will also prepare and exhibit a stormwater DSP to coincide with the proposed cessation of the Rouse Hill land charge (which was introduced when these contributions were set to zero in 2008).

[111] IPART (2016) Review of prices for Sydney Water Corporation's water, sewerage, stormwater drainage and other services, p 200.
[112] IPART 2018 *Maximum prices for connecting, or upgrading a connection, to a water supply, sewerage, or drainage system*
[113] IPART 2019 *Maximum prices for connecting to a recycled water system*

Secondary funding source: connected customer charges

Given the three-fold nature of the benefits provided by IWCM recycled and stormwater infrastructure, Sydney Water proposes the residual costs (not funded by developers) are allocated in recognition of the benefits. As connected customers receive a direct benefit from being connected to the infrastructure, we propose to first price for this benefit so that only the residual is funded by the wider customer base. We have used the following NWI pricing principles for recycled water and stormwater reuse to allocate the residual costs:

> ***Principle 2: Cost allocation: When allocating costs, a beneficiary pays approach — typically including direct user pay contributions — should be the starting point, with specific cost share across beneficiaries based on the scheme's drivers (and other characteristics of the recycled water/stormwater reuse scheme).***
>
> ***Principle 3: Water usage charge: Prices to contain a water usage (i.e. volumetric) charge***
>
> ***Principle 4: Substitutes: Regard to the price of substitutes (potable water and raw water) may be necessary when setting the upper bound of a price band.***
>
> ***Principle 5: Differential pricing: Pricing structures should be able to reflect differentiation in the quality or reliability of water supply.***
>
> ***Principle 6: Integrated water resource planning: Where appropriate, pricing should reflect the role of recycled water as part of an integrated water resource planning (IWRP) system.***
>
> ***Principle 7: Cost recovery: Prices should recover efficient, full direct costs — with system-wide incremental costs (adjusted for avoided costs and externalities) as the lower limit, and the lesser of stand-alone costs and willingness to pay (WTP) as the upper limit. Any full cost recovery gap should be recovered with reference to all beneficiaries of the avoided costs and externalities. Subsidies and Community Service Obligation (CSO) payments should be reviewed periodically and, where appropriate, reduced over time. (Direct costs include any joint/common costs that a scheme imposes, as well as separable capital, operating and administrative costs. This definition of direct costs does not include externalities and avoided costs.***
>
> ***Principle 8: Transparency: Prices should be transparent, understandable to users and published to assist efficient choices.***
>
> ***Principle 9: Gradual approach: Prices should be appropriate for adopting a strategy of 'gradualism' to allow consumer education and time for the community to adapt.***

These principles are also reflected in the principles IPART set out in their 2019 Recycled Water determination in relation to pricing for recycled water services. That is, cost allocation should:

- consider the location and nature of cost offsets – what type of costs are being incurred and what type of costs are being offset
- consider the upper and lower bounds of efficient pricing for each type of service provided
- ensure no customer is made worse off by investing in IWCM infrastructure.

Also, the structure and level of recycled water prices:

- should ensure that appropriate price signals are sent to recycled water users with the aim of balancing supply and demand, and should entail an appropriate allocation of risk.
- should include a usage charge, which must have regard to the price of substitutes (such as potable water and raw water). Where the usage charge exceeds the substitute price, water utilities must demonstrate willingness-to-pay by the recycled water customer.
- may include a fixed service charge, which should have regard to customer impacts, willingness-to-pay and not act as a material incentive for customers to disconnect from the recycled water scheme.
- should have regard to an efficient distribution of costs between recycled water customers and developers, in line with our funding framework for mandatory recycled water services.
- should be simple and understandable.

The following sections describe our proposal that:

- customers connected to IWCM stormwater infrastructure will pay the same price for flood mitigation and protection of their property and the surrounding community as customers connected to traditional infrastructure
- customers connected to recycled water infrastructure will pay for recycled water usage at a similar rate to customers connected to drinking water infrastructure and
- all customers will share the remaining cost of this infrastructure in recognition the primary driver of remaining cost is waterway health protection.

Using the above principled allocation of cost to set prices results in around 5% of total least-cost IWCM servicing cost being funded by recycled water and stormwater flood protection charges and 25% being shared by the wider community to cover incremental costs associated with growth related income tax and waterway health protection.

Connected customer charge for stormwater (flood protection)

We propose that customers connected to IWCM stormwater infrastructure should only pay costs associated with flood mitigation and protection of their property and the surrounding community. Customers have indicated a preference for postage-stamp pricing for stormwater services. As such, Sydney Water proposes to charge all new stormwater customers who receive flood protection via IWCM stormwater infrastructure, the same charge as that calculated for our existing stormwater catchments. This use of a proxy for new IWCM areas recognises the systems in Sydney Water's existing catchments are largely limited to flood protection infrastructure as they were designed and built between 50 and 150 years ago when waterway health protection was not prioritised. This means the prices paid in those catchments are a reasonable proxy for the cost to deliver a service limited to flood protection.

Adoption of a postage stamp price for flood protection services in all our stormwater catchments is consistent with NWI pricing principle 2, cost allocation on the basis of beneficiary pays according to the scheme's drivers. That is, protection of people and property from flooding is the driver that connected customers should pay. All additional costs relate to waterway health protection and/or non-potable supply, so are not appropriate to include in Sydney Water's stormwater service charges which is only payable by customers in certain locations. It also aligns to NWI principle 4, pricing with regard to substitutes. That is, all properties, whether they are connected to IWCM or traditional stormwater networks receive the benefit of a system which takes the stormwater away from their property and surrounding public areas to protect people and property from floods. As such, a traditional stormwater connection is the relevant substitute to an IWCM stormwater connection in much the same way that a traditional drinking water connection is the relevant substitute for a non-potable recycled water connection.

We note the connected customer stormwater service charge revenue acts to reduce both the infrastructure contributions paid by developers and the net residual cost paid by the wider customer base[114]. That is, although infrastructure contributions are the primary source of funding, under IPART's NPV methodology, connected customer charges must first be estimated as an input to the calculation of infrastructure contributions.

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[114] Both funding sources are affected because IPART's building block model for setting postage stamp prices and the NPV model for Infrastructure Contributions work in tandem to fund efficient costs.

Connected customer charge for recycled stormwater and recycled wastewater use

We propose customers connected to least-cost IWCM recycled water infrastructure should pay for the non-potable water they use. This aligns to NWI price principle 3 – Water usage charge. We propose to charge for recycled water usage at 90% of the volumetric usage charge for drinking water. This recognises that the recycled water can be used for most – but not all – of the purposes that drinking water can be used for (NWI pricing principle 5 – Differential pricing). That is, we have set the price in recognition of the price of the drinking water substitute (NWI pricing principle 4) and applied a 10% discount to reflect the lower quality of the supply. At Sydney Water's existing recycled water schemes, this pricing method is currently effective at balancing supply and demand as required by IPART's 2019 recycled water pricing principles.

Sydney Water has delivered non-potable water to customers via third pipe systems since the Rouse Hill scheme was commissioned more than twenty years ago. As non-potable recycled water was a relatively new concept, Sydney Water and IPART adopted a process of gradualism (NWI pricing principle 9). That is, the usage price was set much lower than the drinking water price in early years to incentivise use while customers got used to using the new product. The water literacy of the community has greatly increased since that time. As such, we do not consider a price lower than 90% of the drinking water price is now necessary. If we do find that demand is lower or higher than expected, we can propose to adjust prices at the next price review.

In the early years, before non-potable water is available in our new IWCM recycled wastewater and recycled stormwater networks, the system must be topped up with 100% drinking water. We propose to charge 100% of the drinking water usage price at new schemes until non-potable supply is commissioned. This is consistent with NWI pricing principle 4 as the alternative to these centralised recycled water systems are on-site non-potable systems (the alternative which would comply with BASIX and/or other development related requirements). All on-site systems would also be topped up with drinking water purchased at 100% of the drinking water price during periods where the on-site alternatives are not available so adoption of 100% potable pricing for our centralised system provides a more consistent price to the cost of alternatives.

Similar to the connected customer charge for flood protection, we note the revenue from the connected customer charge for recycled water usage acts to reduce both the infrastructure contributions paid by developers and the net residual cost paid by the wider customer base[115]. That is, although infrastructure contributions are the primary source of funding, under IPART's NPV methodology, connected customer charges must first be estimated as an input to the calculation of those infrastructure contributions.

Shared contribution for waterway health protection

After developers have paid their contribution for growth servicing, and connected customers have paid for their direct benefits (flood protection and recycled water usage), Sydney Water estimates there will be some residual funding required[116]. We propose the remaining net cost for least-cost IWCM recycled and stormwater infrastructure should be shared equally by all customers and that the administratively efficient way to collect this contribution is via each customers' wastewater service charge[117].

The above proposal aligns with NWI urban water tariffs pricing principle 1:

> ***Urban water tariffs - Principle 1: Cost recovery: Water businesses should be moving to recover efficient costs consistent with the National Water Initiative (NWI) definition of the upper revenue bound: 'to avoid monopoly rents, a water business should not recover more than the operational, maintenance and administrative costs, externalities, taxes or tax equivalent regimes, provision for the cost of asset consumption and cost of capital, the latter being calculated using a Weighted Average Cost of Capital (WACC)'.***

[115] Both funding sources are affected because IPART's building block model for setting postage stamp prices and the NPV model for Infrastructure Contributions work in tandem to fund efficient costs.

[116] We have estimated this shared cost using the assumptions IPART adopted in the Building Block Model (BBM) used to calculate prices in the 2020-24 period applying any deviations from this as set out in IPART's Water Regulation Handbook V2, July 2023.

[117] This is to enable costs to be shared by all customers equally, which would not occur if it was included in the stormwater charge (as we only provide stormwater services to around one fifth of all customers).

That is, this residual contribution, shared by all customers, will allow Sydney Water to recover all efficient costs associated with the services, including taxes or tax equivalents. We note that the residual cost to deliver wastewater growth (which also protects waterway health) has been funded this way for over thirty years, that is, via postage-stamp prices net of developer contributions and other offsets. Funding least cost IWCM stormwater and recycled water servicing on an equivalent basis to wastewater servicing will allow all essential servicing options to be assessed according to how efficiently they deliver the outcomes the community needs.

It is important to note that going forward, the residual cost is largely the result of how tax is currently funded in the building block model. That is, customers rather than developers fund income tax associated with developer infrastructure contributions. We consider tax liabilities should be shared as equally as possible by all customers regardless of the class of infrastructure they are connected to.

Waterway Health Improvement program

In Sydney Water's 2020 price proposal, we began to explore customers' willingness to pay for 'discretionary services'. IPART noted in their final report in relation to this program:

> ***We consider it likely that customers are willing-to-pay for better waterway outcomes well beyond the current scope of Sydney Water's Waterways Health Improvement Program. We have included an allowance of less than $1 per year from stormwater customers to fund this program; and if this expenditure was recovered from Sydney Water's full customer base, the costs would be less than $0.20 per year. However, we cannot approve further expenditure in this review, without sufficient evidence of customer willingness-to-pay, or a well-defined expenditure program.***

In response to this feedback, and in consideration of the subsequent evidence of customer support for improved waterways, we propose to transition all Waterway Health Improvement Program costs from being paid for by only connected stormwater customers to being shared by all customers. This change aligns with the proposal for all customers to share the net cost of waterway health protection more equally going forward. It also recognises the charge for customers connected to stormwater infrastructure that delivers both flood and waterway protection should be limited to the former benefit or driver because waterway protection is a benefit shared by the wider community, not just those properties connected to that infrastructure.

Alternative methods are inequitable and not affordable

Although the above proposed cost allocation results in a very small proportion of an average customer bill (2%), it will deliver an improvement to the bills paid by some of Sydney Water's most vulnerable customers. That is, as described in Chapter 9, there is an emerging trend for customers applying for payment assistance in some LGAs. Under current prices, some customers in these LGAs pay more for waterway health protection than other customers. This is because much of the stormwater bill these customers currently pay goes towards protecting the waterways that everyone enjoys. Our proposal would see all customers making an equal contribution for the work we do to protect waterways.

The need for a new way to allocate costs was brought to our attention when the NSW Government nominated Sydney Water as trunk drainage authority in the Mamre Road and Aerotropolis precincts. Our early analysis showed that even though we had ensured infrastructure contributions would be payable from the outset, there would still be residual costs for customers to bear. We looked at three customer groups, starting with those who had traditionally been seen as the most direct beneficiaries. That is, the customers with a direct connection have often been seen as creating the need for the services. This option was quickly ruled out as it would see a small group of customers, paying around 50 times as much for stormwater services as other customers. Adoption of such pricing would likely have resulted in the same funding issues experienced by both Sydney Water and private water utilities, where customers successfully lobbied Government for postage stamp pricing.

We also examined allocating costs amongst all customers who receive a stormwater service from Sydney Water. However, once again, this would likely see a somewhat arbitrary set of customers, experiencing a five times higher bill increase for costs which relate to waterway health, growth and taxes. Waterway health is a benefit that all customers can equally enjoy. Growth and taxes must be funded, however, it would be inequitable for some customer groups to pay more for this than others. As such, this option was also ruled out.

In summary other funding options which were considered and rejected were:

- **Ring-fenced to local customers:** rejected on grounds that it is inequitable and not affordable for local customers to pay fifty times more for an essential service than customers in the rest of Greater Sydney
- **Ring-fenced to stormwater customers:** rejected on grounds that it is inequitable and not affordable for Sydney Water stormwater customers (which include some particularly financially vulnerable households in LGAs connected to our stormwater infrastructure) to pay five times more more for essential waterway health than customers in the rest of Greater Sydney.

Premier’s referral for a specific efficiency review of cost and cost allocation

In March 2024, The Minister for Water, Rose Jackson MLC, with approval from the NSW Premier, engaged IPART under Section 9 of the *IPART Act (1992)* to conduct a review to determine Sydney Water’s efficient costs and allocation of those costs to deliver stormwater drainage services in the Mamre Road Precinct.

The terms of reference for this review are that IPART is to provide advice on:

The efficient costs of providing stormwater drainage services within the Mamre Road Precinct; and

The efficient allocation of those costs between developers, taxpayers and others.

IPART is to provide a final report containing its advice to the Secretary of Department of Climate Change, Energy the Environment and Water (DCCEEW) by late November this year. This is not standard practice, as IPART generally assess Sydney Water’s efficient costs and allocation of those costs during their standard price review processes. Sydney Water has also been instructed not to exhibit the Mamre Road DSP (for IWCM infrastructure contributions) until IPART have finalised their review which is not expected until 21 November 2024, some two months after the submission of this price proposal. We may need to adjust our proposal after the September submission in order to reflect the outcomes of IPART’s review.

Sydney Water's least-cost IWCM schemes

This section provides details of each of our proposed least-cost IWCM schemes, why we consider they are least cost and how funding is proposed to be recovered. As highlighted previously, IPART's 2019 recycled water determination notes:

> ***A recycled water scheme is least cost if the total avoided and deferred costs are equal to or exceed the cost of the scheme itself.***

As such, in order to demonstrate each of our three proposed least-cost schemes have 100% or greater avoided costs we have addressed each of the ten aspects IPART uses to assess avoided and deferred cost claims:

Drivers: of the water, wastewater or stormwater infrastructure augmentation that is expected to be avoided or deferred from the operation of a recycled water scheme.

Description and timing: of the least-cost traditional servicing solution (base case) and the recycled water solution for which avoided and deferred costs are being claimed, including the assumed optimal timing of investments, and the investments being deferred or avoided. We note for least-cost schemes, this is demonstrated as part of 3 below as the least-cost servicing is not 'traditional' servicing.

Options considered: An overview of all other credible options considered.

Forecast cost: of operating and capital expenditure for the least-cost traditional servicing solution that would meet the relevant water supply, wastewater or stormwater performance need.

Population and demand: Current and forecast population and demand to be serviced.

Regulatory requirements: performance standards and other relevant environmental and regulatory requirements.

Sensitivity: analysis to show the impact of variations in assumptions and forecasts.

Options value: A description of how the value of keeping options open has been considered. That is, the value of delaying an irreversible commitment to an investment, where it increases the likelihood of delaying or avoiding the need for the investment, or that the cost of the investment would reduce - eg, as a result of technological progress.

Top up and contingency: A description of any recycled water system back-up and top-up provisions from the potable water supply and contingency provisions for sewerage and stormwater systems.

Location and boundary conditions: A map to define the system area to aid an explanation of the relevant boundaries and the recycled water scheme's interaction with the surrounding water and wastewater infrastructure. This would demonstrate that a proposed avoided cost is not merely the result of reducing the demand at one water treatment plant by shifting this demand to another water treatment plant within the same connected system area.

Rouse Hill development area – existing least cost IWCM scheme

The Rouse Hill Development Area (RHDA) is in north-western Sydney. The area was defined in the 1989 Sydney Regional Environmental Plan No. 19, with the aim to accommodate part of the long-term population growth of the Sydney region by encouraging urban development within the area.

Drivers

IWCM services were required to protect the Hawkesbury River and its tributaries from the potential impact of urban development[118]. As such, the scheme was to be funded by developer infrastructure contributions because the costs were driven by development related pollution and flooding. The secondary benefit provided by the recycled water network, of reduced reliance on the existing drinking water sources, was an ancillary benefit identified during the EIS and DAR and was not a driver of the servicing strategy adopted. The EIS and DAR outline the traditional, more costly and/or unacceptably risky wastewater servicing options which were avoided by adoption of the least-cost IWCM strategy.

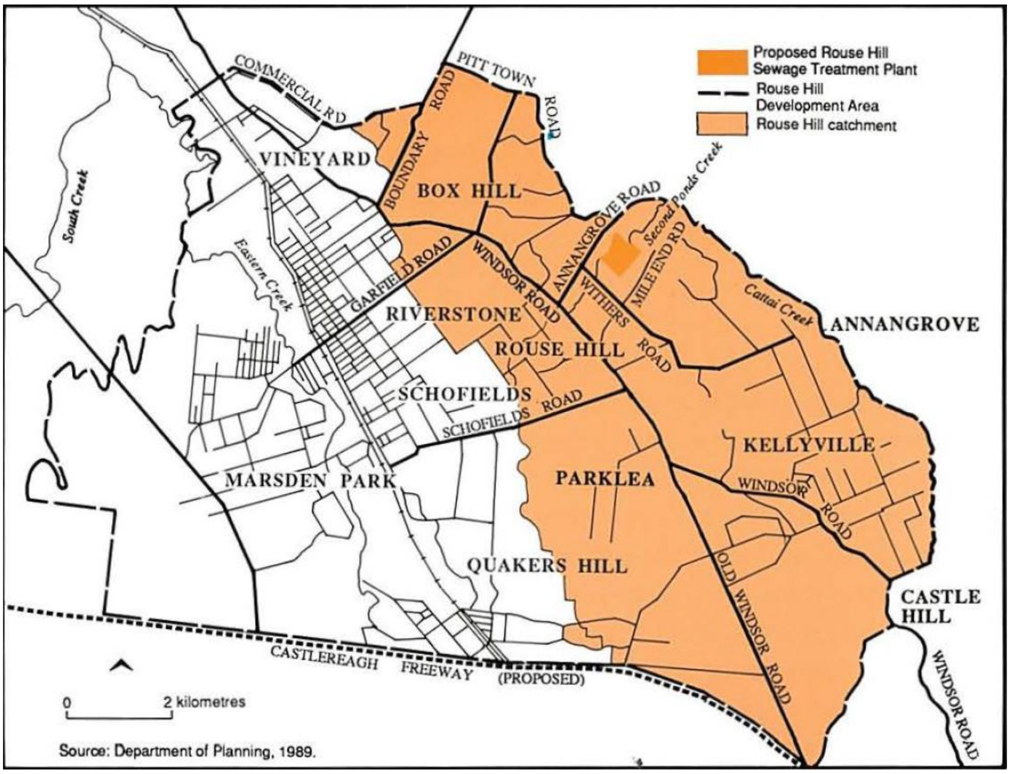
Sydney Water (then known as the Water Board) began planning services in the area in the late 1980s and completed an Environmental Impact Statement (EIS) for wastewater servicing at RHDA in 1991. Although, under the EP&A Act (1980), the EIS was required for the sewerage treatment plant (for **wastewater services**), the Determining Authority's Report (DAR) found that the proposal in the EIS should only proceed subject to specific modifications and requirements relating to the IWCM approach to protect receiving waters. These included the delivery of two related water services, **recycled water, and stormwater**, in recognition all three services would need to be delivered in an integrated way to adequately protect receiving waters.

Location and boundary conditions

The IWCM servicing approach (wastewater + recycled water + stormwater) was driven by the need to protect waterway health from development related pollution and flooding. As such, the conditions of development in the Rouse Hill SEPP (No. 19) and associated Rouse Hill Development Area map along with any LEP for this area define the relevant boundary conditions for the least-cost assessment. Water, wastewater, recycled water and trunk drainage stormwater systems to service growth within this area are provided by Sydney Water, with smaller stormwater reticulation and trunk drainage outside the Rouse Hill Drainage Area provided by Councils. The Rouse Hill Development Area and the original planned catchment for the Rouse Hill Resource Recovery Facility are shown in **Figure 8.2.2**.

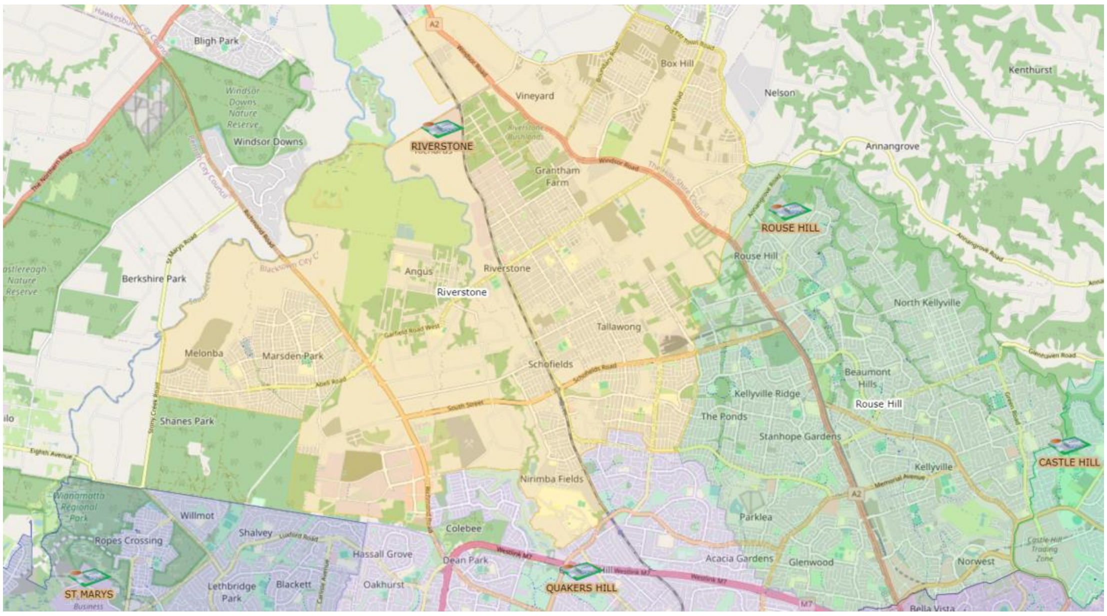
[118] 1989 Sydney Regional Environmental Plan No. 19. To protect the Hawkesbury River and its tributaries from the potential impact of urban development is one of the objectives and the plan stipulates any Local Environmental Plan (LEP) must regulate development of land to reduce the impact of flooding.

Figure 8.2.2: Rouse Hill Development Area and Rouse Hill Resource Recovery Facility catchment proposed in EIS



The current boundaries for wastewater catchments are shown in **Figure 8.2.3**. This demonstrates the area serviced by the Rouse Hill Resource Recovery Facility, was not originally interconnected[119] with any of the surrounding wastewater networks: Castle Hill to the east, Riverstone to the west and North Head nor Quakers Hill to the southeast and southwest respectively as shown. Sydney Water tracked all cost and operational information for each network separately (and excluded recycled water costs) and all wastewater networks and treatment costs are now classified as regulated so funded via ordinary customer periodic charges and developer infrastructure contributions.

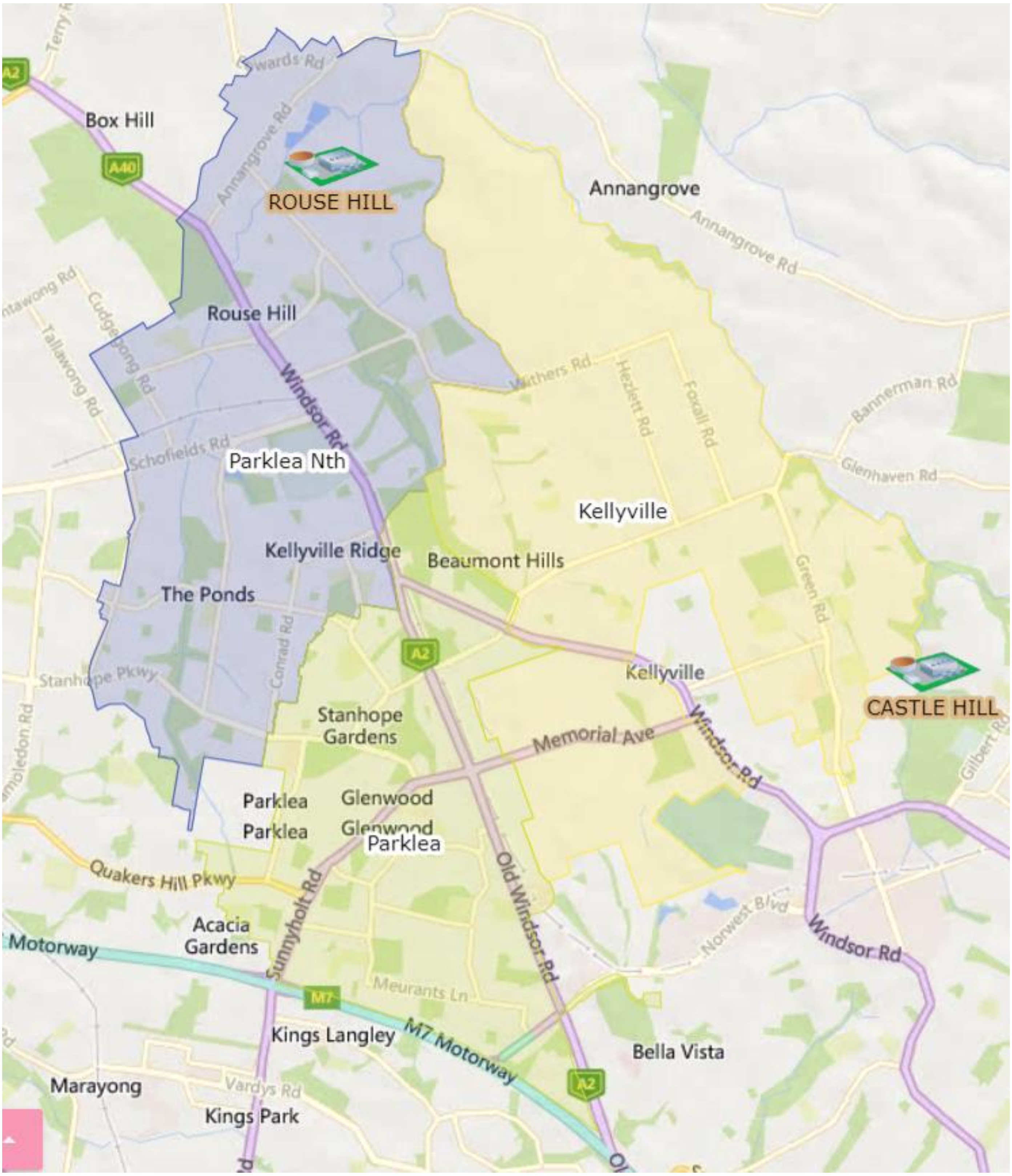
Figure 8.2.3: Rouse Hill and surrounding wastewater catchments serviced by Sydney Water



119 Sydney Water will continue to look for ways to deliver services more efficiently in this region which may include interconnection between these systems in the future.

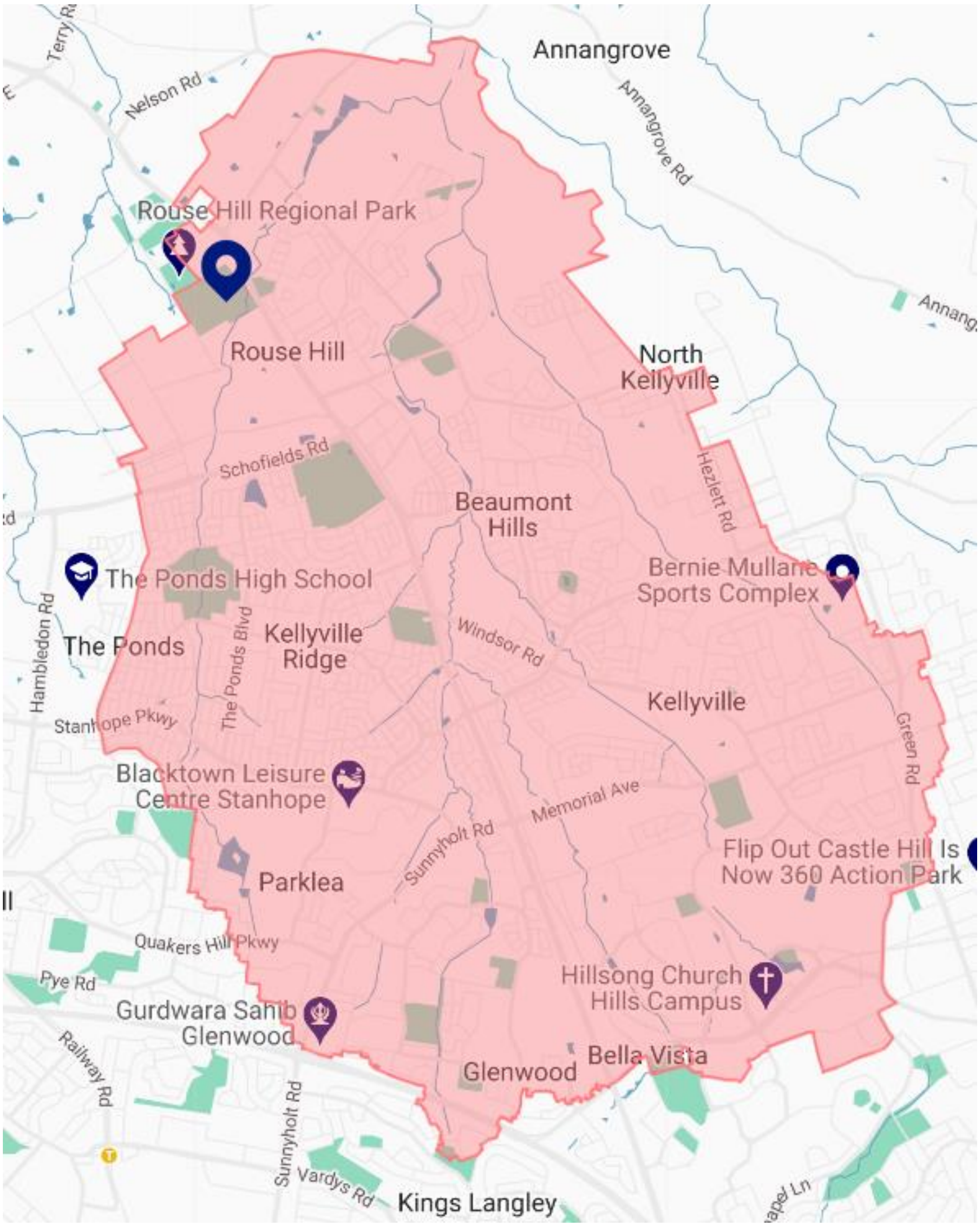
The first of the two systems which are currently ring-fenced, is recycled water. Rouse Hill Resource Recovery Facility provides recycled water via a third pipe system to the majority of growth in the area since the early 1990s. The three recycled water supply zones are shown in **Figure 8.2.2**. As the recycled water supply was implemented to protect waterway health, the interaction with drinking water supply zones is not relevant to this proposal, however, maps are provided for context only.

Figure 8.2.2 Rouse Hill recycled water supply zones: Parklea, Parklea North and Kellyville, where funding is currently ring-fenced



The second of the currently ring-fenced services is stormwater. The Rouse Hill Drainage Area is shown in **Figure 8.2.5.** Smaller reticulation and street drainage infrastructure in this area is funded and managed by Councils. Sydney Water manages trunk drainage, which is currently subject to ring-fenced funding[120]. The small exception to this is that costs associated with the Waterway Health Improvement Program were allocated funding from Sydney Water's other stormwater customers in the 2020 Price Determination. As outlined in 0, we no longer consider it appropriate for only a subset of customers to pay costs associated with protecting waterway health. As such, these costs are also proposed to be funded via ordinary (postage stamp) customer periodic charges and developer infrastructure contributions going forward.

Figure 8.2.5: Rouse Hill Drainage Area – where trunk drainage service funding is currently ring-fenced

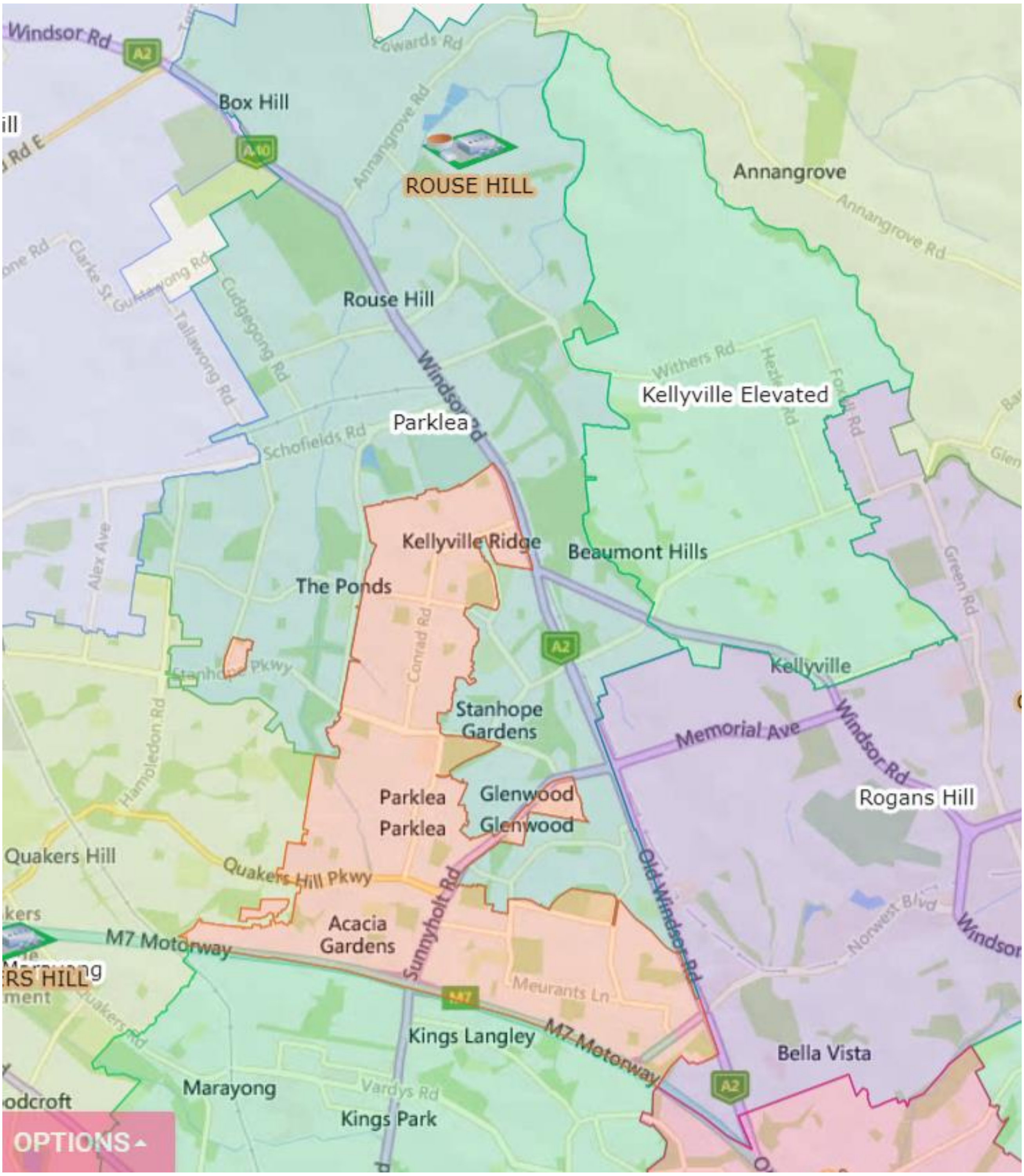


[120] Apart from the costs already allocated to wastewater in previous IPART determinations set out in Section 0.

Drinking water is also supplied to the area from three reservoirs: Parklea to the north, Marayong Elevated to the south and Kellyville Elevated to the east as shown in **Figure 8.2.6**

Figure 8.2.6. However, we note that we have not proposing drinking water avoided costs in this least-cost analysis. Rather, drinking water savings have already been accounted for in the previous avoided cost claim and determination in 2012 so have been excluded from this assessment and claim.

Figure 8.2.6: Drinking water supply zones: Parklea, Marayong Elevated and Kellyville Elevated



Population and demand

The 1991 EIS and DAR note wastewater services would be required for a forecast equivalent population of 300,000 people. The recycled water network was originally only connected to 30,000 properties; however, it was expanded following an assessment in 2005 which found additional treatment capacity should be connected to a further 6,000 properties as this was the least-cost way to remove nitrogen from the effluent. Currently the recycled water network is connected to around 33,000 properties and stormwater services are provided to around 37,000 properties.

Investigations to expand and upgrade both the recycled water and stormwater systems are currently ongoing with results not expected until 2025-26.

Description and timing of options considered

The 1991 EIS and DAR examined a broad range of options including three options to transfer effluent out of catchment, and three local treatment options. The recommended option was for one new treatment plant to service a forecast equivalent population of 300,000 people combined with a suit of twenty-four additional mitigative measures, key of which were a recycled water system and an integrated catchment management approach and stormwater quality controls to protect receiving waters. Both the recycled water network and stormwater pollution controls contribute to removing nutrients from the effluent and runoff which enters downstream waterways so were identified as mandatory additions to the wastewater network and treatment plant.

As specified in the DAR, the servicing strategy must be reviewed at each stage of the development. The environmental impact of the Rouse Hill RWP was assessed again in 2005 for the plant amplification and recycled water was again found to be required. By 2009 the recycled water plant had production capacity to supply 36,000 homes, but the distribution network extended to only 30,000 home sites. To meet environment discharge targets over the longer term, in particular for nitrogen removal, a range of options were again considered. Once again, the least-cost acceptable risk option was to expand the recycled water network to a further 6,000 homes.

Similarly, for stormwater catchment management, regular assessments have been made to check the existing controls are adequate and assess options for expansion and remediation. The latest plan of management was completed in 2020 and sets out the maintenance, operating, monitoring and assessments which will be required over the following ten years. As noted above, Sydney Water is also investigating how the current best practice risk-based framework for land-use planning published by OEH and the EPA should apply to the scheme, in particular in relation to future development within the catchment[121].

Regulatory requirements

As described above, the driving regulatory requirement for water servicing in the area was to protect waterways from the effects of urban pollution and flooding. This is reflected in the objectives of the Sydney Regional Environmental Plan No. 19 to protect the Hawkesbury River and its tributaries from the potential impact of urban development. The plan also stipulated any Local Environmental Plan (LEP) must contain provisions which regulate development of that land to reduce the impact of flooding and flood liability on individual owners and occupiers, and to reduce private and public losses resulting from flooding These requirements was met through adoption of IWCM wastewater + recycled water + stormwater servicing.

Wastewater regulatory requirements have subsequently been set in Environmental Protection Licences for the RHWRRF. This licence, as reviewed from time to time, is set in consideration of the significant contribution the recycled water and stormwater systems play in reducing nutrients and other urban pollution. As such, although the recycled and stormwater systems do not have specific licence requirements they must meet, the RHWRRF Environmental Protection Licence requirements are necessarily lower in consideration the three systems exist and work together.

Implementation and refinement of the integrated catchment management approach required in the 1991 DAR began immediately and has continued to evolve. This evolution has been documented in many reports which include drainage strategies, design manuals, Reviews of Environmental Factors, Statement of Environmental Effects, Stormwater Environmental Targets, System Blueprints, Plans of Management and Risk-based frameworks for considering waterway health outcomes. Whilst the current Environmental Protection Licence at Rouse Hill WRP does not include the original nutrient concentration target objective, this environmental objective can still be considered an applicable and relevant aspiration, as the determination under Part 5 of the EPA Act is still valid. However, changes to legislation, new best practice guidelines, and community aspirations, mean that Sydney Water

[121] 2017 (OEH EPA) Risk-based Framework for Considering Waterway Health Outcomes in Strategic Land-use Planning Decisions

must continuously reassess and reframe the objective for the future. The above documents relating to catchment management planning and requirements are provided in the reading room.

Options value and sensitivity

Options value was assessed as part of the EIS and DAR process. The ability for the chosen option to be staged and adapted was a key reason it was chosen over other options. For example, the alternative option to transfer effluent out of catchment would have required an irreversible commitment to an investment with less opportunity for staging. The staging of the chosen option also allowed for new technologies not available at the time of the assessment to be incorporated at each stage. Transfer to existing smaller plants was also ruled out given site constraints which would have resulted in more costly upgrades in the longer term.

IPART has subsequently regulated prices at Rouse Hill since their first special determination for the scheme in 1993. At each review, IPART examined the scheme cost which they largely accepted as prudent and efficient. For example, in 2012, IPART's efficiency reviewer Atkins found stormwater historic expenditure was prudent and efficient but made some adjustments to forward looking costs in recognition some previously forecast expenditure had not yet occurred.

The recycled water infrastructure has, so far, been treated as unregulated. This means IPART plays a less active role in assessing prudency and efficiency because all incremental costs of the scheme are set out in Development Servicing Plans (DSPs), which are placed on public exhibition. As such, the developers who fund these costs play the primary role in scrutinising the prudency and efficiency of the costs. Before IPART registers DSPs, Sydney Water must submit the proposed final DSP with an accompanying report which outlines the nature of all stakeholder submissions and our response to those submissions. Developers have not challenged the incremental cost of the recycled water scheme as exhibited in each of the four DSPs since the scheme began (in 2001, 2011, 2016 and 2021).

Top-up and contingency

As is the case for all recycled water schemes, demand and supply imbalances occur on a daily and seasonal basis. Some of the imbalance can be addressed by incorporating storage in the system. However, water storage in urban environments is not cost effective due to the large areas of land required. This means recycled water systems are almost universally topped up from drinking water supplies. Over the last 15 years, drinking water top-up of the Rouse Hill scheme has ranged from two to over twenty per cent (average of 12%). Studies have shown this level of top-up is far lower than that of alternative source substitution options such as rainwater tanks, so some additional benefits from deferral of drinking water supply augmentation are realised. As these have already been assessed and awarded as avoided cost by IPART in 2012, we have excluded further consideration of these benefits from this least cost proposal.

The recycled water treatment process is situated on the same site as the wastewater treatment plant. Risk management and contingency for treatment plant failure is managed in compliance with the Environmental Protection Licence 4965.

Historic and forecast scheme costs, revenue, errors and avoided costs

IPART sets our regulated revenue requirement using the 'building block model'. This model uses a RAB to estimate how much funding we need from customer bills to cover our capital expenditure on infrastructure. It is calculated net of the funding we get from developers for that infrastructure ('cash contributions' or infrastructure contributions). That is, the RAB increases when we spend money on infrastructure (assets) and decreases when developers pay us to connect to those assets. IPART provide a more detailed description of how they use the RAB in their 2020 guidelines for water utilities:

> ***The RAB is a key input in calculating the allowances for the return on assets and regulatory depreciation in the revenue requirement. The RAB represents the economic value of assets employed to deliver the monopoly (regulated) services that are subject to price regulation. Only efficient capex should be rolled into the RAB. To determine the value of the RAB over a determination period, we generally:***

- Take the RAB value we determined at the start of the previous period (the opening RAB) and incorporate your efficient actual capex over that period. We make adjustments to account for other changes to the RAB over the period (e.g., asset disposals, cash capital contributions, regulatory depreciation and indexation). This determines the opening RAB for the next period.
- Roll forward this opening RAB to the end of the next determination period by including efficient forecast capex over the period and making adjustments to account for other forecast changes to the RAB (e.g., asset disposals, capital contributions and regulatory depreciation). This gives the forecast RAB for each year of the upcoming determination period. *(emphasis added)*[122]

IPART has generally excluded 'unregulated' capital expenditure from the RAB. That is, the RAB is not increased when we purchase assets if they are funded by other means, and not reduced when we collect funds from other sources to pay for those assets. For Rouse Hill, IPART excluded from the RAB, all the infrastructure which was funded by the Rouse Hill Infrastructure Consortium (RHIC). However, as set out in Chapter 5 of our proposal, in the years before infrastructure contributions were set to zero, both the infrastructure contributions paid to Sydney Water for 'regulated' infrastructure **and** the contributions for RHIC funded 'unregulated' or 'ring-fenced' infrastructure **were deducted** from the regulated water, wastewater Regulatory Asset Bases (RABs). The result of this error is that the current RAB under-represents the economic value of the regulated assets we still need to pay for, which is at odds with the NWI pricing principle that water utilities should be allowed full recovery of prudent and efficient costs. We do not think this was IPART's intention. The correct and incorrect deductions are shown in **Table 8.2.1**.

Table 8.2.2 Infrastructure contribution allocation errors for ring-fenced Rouse Hill assets

$ million (24-25 real)	2000/01	2001/02	2002/03	2003/04	2004/05	2006/07	2007/08	2008/09
Contributions for Rouse Hill ring-fenced assets	$36.4	$52.3	$31.6	$25.4	$10.2	$13.2	$15.6	$25.4
Contributions for regulated assets	$77.2	$66.2	$75.5	$50.8	$61.9	$65.6	$56.7	$54.1
Total	**$113.6**	**$118.5**	**$107.1**	**$76.3**	**$72.1**	**$78.8**	**$72.3**	**$79.5**
Contributions deducted from regulated RAB	$113.6	$118.5	$107.1	$76.3	$72.1	$78.8	$72.3	$79.5
Contribution deduction error	**$36.4**	**$52.3**	**$31.6**	**$25.4**	**$10.2**	**$13.2**	**$15.6**	**$25.4**

Only two services remain ring-fenced at Rouse Hill, stormwater and recycled water. IPART has already awarded some avoided costs associated with these assets and added these to the regulated water and wastewater RABs. As such, these costs should be excluded from any potential transfer adjustments from ring-fenced to regulated funding. These historic avoided costs are set out in **Table 8.2.2**.

Table 8.2.3: Previous avoided costs added to the water and wastewater RABs for ring-fenced Rouse Hill services

$ million (24-25 real)	2012	2016
Recycled water – added to water RAB	$5	-
Recycled water – added to wastewater RAB	$45	-
Stormwater – added to wastewater RAB	$39	$58

[122] IPART 2020 Guidelines for Water Agency Pricing Submissions p21

The historic and forecast operational costs and revenue for stormwater and recycled water services at Rouse Hill are shown in **Table 8.2.3**. Only post 2000 costs are relevant and shown because IPART set a Line in the Sand RAB for Sydney Water's regulated services in 2000.

Table 8.2.4: Rouse Hill historic and forecast capex and cash contributions

$ million (24-25 real)	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
Stormwater capex	$20.1	$50.1	$5.0	$0.5	$0.0	$35.1	$58.6	$17.5	$11.4	$12.3
Recycled Water capex	$7.2	$2.4	$0.1	$1.3	$11.6	$5.9	$5.3	$4.7	$7.3	$1.3
Stormwater cash contributions	$12.2	$17.0	$11.6	$7.4	$3.3	$4.9	$5.5	$9.3	$1.1	$0.0
Recycled Water cash contributions	$6.2	$11.0	$6.2	$6.2	$2.2	$2.7	$3.5	$5.4	$5.6	$5.2
	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	201718	2018/19	2019/20
Stormwater capex	$4.1	$28.8	$7.9	$1.8	$1.2	$4.7	$16.0	$11.6	$11.1	$3.7
Recycled Water capex	$6.8	$4.4	$1.4	$0.6	$0.9	$0.7	$1.2	$1.1	$1.0	$0.3
Stormwater cash contributions	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Recycled Water cash contributions	$7.1	$4.3	$6.8	$5.3	$12.1	$12.4	$5.3	$11.5	$4.0	$2.2
	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30
Stormwater capex	$2.5	$0.7	$0.5	$4.0	$6.1	$8.4	$6.0	$0.0	$0.0	$0.0
Recycled Water capex	$0.5	$0.0	$0.0	$18.5	$4.6	$0.6	$0.5	$0.7	$0.1	$2.4
Stormwater cash contributions	$0.0	$0.0	$0.0	$0.0	$1.6	$0.6	$0.3	$0.3	$0.3	$0.3
Recycled Water cash contributions	$3.0	$2.8	$6.8	$10.2	$7.5	$5.9	$5.3	$4.7	$3.3	$3.1

Table 8.2.5 Rouse Hill historic and forecast opex and revenue from customer bills

$ million (24-25 real)	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
Stormwater opex	$1.0	$1.4	$1.4	$1.4	$1.3	$1.3	$2.2	$3.0	$3.9	$4.7
Recycled Water opex	$2.9	$5.0	$4.1	$3.0	$2.3	$2.4	$2.5	$2.6	$2.8	$3.3
Stormwater service and usage charge revenue	$1.8	$2.2	$2.9	$3.3	$3.5	$3.6	$3.8	$3.4	$3.6	$3.8
Recycled Water service and usage charge revenue	$0.7	$0.9	$1.3	$1.3	$1.4	$1.5	$2.1	$1.9	$3.5	$4.3

	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	201718	2018/19	2019/20
Stormwater opex	$3.7	$3.8	$5.3	$5.4	$5.6	$6.4	$5.6	$5.7	$5.6	$6.4
Recycled Water opex	$2.5	$1.9	$2.0	$2.3	$2.0	$2.7	$4.2	$2.1	$1.8	$1.7
Stormwater service and usage charge revenue	$4.0	$3.4	$4.8	$5.4	$6.7	$7.0	$8.9	$10.0	$9.8	$10.4
Recycled Water service and usage charge revenue	$4.2	$3.2	$5.4	$5.7	$4.9	$5.3	$5.8	$7.3	$6.0	$6.7

	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30
Stormwater opex	$6.6	$6.4	$6.2	$6.0	$6.0	$6.0	$6.0	$6.0	$6.0	$6.0
Recycled Water opex	$2.0	$2.1	$2.0	$2.0	$2.0	$2.0	$2.0	$1.9	$1.9	$1.9
Stormwater service and usage charge revenue	$10.6	$10.8	$10.9	$10.9	$11.0	$4.0	$4.1	$4.2	$4.3	$4.4
Recycled Water service and usage charge revenue	$5.9	$5.6	$7.7	$7.7	$8.3	$8.7	$9.0	$9.2	$9.4	$9.6

Removing the Rouse Hill Land Charge

Since 2012, new customers in Rouse Hill and Kellyville pay the Rouse Hill Land Charge if they connect to our services. This charge was introduced because the NSW Government set stormwater developer contributions to zero in 2008, so some development had made a contribution while others had not. The Land Charge was set by IPART, so that all properties made an equal contribution to the stormwater infrastructure that was needed to service the new development.

The current charge is just under $2,000 and is paid over twenty quarters. As described in Chapter 3 (and Appendix 8b), the NSW Government has reversed the zero charges policy and infrastructure contributions are being reintroduced in phases. As such, we propose the Land Charge will no longer be needed once developers begin to make contributions for the stormwater infrastructure at Rouse Hill.

To ensure all properties have contributed equally to cover costs, the Land Charges will need to be phased out in such a way that each newly developed property still pays an equivalent contribution, whether this is via the twenty quarterly payments or paid as a contribution by the developer (becomes a pass-through to the purchase price) as part of the Section 73 certificate process. That is:

- all properties who have begun to make Land Charge payments but have not made all twenty payments before the latter of 1 July 2025 and the date the Rouse Hill Stormwater DSP is registered with IPART, will continue to make their remaining payments until all twenty payments have been made;
- all new properties who can demonstrate payment of a Rouse Hill Stormwater DSP charge applicable to that property (developer infrastructure contribution), will be exempt from making any Land Charge.

Sydney Water anticipates being able to register a revised Rouse Hill stormwater DSP with IPART on or shortly after 1 July 2025. Given some properties will begin to make their twenty payments just before the DSP is registered, it is likely there will be some properties still paying land charges in 2030. We note that full payment of a stormwater infrastructure contribution by developers in this area must also be approved by NSW Government as part of the re-introduction of developer contributions.

Mamre Road and Aerotropolis Initial precincts – new least cost IWCM scheme

Greater Sydney's population is forecast to reach 8 million people over the next 40 years, and it is imperative to ensure growth occurs sustainably and without detriment to our resources and ecosystems. Most growth is expected to occur within the Western Parkland City (WPC), an area defined by the Greater Sydney Commission in the Greater Sydney Region Plan covering the eight local government areas of Blue Mountains, Camden, Campbelltown, Fairfield, Hawkesbury, Liverpool, Penrith and Wollondilly. The population of the WPC is expected to almost double by 2041 and comprises 20% of total forecast growth across Greater Sydney.

At the centre of the WPC will be the Western Sydney International (Nancy-Bird Walton) Airport, which is surrounded by the Mamre Road industrial precinct, and the four Aerotropolis Initial Precincts (Aerotropolis Core, Northern Gateway, Agribusiness, and Badgerys Creek). The NSW Government has appointed Sydney Water as the Regional Stormwater Authority for these precincts.

Drivers

The associated land use changes in these precincts, if left unmanaged, could impact stormwater quality, quantity and timing in a way that would damage the natural waterways. The NSW Government has introduced waterway health targets to reduce these impacts and appointed Sydney Water to implement a regional IWCM scheme because this was found to be the least-cost, economically efficient way to achieve this outcome. Sydney Water's integrated scheme includes naturalised channels to reduce the speed of flood waters, stormwater basins to store and treat flows naturally before they enter waterways and a third-pipe recycled network to re-use the excess flow expected from the developed catchment.

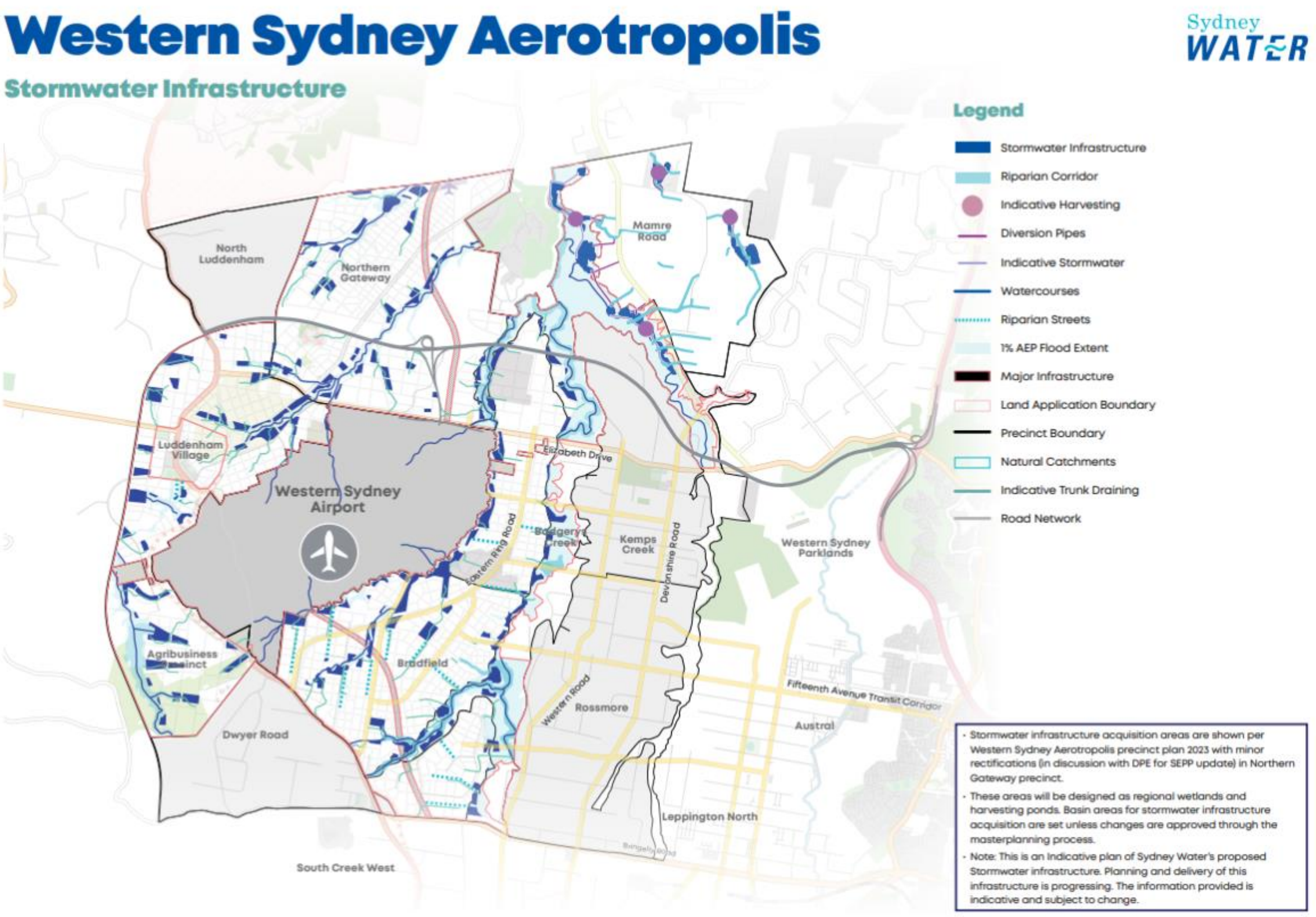
The advantage of the IWCM scheme is that it manages impacts on a larger regional scale instead on an individual lot basis. This approach has a key benefit of freeing up land that would otherwise be dedicated to on-site stormwater management. It also allows a single entity to manage essential infrastructure. Other options, such as a new entity to manage the scheme, or shared management between Councils, property owners and Sydney Water were found to be less economically and administratively efficient and were ruled out due to higher cost and risk[123].

Location and boundary conditions

The boundary conditions for the IWCM servicing for Mamre/Aerotropolis precincts hinge on Sydney Water's nomination as Regional Stormwater Authority and addition of the catchments to our declared stormwater areas. In this role, Sydney Water has an obligation to provide essential, financially viable stormwater services in the area. This includes development services, which includes designing systems which meet the stormwater related development requirements, developing and exhibiting a Development Servicing Plan which shows the elements and cost associated with providing these services, and finally considering feedback from stakeholders before finalising this DSP and registering it with IPART.

The newly declared catchment boundaries align with the development expected in the area. That is, the services required to meet waterway health targets will need to be located within each of the catchments. Development outside of each catchment will not rely on this infrastructure, nor will development within the catchments rely on downstream trunk drainage to meet their requirements as the targets must be met within each catchment. The precinct boundaries and stormwater scheme plan is shown in **Figure 8.2.3**.

Figure 8.2.4 Mamre/Aerotropolis stormwater precincts and planned services



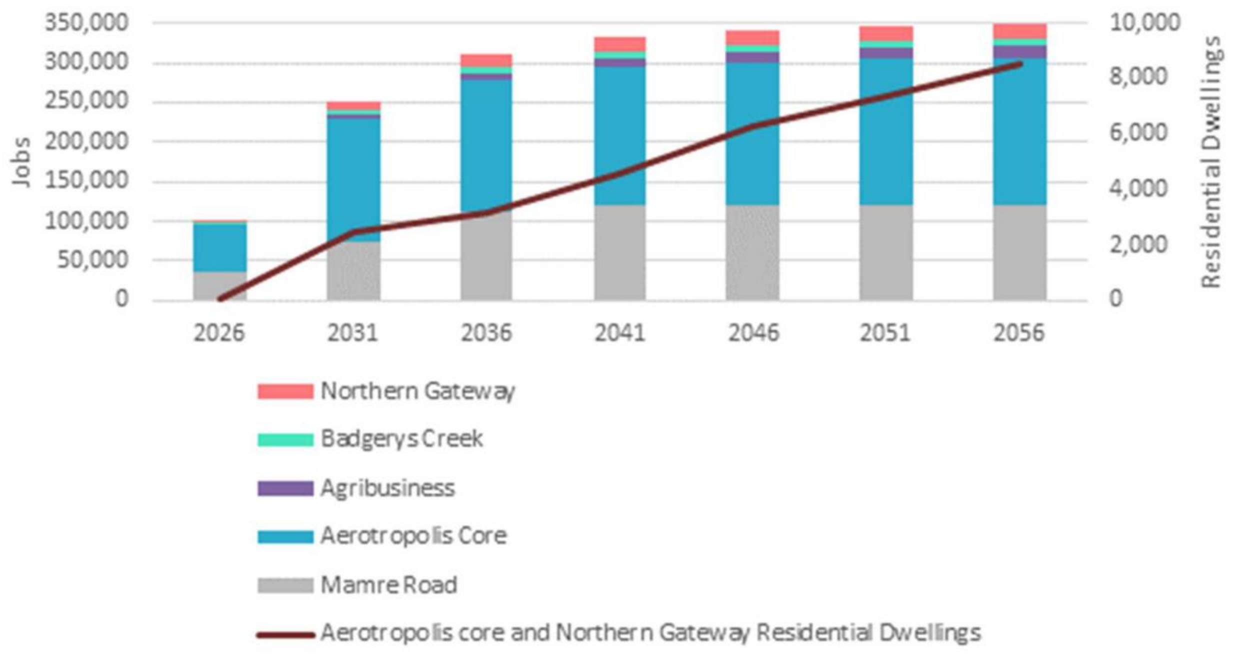
[123] Frontier Economics (2021) *Governance of stormwater and waterways in Wianamatta South Creek (Leading Precincts) Final Strategic Business Case December 2021.*

In a similar manner to the least-cost proposal for Rouse Hill, reducing drinking water demand is not a driver for the recycled water infrastructure. Rather, it is required to reduce the total stormwater volume entering waterways. This system must be topped up during periods where non-potable demand exceeds supply. The choice of top-up source (drinking water or recycled wastewater) will be determined during the detailed planning for each precinct which will occur in line with development timeframes. The first precinct to require services is Mamre Road. The detailed planning for this precinct is complete and demonstrates that top-up of the recycled stormwater system can come from the adjacent AWRC at least cost. Sydney Water will conduct similar assessments for each of the remaining precincts and adopt the least-cost source for top-up in each case.

Population and demand

The Mamre Road and Aerotropolis Initial precincts are expected to yield over 8,000 new homes and 350,000 new jobs by 2056 with all housing in medium and high-density dwellings. The projections used in our planning are shown in **Figure 8.2.5**.

Figure 8.2.5 Housing and employment forecast for Mamre Road/Aerotropolis precincts[124]



The demand placed on stormwater infrastructure is largely proportional to net developable area. The land use and developable area for each precinct are shown in **Table 8.2.5**.

Table 8.2.5: Land use and developable area in Mamre Road/Aerotropolis precincts

Precinct	Zoning	Area (net hectare)
Aerotropolis Core	Enterprise; Mixed-use	1,382
Agribusiness	Agribusiness; Environmental & Recreation; Infrastructure	1,560
Northern Gateway	Enterprise; Mixed-use; Environmental & Recreation	1,616
Badgerys Creek	Enterprise	634
Wianamatta-South Creek	Environmental & Recreation	1,330

[124] 2020 HSFM (issued in 2021). DPE has released its 2021 Sydney Housing Supply Forecast (SHSF previously referred to as HSFM, issued in 2022).

Description and timing of options considered

Sydney Water has been considering integrated water management development options, to deliver the necessary suite of water services across Western Sydney and the Aerotropolis, since 2020. A series of studies were conducted which explored how stormwater, wastewater, recycled water, trunk drainage and riparian zones could be managed to achieve the Western Parkland City vision, across the Aerotropolis Precincts. This was supported by similar studies by DPE.

In March 2022, the Department of Planning and Environment (DPE) determined that a regionally managed integrated approach to the delivery of wastewater, recycled water and stormwater services is the best value for money way to achieve the WPC vision as it delivers up to $2 billion additional benefit when compared to the current Council-developer led and locally managed service. Sydney Water was appointed as the Stormwater Drainage Manager for what are known as the Aerotropolis Initial Precincts, as well as the Mamre Road Precinct (together referred to as the Aerotropolis Precincts).

Four shortlisted options were examined as part of the INSW strategic business case (SBC) for the project[125]:

- Base case - Limited regional infrastructure, on-lot waterway health compliance without recycled water
- Resilient approach, on-lot waterway health compliance with regional recycled wastewater only
- Semi-integrated approach – regional system for waterway health compliance* without recycled wastewater top-up
- IWCM approach – regional system for waterway health compliance* with recycled wastewater top-up.

The results from a Cost Benefit Analysis are shown in **Table 8.2.6**.

Table 8.2.6 Cost Benefit Analysis results from Strategic and Final Business Cases for Mamre/Aerotropolis IWCM

Cost benefit analysis (CBA)	Base Case	Resilient approach	Semi-integrated approach	IWCM approach
SBC Economic Net Present Value $22-23 million	- 873	736	1,976	2,112
SBC Benefit to Cost Ratio (BCR)	-	1.24	1.76	1.77
FBC Economic Net Present Value $23-24 million (Mamre only)	- 203	Not examined	671-3,093	686-3,110
FBC Benefit to Cost Ratio (BCR) (Mamre only)	- 203	Not examined	2.44 – 7.63	2.47 - 7.68

The feedback from the INSW SBC review was that the case for a regional system was clear however the case for recycled wastewater top-up needed to be better evidenced. This led to refinement of options in the Final Business Case, which included limiting the analysis to the first precinct (Mamre Road) so that only detailed planning estimates were used. Sensitivity of the options to key assumptions was also undertaken at this stage. The Final Business case CBA and sensitivity found that both the semi-integrated and the IWCM approach were 'no-regrets' investments as they resulted in significant economic benefit however a mere 5% decline in the uptake of developable land under semi-integrated approach would create a significant advantage for the IWCM approach. The scenario analysis suggested that the diversified supply sources under the IWCM approach considerably diminish the risk of not achieving all anticipated project benefits.

[125] * Regional system includes a recycled stormwater network in both the Semi-integrated and full IWCM approaches. The difference is what source is used to top up this system, drinking water for the former and recycled wastewater for the latter.

Regulatory requirements

The IWCM services will recognise the need to protect the Wianamatta South Creek in compliance with the following guidance documents and legislation:

- Waterway health objectives and targets developed for the Wianamatta South Creek catchment by DPE
- The Risk-based Framework for Considering Waterway Health Outcomes in Strategic Land use Planning Decisions
- State Environmental Planning Policy (Industry and Employment) 2021 (Industry and Employment SEPP) Cl 2.44
- Western Sydney Employment Area (WSEA) SEPP 2009
- The Mamre Road Development Control Plan
- The Western Sydney Aerotropolis Development Control Plan – Phase 2, 2022

Although both DCPs allow for interim, on-lot compliance with waterway health related controls, Sydney Water, in our role as Stormwater Management Authority, are progressing delivery of regional IWCM infrastructure so that the need for interim on-lot infrastructure is minimised. We consider part of our role is to plan and provide services which deliver the highest economic value for the community we serve.

Options value and sensitivity

Sydney Water's appointment as Drainage Manager has triggered the need for a high level of scrutiny under Infrastructure NSW's Infrastructure Investment Assurance Framework (IIAF) as a Tier 2 project. Both this process, and the significant developer attention associated with a project which delivers a step change in protecting waterways, have helped shape and optimise the preferred infrastructure solution. Options value and sensitivity testing is well-documented in both the SBC and FBC.

A key consideration in opting for regional servicing rather than on-lot compliance with waterway health targets is the evidence that property owners are not well-placed to manage essential water infrastructure. As early as 2011, there was evidence that sub-optimal on-lot rainwater tank installation and subsequent operation and maintenance by householders resulted in significantly less water saved compared to the BASIX benchmarks these tanks were intended to meet[126]. Reasons included poor installation, poor choice of components (pumps and roof area connected) and user intervention (turning off pumps because water was discoloured). A recently published a study[127] examining residential use found questions remain about the effectiveness of many rainwater systems installed under NSW Building Sustainability Index (BASIX), regarding connection and maintenance issues. Hunter Water inspections found 41% of systems were faulty. Sydney Water's free pilot assessment found 24% of systems needed a maintenance service and 15% a repair service. It is highly likely that similar issues would occur if on-lot stormwater systems were relied on to meet waterway health targets and waterways would not be protected and significantly more drinking water would be used for non-potable activities. Were the on-lot option progressed, not only would it result in significant investment in on-lot infrastructure being wasted, but it would presumably be impossible to subsequently retrofit effective regional infrastructure to protect waterway health because the costs could no longer be funded by contributions paid by developers.

[126] Sydney Water (2011) Rainwater tank monitoring report A 12-month one-minute interval data study of rainwater tank water savings and energy use for 52 real life installations

[127] BASIX Water Review - Stage 1, Prepared for NSW Department of Planning and Environment by UTS Institute for Sustainable Futures, April 2023

Top-up and contingency

Detailed planning must be conducted before the least-cost top-up source for the recycled stormwater can be determined. For the Mamre Road precinct, this was found to be recycled wastewater top-up from the AWRC. As the detailed planning progresses for each precinct, the top-up source will be determined and progressed through Sydney Water's regular business case approval process.

Forecast scheme costs

As outlined in Section 0, we propose all least-cost recycled and stormwater costs, net of developer and connected customer contributions should be treated as wastewater expenditure for revenue requirement calculations going forward. Forecast scheme costs and revenues are provided in **Table 8.2.7** below.

Table 8.2.7: Mamre/Aerotropolis forecast costs and revenue

$'000 (24-25 real)	2021/22 (nominal)	2022/23 (nominal)	2023/24 (nominal)	2024/25	2025/26	2026/27	2027/28
Capex	1,039	2,175	2,632	98,671	263,205	203,760	339,109
Opex	-	-	40	1,039	3,331	9,462	15,470
Infrastructure contributions	-	-	-	66,103	289,627	427,842	564,202
Flood protection charges	-	-	-	-	53	223	473
Recycled water usage charges	-	-	-	-	-	585	1,170
$'000 (24-25 real)	**2028/29**	**2029/30**	**2030/31**	**2031/32**	**2032/33**	**2033/34**	**2034/35**
Capex	150,476	476,884	281,343	333,290	284,342	357,509	437,356
Opex	18,425	26,733	32,285	39,393	45,664	53,193	61,944
Infrastructure contributions	532,395	622,169	539,138	502,219	485,363	184,134	223,243
Flood protection charges	798	1,093	1,462	1,765	2,040	2,303	2,406
Recycled water usage charges	1,419	1,943	2,467	2,991	12,038	13,648	15,257

Bingara Gorge – new least cost IWCM scheme

In 2011, the NSW Government called for landowners across Sydney to nominate large-scale sites where development could be accelerated and released for housing. This led to the identification of Wilton as a potential location for accelerated development. In July 2016, the NSW Government declared Wilton as a new Priority Growth Area (PGA). Because growth has been accelerated, the Government required that development must be at 'no additional cost to Government'.

Drivers

Significant new water industry infrastructure will be needed to support the planned growth in the Wilton PGA, and the accelerated nature of this development is likely to require interim servicing solutions. We have been working with landowners to understand the timing and location of their developments, as well as other stakeholders, to identify any constraints on the provision of new infrastructure.

A key constraint for wastewater planning in any catchment is the requirements of the Environment Protection Authority (EPA). From 1 July 2024, the EPA has introduced a new nutrients management framework for the Hawkesbury Nepean River system, setting tighter load limits on nutrient discharges. The EPA has also indicated that allowable load limits will likely decrease over time and has set challenging expectations relating to effluent discharge in the upper Nepean River and its tributaries.

Location and boundary conditions

Located around 80km to the Southwest of the Sydney CBD, the Wilton PGA consists of six precincts and total projected growth of around 15,000 new homes and new employment areas. Initial development is in the Bingara Gorge precinct, located adjacent to the existing Wilton Village. A further two precincts, North Wilton and Southeast Wilton were rezoned in 2018.

Wastewater and recycled water services were originally provided to Bingara Gorge via a scheme licensed under the Water Industry Competition Act 2006 (WIC Act). Sydney Water purchased this scheme in June 2022 with an aim to leverage off the existing site and infrastructure to reduce the total cost of the servicing strategy for Wilton, accelerate the provision of new housing in adjoining precincts that had been rezoned for development, and relieve developers of the need to fund interim services. Drinking water is also supplied by Sydney Water.

Population and demand

Population in this area is estimated to be around 4,500 based on the average household size in this Statistical Area[128]. **Table 8.2.8:** provides dwelling and recycled water consumption forecasts for this scheme.

Table 8.2.8: Dwelling and recycled water demand forecasts – Wilton Bingara scheme

	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32
Properties (majority residential	753.0	809.5	866.0	952.9	1,035.2	1,133.7	1,232.2	1,332.6	1,434.8	1,537.0	1,637.2
Residential consumption (ML/year)	62.0	67.0	83.3	114.2	141.9	161.5	169.1	184.2	200.0	213.3	227.5
Golf course irrigation (ML/year)		170.0	155.7	162.9	162.9	162.9	162.9	162.9	162.9	162.9	162.9

[128] Douglas Park – Appin Statistical Area Level 2, ABS Family and Community statistics, 2021. Household size = 3.2 persons/dwelling

Description and timing of options considered

We explored a range of alternative servicing pathways, with a view to identifying the option that delivers services at least cost with an acceptable level of risk.

Wastewater Servicing and Effluent Management

In 2016 we assessed several servicing pathways and indicative lifecycle costs for Greater Macarthur, which includes the Wilton PGA. Pathways that were explored included:

- transfer out of catchment,
- within-catchment treatment and discharge to local waterways, and
- within-catchment treatment with recycled water to new development.

The key outcomes of this work concluded that further planning should focus on within-catchment wastewater solutions, including both 'treat and discharge' and re-use options. The EPA's new regulatory framework aims to avoid an increase in nutrient loads due to population growth. It has imposed challenging treatment standards for all new wastewater facilities which are likely to be increasingly tightened over time[129]. Licence conditions for Wilton would only be formalised at the time of a licence application, however it is reasonable to assume the EPA would impose constraints similar to Picton at the new Wilton plant. This assumption informed the options considered in the next stage of planning.

Sub-regional planning

In March 2019 we completed sub-regional planning for the Wilton PGA, which is documented in the 2046 Wilton New Town Sub-Regional Adaptive Plan (Appendix 2). The study applied an economic framework to assess different servicing concepts, assessing the costs and benefits to all parties across all elements of the water cycle.

While the raingarden polishing and dual reticulation option was the lowest cost, it relies on a treatment concept that is relatively new technology at this scale and in this region. Evidence from a trial would also be needed to support a licence application to the EPA before this treatment technology could be considered for use as part of the permanent scheme. In the absence of results from a trial, the planning study recommended tertiary treatment and dual reticulation, with no discharge as the next preferred option, which included:

Regulatory requirements

Wastewater and recycled water services were originally provided to Bingara Gorge via a scheme licensed under the Water Industry Competition Act 2006 (WIC Act). Sydney Water purchased this scheme in June 2022 with an aim to leverage off the existing site and infrastructure to reduce the total cost of the servicing strategy for Wilton, accelerate the provision of new housing in adjoining precincts that had been rezoned for development, and relieve developers of the need to fund interim services. Drinking water is also supplied by Sydney Water.

Options value and sensitivity

Validation of planning assumptions and revision of cost for wastewater servicing options

In mid-2020, in preparation for the next phase of concept design work and consultation with IPART on the application of the recycled water price determination, Sydney Water validated the options and updated the servicing costs. We also received new information from Lendlease as part of due diligence on the potential acquisition of their Bingara Gorge assets:

- in July 2019 the EPA finalised the new regulatory framework for the broader Hawkesbury Nepean River and its tributaries (see Appendix 5). The new framework will commence from 1 July 2024, and we are now more certain that even higher levels of treatment will be required for waterway discharge options than those assumed previously.
- Developer forecasts were revised in consultation with DPIE and major developers, affecting the staging of future infrastructure.
- We were able to incorporate evidence based recycled water demands from Lendlease customers in Bingara Gorge to better inform the water balance analysis.

[129] EPA note that under the Sydney Water Act 1994, we have an ultimate aim to prevent the dry weather discharge of sewage (s 27), and we must also have regard to options for re-using substances we discharge to the environment (s22(3)) in order to protect the environment (s21).

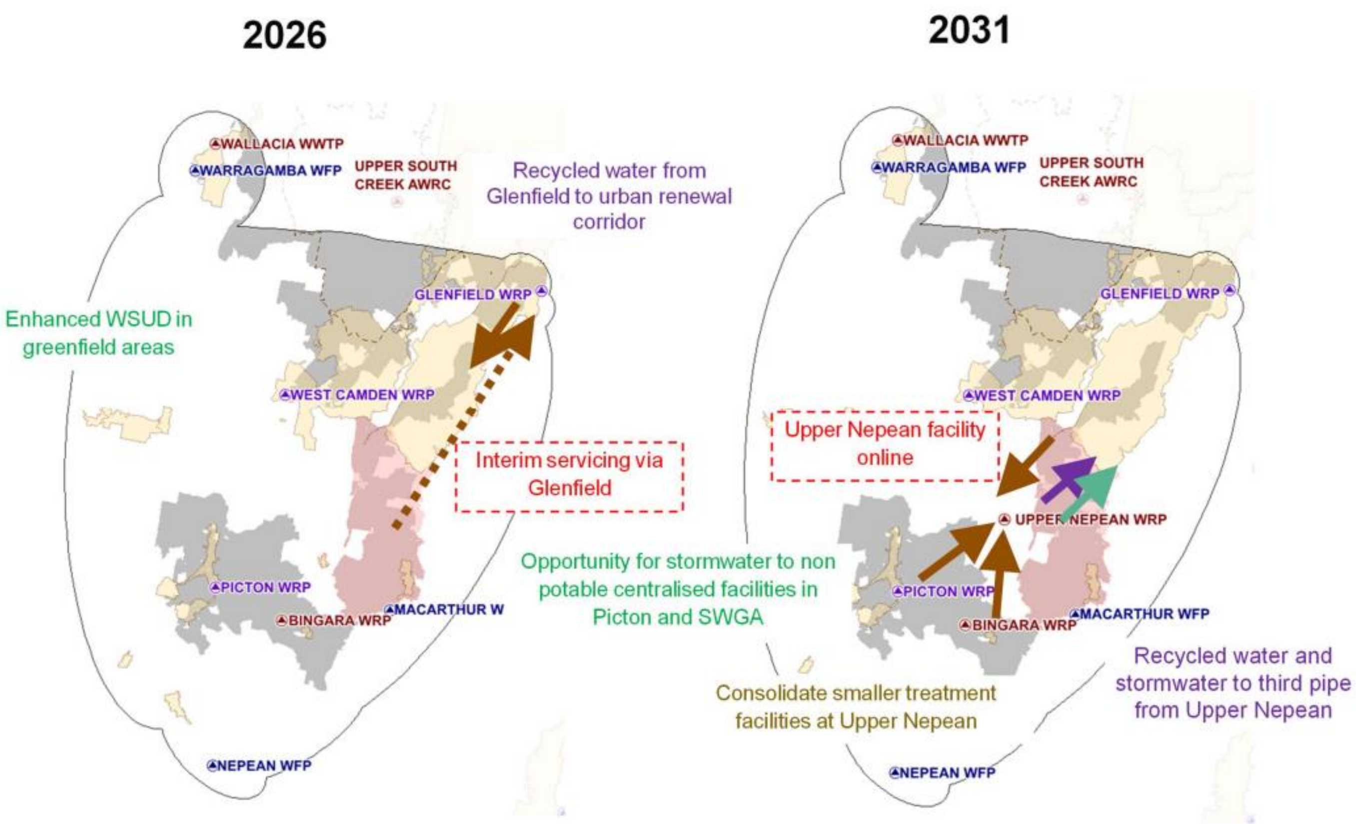
Of the options considered in the adaptive pathways report, Options C1 and C2 were not revised because Option C1 does not meet the new requirements under the Hawkesbury Nepean regulatory framework and, as noted earlier, Option C2 requires a raingarden pilot trial which had not been agreed with developers. The costs of the out-of-catchment transfer option, previously considered in the 2016 planning work, were also updated to reflect changes in the water balance.

The updated analysis showed once again that tertiary treatment and dual reticulation, with no discharge is the least-cost way to provide wastewater services to Wilton PGA by a margin of approximately $100m in NPC terms.

The prudent and efficient cost to deliver the current and future scheme

As outlined in the recent Wilton Development Servicing Plan document which supports the Infrastructure Contributions payable in this growth area, by 2031 we plan to redirect all flows to the future Upper Nepean Advanced Water Recycling Centre (AWRC) by 2031. This will consolidate smaller treatment facilities, allow recycled wastewater and stormwater supplies via a third-pipe recycled network and provide opportunity for stormwater to be recycled at centralised facilities in Picton and the South West Growth Area. Until this the AWRC and connection infrastructure are operational, we are required by the current EPL to recycle significant volumes of effluent.

Figure 8.2.9: Interim and future wastewater servicing for Wilton and Greater Macarthur region



Top-up and contingency

The recycled water system at Bingara Gorge is topped up with drinking water, however, this is minimal because the purpose of the scheme is to maximise re-use of all effluent to comply with the Environmental Protection Licence conditions for zero dry weather discharge.

Forecast scheme costs

Our price proposal would see all least-cost recycled and stormwater capital expense treated as wastewater expenditure for price setting purposes going forward. Given we have only recently purchased the scheme, and the inherited contracts do not ring-fence recycled water costs, we provide the forecast of net cost inputs for the combination of the wastewater and recycled water services.

Table 8.2.9: Bingara/Wilton forecast costs and revenue

$ million (24-25 real)	2021/22 (nominal)	2022/23 (nominal)	2023/24 (nominal)	2024/25	2025/26	2026/27	2027/28
Capex	11	1	1	15	9	3	-
Opex	-	2	3	4	4	5	5
Infrastructure contributions	-	-	-	3	5	8	3
Recycled water usage charges	0.2	0.3	0.3	0.4	0.5	0.6	0.7
$ million (24-25 real)	**2028/29**	**2029/30**	**2030/31**	**2031/32**	**2032/33**	**2033/34**	**2034/35**
Capex	-	-	-	-	-	-	-
Opex	6	6	6	6	6	6	6
Infrastructure contributions	6	7	6	-	-	-	-
Recycled water usage charges	0.8	0.9	0.9	1.0	1.1	1.2	1.2

Sydney Science Park avoided cost claim

Sydney Water is working collaboratively with Celestino Pty Ltd to provide sustainable and resilient water services to Sydney Science Park at Luddenham[130]. In early 2017, Celestino approached Sydney Water with a request to undertake planning work for a development they referred to as Sydney Science Park (SSP). Celestino were interested in the viability of innovative and leading-edge servicing options such as recycling of wastewater and stormwater for direct potable reuse. The planning work informed a formal proposal by Sydney Water to provide water, wastewater and recycled water services for the SSP development. As SSP was being accelerated ahead of development in the wider region, and with some assets serving only SSP, an unregulated pricing agreement was selected as the most appropriate funding model. This included up-front funding of water and wastewater assets, which would be repaid by Sydney Water over time as development connected.

Sydney Science Park spans 288 ha and was one of the First Priority areas in the May 2023 Western Aerotropolis Precinct Plan. Water servicing will be an IWCM approach with a third pipe to meet non-potable recycled water demands and a low-pressure sewer system to reduce storage and treatment infrastructure costs. The total costs associated with this approach are higher than the least-cost, acceptable risk approach, so we have ring-fenced these in to ensure that customer bills are not subsidising these higher costs.

The lowest capital cost to deliver essential water and wastewater services in this area between 2020 and 2030 is $5.9 and $21.7 million for water and wastewater respectively (PV $2024-25). This is the capital cost to deliver essential services under the base case, which is a traditional servicing approach ('unavoidable costs'). As such, we propose to continue to ringfence all capital costs in the area but make these present value RABs adjustments now so that customers are no worse off as a result of the negotiated services agreement. At our next review of prices, we propose to make the next claim for the base case costs expected between 2030 and 2035. This way, the RAB will more closely reflect how customers would have paid for the least cost to deliver services in the area compared to a single claim for the entire project inclusive of all least cost opex and capex over 30 years. All other costs proposed to be funded in the regulated annual revenue requirement (opex, and tax on assets free of charge) have also been proposed at base case levels (ie, they do not include the higher operational, renewals and AFOC costs associated with the negotiated services).

[130] As Sydney Science Park servicing is subject to a commercial agreement, we have also provided some additional information in a commercial in confidence appendix.

Drivers

Delivery of an innovative approach to servicing at Sydney Science Park has been driven Celestino's interest in leading-edge servicing options such as recycling of wastewater and stormwater for direct potable reuse.

The unregulated agreement sought to replicate IPART's funding frameworks where possible, including an obligation on Celestino to fund all works above the least cost servicing solution. In this way, the broader customer base would only be required to fund the unavoidable costs of water and wastewater servicing, with no cross-subsidies or higher costs due to the inclusion of higher cost elements such as recycled water treatment and distribution.

Location and boundary conditions

Only the base case (least-cost) option should be included in regulated price setting. The assessment of least-cost servicing was conducted in 2020 before entering the unregulated agreement. As such, we propose only the least-cost base case, as updated from time to time with recent cost estimates, should be included in regulated price setting.

The chosen (unregulated/negotiated) servicing arrangement has a higher cost in total (net present cost), however, we note the inclusion of the recycled water system in the negotiated servicing option does result in some lower cost elements. That is, the lowest total cost would be to install a traditional gravity wastewater system which could then allow wastewater to be pumped to St Marys Water Resource Recovery Facility, which is the only available location for treatment outside SSP prior to 2026. However, the negotiated servicing option includes a local recycled water treatment plant. This plant allows pumping wastewater to St Marys Water Resource Recovery Facility to be avoided in the short term. Transfer to a centralised treatment plant is still required, however, can be achieved by waiting until the new Advanced Water Recycling Centre has been commissioned. This new centralised plant is much closer to the Science Park than St Marys, so allows cost saving in the transfer main size and length required. In addition, the volume to be transferred is lower (because some of the effluent is being recycled locally), this means the pumping station can also be downsized compared to the base case. Despite these lower cost elements, the negotiated servicing option remains higher cost in total for essential wastewater services due to the inclusion of a local treatment facility, so we propose only base case costs should be included in regulated price setting.

The following show the proximity of Sydney Science Park to existing and future treatment facilities, and the planned water, wastewater and recycled water networks under the negotiated servicing agreement.

Figure 8.2.10: Science Park location and proximity to existing (and future) water and wastewater treatment facilities

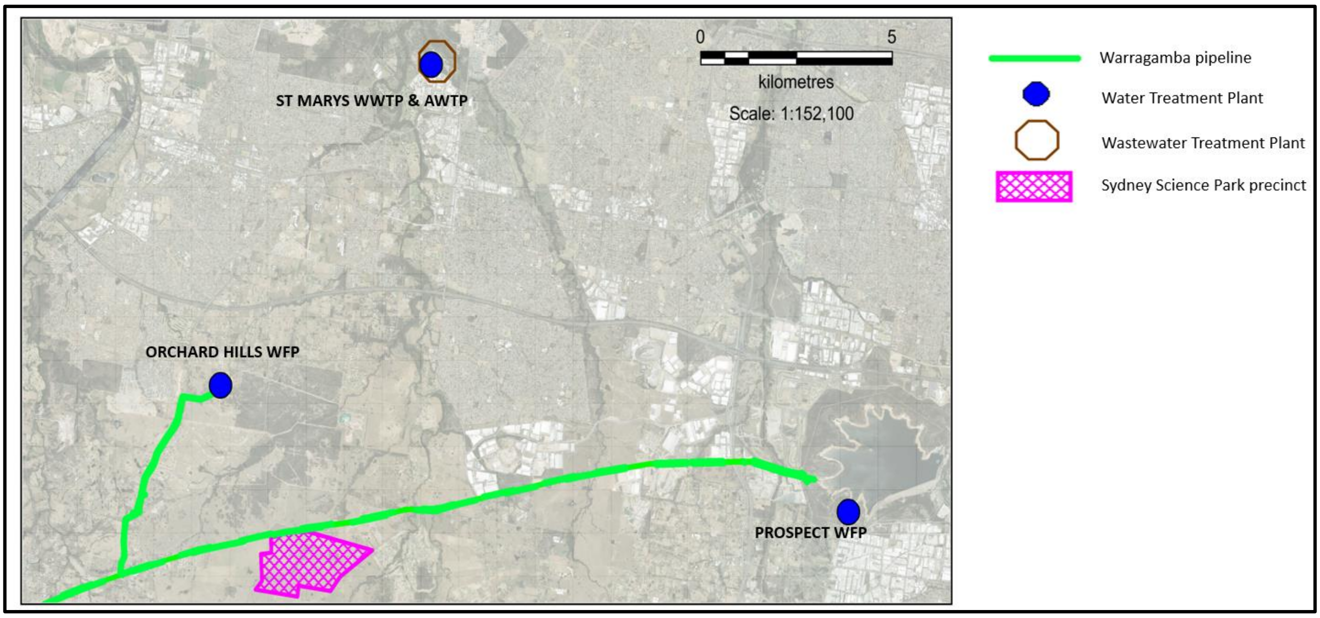


Figure 8.2.11: Sydney Science Park proposed connection to drinking (potable) water services

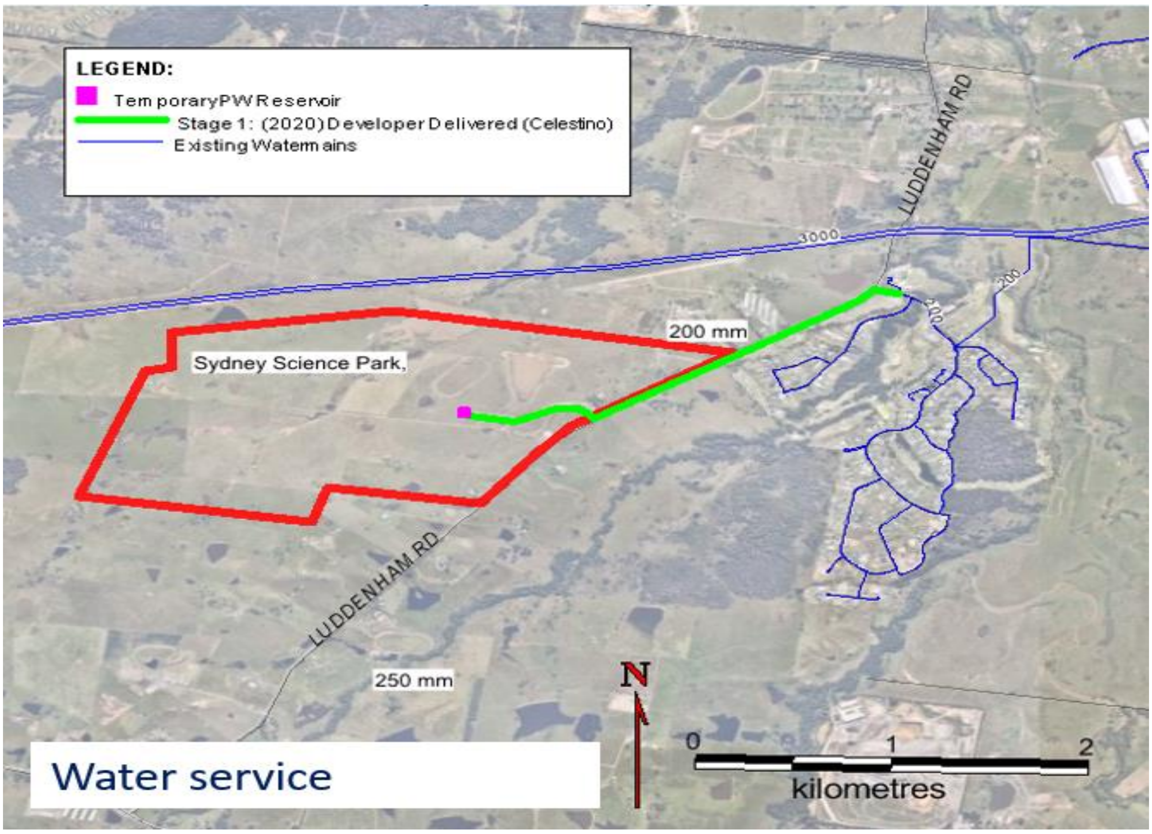
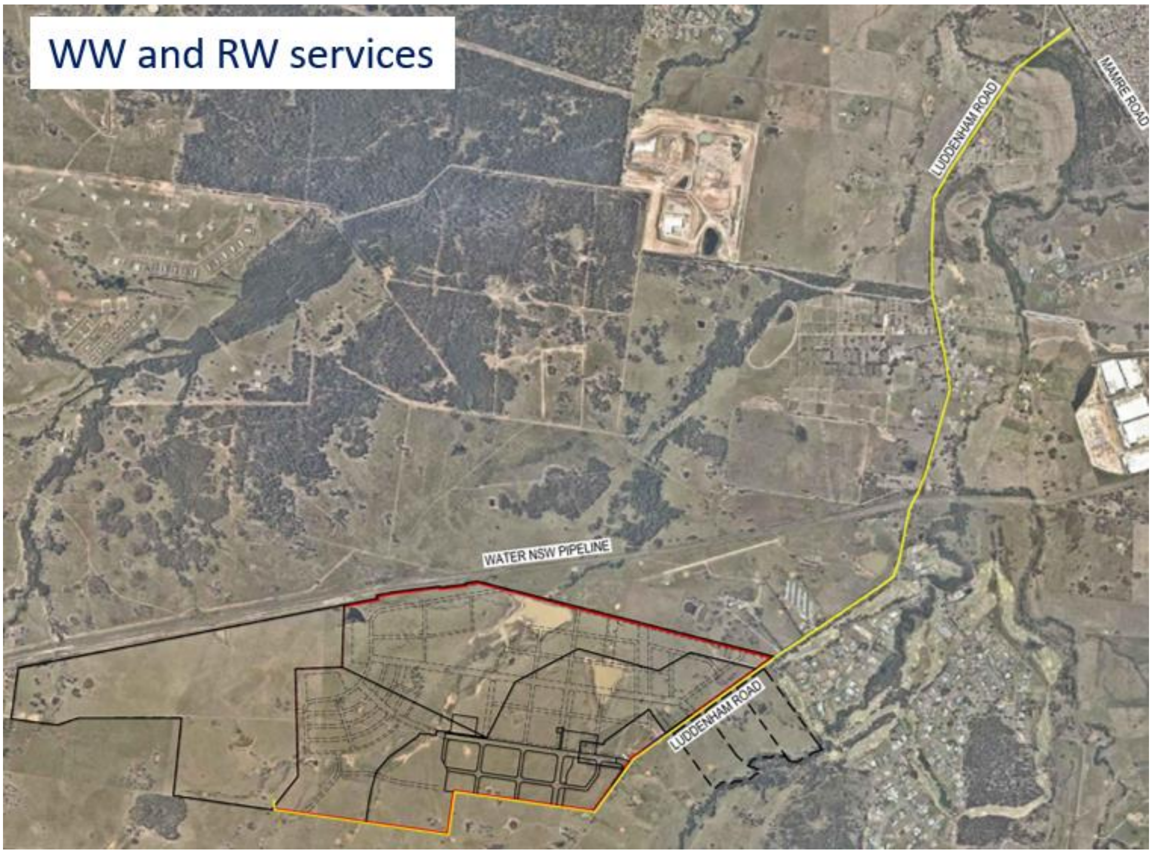


Figure 8.2.12: Wastewater and recycled water servicing



Population and demand

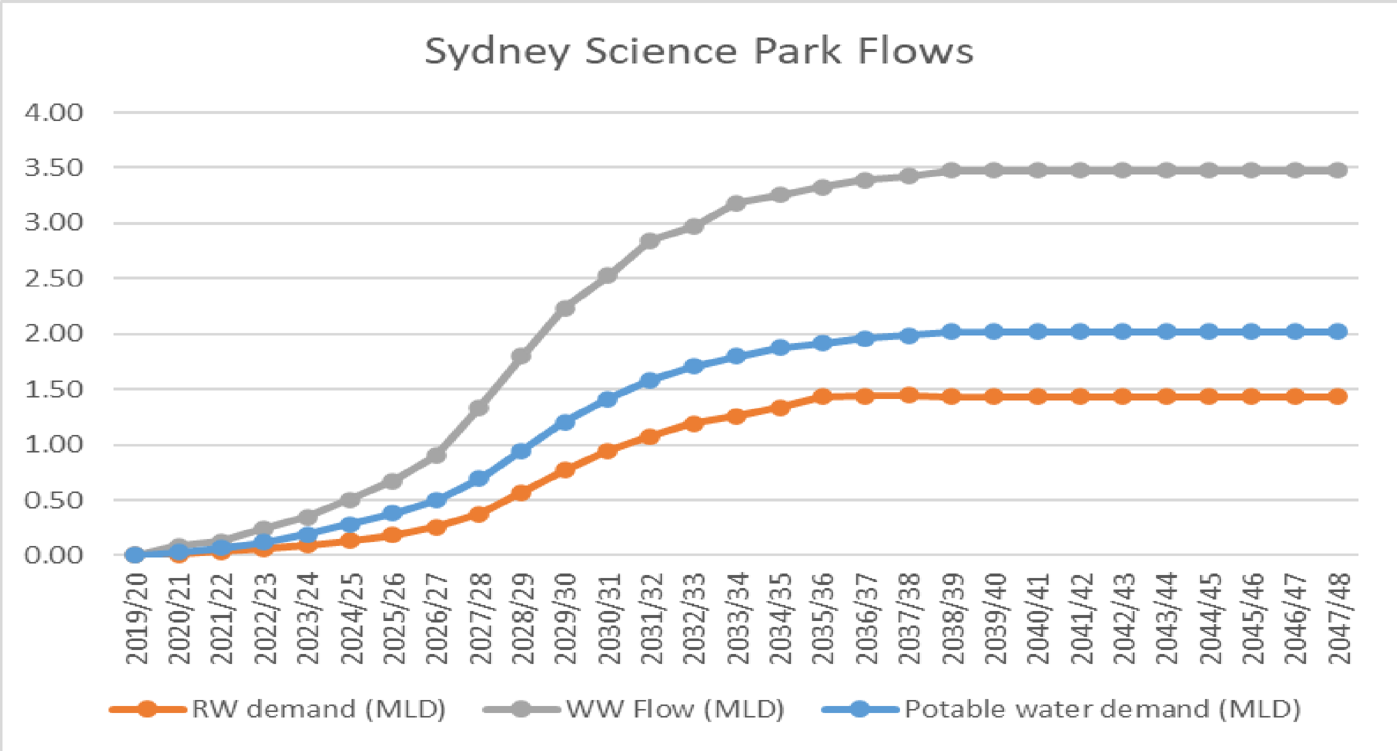
Sydney Science Park has an ultimate development forecast of 3,400 Dwellings, 37 hectares of commercial and 11 hectares of educational development supported by accommodation for 1,000 students. The forecast demand for servicing in 2020 is shown in **Table 8.2.10**.

Table 8.2.10: Science Park residential growth forecast (cumulative) from 2020 options assessment

Residential Category	2020	2021	2022	2023	2024	2029	2039
Medium Density Townhouses	-	173	373	648	950	1,950	2,040
High Density Units	-	-	-	-	-	400	1,360
Residential Sub Total	**-**	**173**	**373**	**648**	**950**	**2,350**	**3,400**
Student Accommodation	**-**	**-**	**-**	**-**	**-**	**500**	**1,000**
TOTAL (Cumulative Dwellings)	**-**	**173**	**373**	**648**	**950**	**2,850**	**4,400**

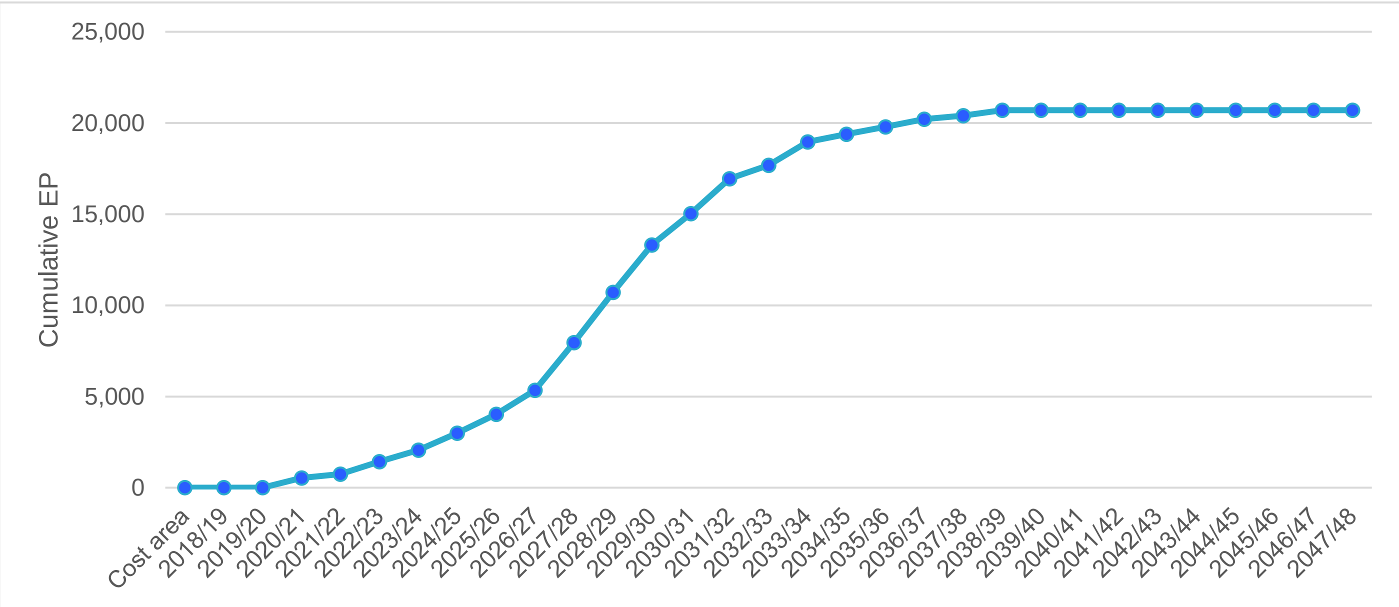
The demand for services under the negotiated service agreement is shown in **Figure 8.2.13**. Under the base case, the expected wastewater flows would be higher (as this would have been a gravity rather than low pressure sewer system), and the total drinking (potable) water demand would have been approximately equal to the sum of the recycled and potable water demand under the negotiated servicing.

Figure 8.2.13: Sydney Science Park demand for services under the negotiated agreement



It is expected that Sydney Science Park will ultimately result in demand for essential water and wastewater services equivalent to just over 20,000 people.

Figure 8.2.14: Cumulative Equivalent Population adopted in the 2020 options assessment



Description and timing of options considered

The 2020 options assessment compared seven different sustainable water servicing options to the least-cost base case. These are described in **Table 8.2.11**.

Table 8.2.11: Options considered in the 2019 options assessment

Option	Option Description
BAU	Business as usual, water and wastewater services only Wastewater: servicing from St. Marys wastewater network Water: supply from existing adjacent water system (Cecil Park)
1A Temp	Temporary decentralised treatment until Upper South Creek recycled water recycling hub in place. Water supply as per BAU.
1B Sewer mining (PREFERRED OPTION)	Permanent decentralised sewer mining treatment plant to meet the demand for SSP recycled water. Excess flows transferred to St. Marys WRP. Includes flexibility to move to PRW with harvested stormwater and wastewater. Water supply as per BAU.
2a Full vision	Permanent decentralised treatment plant with no link to existing system, undeveloped land irrigation is required until PRW is approved. Both stormwater and wastewater to PRW included with export of excess PRW to Orchard Hills (stormwater PRW). Water supply as per BAU.
2b	Similar to 2a but stormwater management is a BAU approach to meet council's requirement only and this results in no water positive. Water supply as per BAU. Stormwater management is as per Council requirement. Minimal stormwater harvesting and no stormwater to PRW. Avoids export of excess PRW to Orchard Hills.
2c	This option is evolving to PRW from option 1B with stormwater meeting council's requirement only. Water supply as per BAU. Stormwater as per 2b.
3A	No local treatment for SSP. Wastewater and water services as per BAU, but recycled water is supplied from St. Mary's. Water supply as per BAU.
3B	No local treatment for SSP. Wastewater and water services as per BAU, but recycled water is supplied from future Upper south creek treatment plant. This means no recycled water is available for SSP until 2026. Water supply as per BAU.

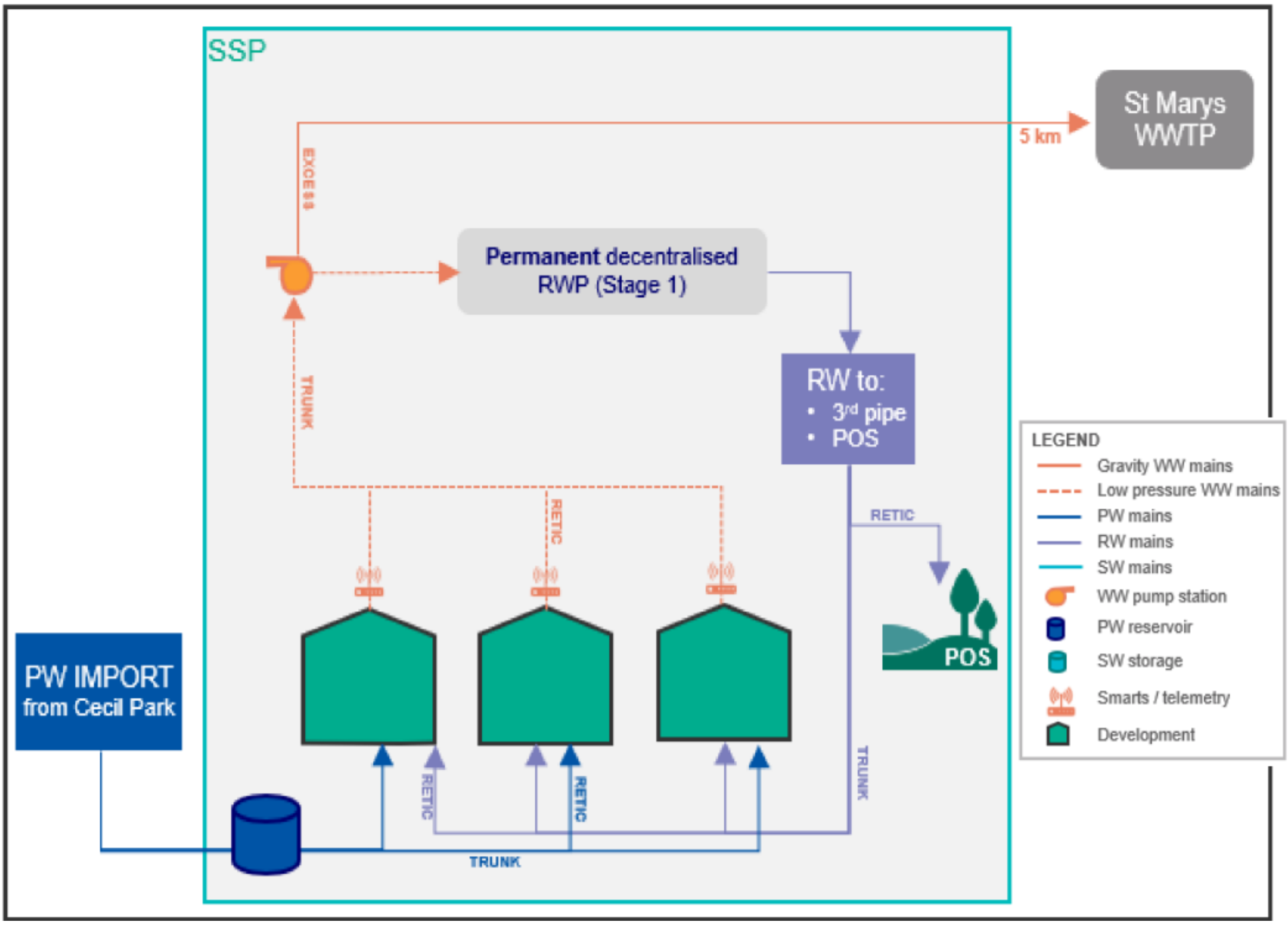
The least cost to service the Science Park was found to be the Base Case (traditional services). This includes:

- wastewater flow to St. Marys Wastewater Network (9km to the north) via a pumping station and a rising main
- water supply via extension of existing water supply from Cecil Park Water Supply.

The negotiated servicing option (shown in schematic in **Figure 8.2.15**) incorporates a local recycled water facility and includes:

- a permanent decentralised sewer mining treatment plant to meet the demand for local non-potable water demand. Excess flows transferred to the Advanced Water Recycling Centre
- the option includes flexibility to move to purified recycled water for drinking from both harvested stormwater and wastewater in the longer term
- water supply via extension of existing water supply from Cecil Park delivery system.

Figure 8.2.15: Schematic diagram of preferred option



The key benefits of the negotiated servicing option (1B) include:

- Aligns with the following elements of the Sydney Science Park vision:
  - Decentralised wastewater treatment and recycled water generated on site
  - An IWCM approach that avoids a traditional servicing solution
  - Provides opportunity for Sydney Water to further develop skills in integrated water management, decentralised servicing and providing bespoke servicing to different customer segments
  - Provides a pathway to purified recycled water for drinking of both wastewater and stormwater in the future
- Competitive price for services offered, which meets Sydney Water's and Celestino's commercial interests
- Irrigation of undeveloped land not is required, so Celestino does not need to keep land aside for this irrigation (ie, this maximises the economic benefit of developable land
- The local treatment plant has the flexibility to expand in the future to meet a potential increase in recycled water if demand increase above that currently forecast..

Regulatory requirements

The performance standards and regulatory requirements that the base case and negotiated servicing option must comply with are set out in **Table 8.2.12**.

Table 8.2.12: Performance standards and regulatory requirements for Sydney Water services

Product/Service	Performance standard and/or regulatory requirement
Water	Performance Standard includes: Minimum pressure of 20m / Max pressure 50m Drinking Water a minimum of 5m higher static pressure than the recycled water Maintain Reservoir greater or equal to Reserver Storage Level over peak demand sequence Reticulation Mains sized for Max Hour Demand Headloss, 3 m/km for pipes >200mm; 5 m/km for pipes <200mm Comply with Operating Licence (Part 3) Water Conservation Comply with Operating Licence (Part 5) Water Continuity Water Pressure Standard Comply with Operating Licence (Part 4) Drinking Water – Australian Drinking Water Guidelines
Recycled Water	Performance Standard includes: Minimum pressure of 15m System sized to supply Average day Demand Comply with Operating Licence (Part 4) Australian Guidelines for Water Recycling
Wastewater	Comply with: Environmental Protection Licence (EPL) – Clause 4 Operating Cond. (Wet Weather Oveflow; Odour) EPL Clause 3 – Limit Conditions (L1 Pollution of Waters)

Options value and sensitivity

The negotiated servicing option includes a Research Centre for purified recycled water for drinking. This provides critical support for keeping open the pathway to Purified Recycled Water (PRW) for drinking in the future. PRW has been shown to be the least-cost, highest economic value option for water supply in the longer term. Future scope for PRW pilots will be considered in future commercial negotiations between Sydney Water and Celestino.

Top-up and contingency

Recycled Water supply for the Science Park will occur when the Recycled Water Plant (RWP) is operational. The RWP is sized for average day demand. The maximum day demand will be managed through recycled water storage and optimised irrigation control and management throughout the precinct. This concept includes having all controls operated from the treatment plant. These include, but are not limited to:

- recycled water supply to third pipe
- recycled water supply to irrigation
- excess wastewater/recycled water and sludge transfer to St. Mary's
- ability to monitor and control on property pots and pumps for wastewater.

Further hydraulic modelling has confirmed that the proposed recycled water system (i.e. pumping station and storages) has adequate capacity for a maximum week condition at SSP. Prior to the delivery of the RWP (2026), potable water (from Cecil Park Supply Zone) will supply the recycled water demands. Outflows from the Science Park Integrated Water Recycling Hub (IWRH) plant will comprise excess untreated wastewater, excess treated water, and untreated sludges. These will be discharged to Sydney Water's existing wastewater network via a transfer main connecting the Science Park IWRH to Cosgrove Creek gravity carrier (2026). Flows will be pumped from Cosgrove pumping station to the Advanced Water Recycling Centre (AWRC) by 2026.

Forecast scheme costs

In **Table 8.2.13** below we present the costs expected at the time under the base case (least-cost) option.

Table 8.2.13: Sydney Science Park base case (least-cost) forecast costs

$ million (24-25 real)	2021/22 (nominal)	2022/23 (nominal)	2023/24 (nominal)	2024/25	2025/26	2026/27	2027/28
Capex	-	-	1	4	14	6	-
Opex	-	-	-	0	1	1	1
$ million (24-25 real)	**2028/29**	**2029/30**	**2030/31**	**2031/32**	**2032/33**	**2033/34**	**2034/35**
Capex	-	5	12	2	0	0	3
Opex	1	1	1	2	2	2	2

Potable revenue forgone and avoided cost calculation

Background

In IPART's 2019 Recycled Water determination, IPART clarified that both avoided costs and avoided revenue (revenue foregone) must be considered in recycled water pricing, stating:

> *Otherwise, developers or customers would face higher charges for potable water services under the recycled water servicing solution compared with the traditional servicing solution and would therefore be worse off with the recycled water scheme.*

Sydney Water agrees with this finding and propose a practical way to estimate potable revenue foregone for inclusion in recycled water pricing. An accurate estimate of revenue foregone must consider the interaction between potable water demand and relevant Government policies and planning requirements which affect drinking water demand. We propose, that by using Long Run Marginal Cost (LRMC) based estimates, we can avoid the need to estimate demand volumes affected by BASIX and other Government policies and thereby streamline potable water avoided cost calculation for pricing purposes.

Quantifying the effect of BASIX and other policies which affect drinking water demand

Under BASIX, residential properties must meet a 40% potable water reduction target using a combination of water efficient appliances and source substitution. However, a number of factors makes it difficult to quantify how much a recycled water scheme contributes to revenue foregone above the BASIX requirement. BASIX targets were set relative to statewide averages, which are far above average water use by current non-BASIX dwellings. The target can also be met by a combination of water efficient fixtures and source substitution. A volume estimate for the purposes of calculating potable revenue foregone would need to account for all contributing factors, not just the total volume saved.

One method to estimate revenue foregone for BASIX dwellings might be to compare potable water use by BASIX dwellings with and without a recycled water connection. In most cases, the source substitution requirement of BASIX is met by installation of a rainwater tank. However, numerous studies have found the actual savings achieved by rainwater tanks installed for BASIX compliance are far below that assumed by the BASIX evaluation tool. This means, a simple with and without recycled water connection calculation would imply that recycled water customers/developers should pay more (to account for revenue foregone) because they have opted to meet BASIX using a more reliable source substitution option than a rainwater tank. We consider adding costs via use of this simple method would be in-equitable.

Other more recent policies also mean that more non-potable demand is likely to be met with non-potable sources in the future. This is the case throughout Mamre Road and Aerotropolis precincts where stormwater will be re-used to comply with waterway health targets. Calculation of volumes resulting in potable revenue foregone for each new scheme is likely to be data and labour intensive and costly to implement.

Long Run Marginal Cost (LRMC) - A simple and pragmatic approach

In the 2017 wholesale price determination final report, the 2019 recycled water determination final report and other price reviews, IPART has stated their support for avoided costs to be calculated using LRMC. We agree this is a robust and pragmatic way to estimate avoided costs for potable water. We also consider that revenue foregone should also be calculated using LRMC, because the revenue we receive from usage charges should be set at or close to LRMC.

In the 2019 recycled water determination, IPART note two potential issues relating to estimating potable revenue foregone and avoided costs using system wide LRMC. These are discussed below:

- **Estimates of foregone revenue should use location specific potable water LRMC**. In the case of Rouse Hill and our other Mandated schemes, the location specific LRMC is likely to be similar, if not identical to the system-wide LRMC because there is a high level of interconnectivity between various supply nodes in our network so the majority of network can receive water from Prospect/Warragamba.
- **Usage prices, and hence revenue foregone, may not reflect the most up-to-date LRMC**. Currently, and for many years, there has been strong alignment between usage prices and LRMC. As such, we consider any difference should be negligible. We also consider in the future, there would be an equal chance of usage prices being slightly above or slightly below an up-to-date LRMC, so, the assumption that usage price is close to or equal to LRMC is reasonable.

The key advantage of assuming that both avoided costs and potable revenue foregone can be calculated using the same LRMC is that the volume (and value) of revenue foregone no longer needs to be calculated. That is, the cost of revenue foregone is simply equal to the avoided cost, and so the two cancel each other in all price calculations. As such, in our proposal, rather than accounting for each component separately, we note that for all schemes, we have assumed both potable revenue foregone and avoided costs are calculated using the same LRMC, so, the net result in both the calculation of recycled water and potable water infrastructure contributions, and regulated potable water charges is zero.

Previous avoided potable water cost adjustments

Currently, there is approximately $2 million added to the water RAB resulting from an avoided cost claim for the Rouse Hill scheme. We understand this was not calculated as a 'net avoided cost' at the time. Similarly, the same $2m is currently included as an offset in the recycled water DSP (again, with no adjustment for potable revenue foregone). To reconcile all price setting with IPART's 2019 determination, two adjustments could occur:

- Adjust the historical avoided cost, previously added to the water RAB to be a 'net avoided cost'. If, IPART accept the use of LRMC valuation of both avoided costs and potable revenue foregone, this would simply require deducting the avoided cost.
- Adjust the potable avoided cost offset in the Rouse Hill recycled water DSP to be a 'net avoided cost'. Again, if IPART accept our proposal of the use of LRMC valuation this would require removing the avoided cost offset in the DSP in consideration it is likely to equal potable revenue foregone.

Given the small affect the above two adjustment would have on potable prices and recycled water infrastructure charges, we do not propose to make these adjustments at this time.

Phase in of Ordinary Developer Contributions

IPART's approach in its 2019 Determination for Recycled Water developer contributions is that when schemes form part of the least-cost means of providing essential water, wastewater and/or stormwater services to a new development, they should be funded on an equivalent basis as traditional network servicing solutions. At the time, the government's zero developer charges for water, wastewater and stormwater applied. As such, the determination noted that the 2018 Determination would apply to least cost schemes except where the government policy to apply zero developer charges is in place.

As discussed above, the government has directed a phased approach to reintroduce water and wastewater developer contributions. However, the contributions for greenfield stormwater in our newly declared catchments in Mamre Road and the Aerotropolis were exempted from the phase-in. This was in consideration that stormwater contributions for greenfield infrastructure levied by councils were not subject to the zero-charge policy, so developers would have expected to pay these charges.

We consider it would be a perverse outcome if our proposed removal of ring-fencing of Rouse Hill recycled water infrastructure resulted in a lower charge being applied to the recycled water infrastructure that all developers in the past have paid for and would expect to pay in the future.

We expect this could be achieved by IPART issuing a clarifying note that the removal of ring-fencing at Rouse Hill will not remove the liability for developers to continue to pay for their share of the costs of the recycled infrastructure. That is:

- Up until 1 July 2025, 100 per cent of the existing recycled water DSP will apply:
- Between 1 July 2024 and 1 July 2026, developers will pay both the existing recycled water DSP and the phased Norwest wastewater DSP charges (according to the government’s phase in for those charges) as the phased wastewater DSP does not cover least-cost recycled water infrastructure.
- Before 1 July 2026, Sydney Water must review and register the Norwest wastewater DSP so it covers all growth related least-cost wastewater and recycled water infrastructure.

Appendix 10 Customer numbers and demand forecasting

Historical demand

Customer numbers 2020–24

The customer numbers forecast for 2020–24 were based on the NSW Department of Planning, Housing and Infrastructure's (DPHI's) 2016 Housing Supply Forecast Model (HSFM). The DPHI HSFM was approved for use by the NSW Government Common Planning Assumptions Group (CPAG).

Methodology

The Sydney Water forecast of residential customers served with water, wastewater and stormwater in our area of operations is produced by the Dwelling Forecast Allocation Model (DFAM). This model uses Sydney Water end-of-financial-year actual dwelling counts as the starting point and adds projected dwelling growth for each year. The model is informed by trends from our billing system. Other inputs include HSFM dwelling projections for Greater Sydney, published by DPHI, supplemented with implied dwellings for the Illawarra last published by DPHI in May 2022. The population estimate is derived from data sourced from the Australian Bureau of Statistics (ABS) as the start point, and DPHI.

DPHI dwelling projections drive the short- to medium-term (10–15 year) forecast. In the medium to long term, our population forecast is converted to dwellings using occupancy rates. The forecast is split into single dwellings and multi-dwellings and is attributed to each water and wastewater system. Stormwater forecasts were not catchment based, except for Rouse Hill.

Non-residential customer numbers were derived from the residential forecast using methods such as direct conversion factors, billing discharge factors, lot size, and analysis of trends in the billing system. The method used depended on the product: water, wastewater or stormwater.

Input

The customer numbers and growth forecast for 2020–24 were informed by a combination of DFAM-specific inputs and information from the following additional sources:

- catchment areas – spatial boundaries for precincts in our area of operations and mappings to local government areas (LGAs), ABS Statistical Areas
- estimated regional population (ERP) and population growth projections – published 2016
- DPHI Housing Supply Forecast Model (HSFM) forecast – 2016 forecast of housing supply, recently renamed as Sydney Housing Supply Forecast (SHSF)
- implied dwelling demand – that is, the number of dwellings required to house the projected population for 2016
- historical dwelling actuals – Sydney Water end-of-financial year actual dwelling counts
- average occupancy rates
- greenfield ultimate capacities based on precinct-specific dwelling potential sourced from DPHI
- net completions – that is, a measure of past levels of development
- proposed dwellings and, development approvals– a measure of future development
- policies, tariff changes and strategies
- stock trends, developer activity and non-residential approvals.

Output

The short- to medium-term DFAM dwelling and population forecasts formed the basis of the customer numbers and growth forecast for 2020–24. The 10-year annual forecasts and 15-year annual greenfield forecast for water, wastewater and stormwater services were used to derive residential (dwellings) and non-residential customers served by Sydney Water.

The DFAM forecast of total dwellings, including *Water Industry Competition Act 2006* (WICA)[131] areas, was also passed to the demand forecast models for calculating future short- and medium-term demand for water and wastewater. Although these are not

[131] This encompasses demand from third-party entities that sell water to customers, typically sourcing their potable supply from Sydney Water while also offering an alternative non-potable supply.

Sydney Water customers directly, they generally result in demand increases to our systems. Therefore, it is necessary to incorporate WICA areas in demand forecasting.

Assumptions

The 2020–24 dwelling forecast was based on the following assumptions:

- DPHI's 2016 HSFM was used as the basis for dwelling growth over the 2020–24 submission period. The HSFM projected dwelling growth to continue at current levels for the last two years of 2016–20, then decline during 2020–24, then remain constant out to 2029–30.
- The majority of future dwellings would be multi-unit (such as apartment buildings).
- All growth would be either individually metered or have a shared meter. There would be no unmetered growth – that is, no increase in the number of unmetered properties.
- Greenfield growth would continue to occur as planned.
- The integrated forecast across all products holds true (our forecast accounts for whether new dwellings are likely to take water, wastewater and stormwater, depending on their location), and that growth would not occur in unexpected locations or amounts (which could alter the mix of product take-up).
- There would be no growth in flats and mixed developments – these are temporary types until strata titled.
- There would be no growth in industrial properties with a stormwater service charge (industrial is declining, replaced by other non-residential property types or residential; only commercial is growing).
- All known WICA sites that were being developed were accounted for – that is, for development sites likely to be serviced by a private utility, we may only supply certain services.
- There were no tariff restructures that impacted the existing base number of customers served.

Comparing actuals to forecast 2020–24

Customer numbers during 2020–24 are trending lower than the 2020 determination forecast across all products, with 2023–24 reflecting the lowest residential customer growth. The factors contributing to the variations are discussed below.

Water

Residential drinking water customer growth was 5.06 per cent (97,306 customers), which is lower than the expected 7.49 per cent (144,276 customers) in the 2020 determination. Non-residential drinking water customer growth (by meter) was 3.28 per cent (3,318 customers), which was also lower than the projected 4.67 per cent (4,856 customers).

Compared with the forecast, the overall change in our drinking water customer base is 48,508 customers (2.38 per cent) lower than expected over these four years (see **Table 10.1** and **Table 10.2**).

Table 10.1: Number of residential water customers during 2020–24

Residential water customers	2019–20	2020–21	2021–22	2022–23	2023–24	Total
2020 determination forecast						
Total residential customers*	1,927,268	1,964,390	2,001,816	2,037,524	2,071,544	
Expected growth		37,122	37,426	35,708	34,020	144,276
Expected growth (%)		1.93	1.91	1.78	1.67	7.49
Sydney Water actuals						
Total residential customers*	1,923,236	1,951,885	1,975,916	1,998,365	2,020,542	
Actual growth		28,649	24,031	22,449	22,177	97,306
Actual growth (%)		1.49	1.23	1.14	1.11	5.06

* Excludes unmetered and non-residential in mixed multis

Table 10.2: Number of non-residential water customers (by meter) during 2020–24

Non-residential water customers by meter	2019–20	2020–21	2021–22	2022–23	2023–24	Total
2020 determination forecast						
Total non-residential water customers (by meter)	103,876	105,090	106,304	107,518	108,732	
Expected growth		1,214	1,214	1,214	1,214	4,856
Expected growth (%)		1.17	1.16	1.14	1.13	4.67
Sydney Water actuals						
Total non-residential water customers (by meter)	101,144	102,272	103,071	102,379	104,462	
Actual growth		1,128	799	-692	2,083	3,318
Actual growth (%)		1.12	0.78	-0.67	2.03	3.28

Table 10.3: Number of non-residential water customers during 2020–24

Non-residential water customers	2019–20	2020–21	2021–22	2022–23	2023–24	Total
2020 determination forecast						
Total non-residential water customers	135,295	136,300	137,305	138,310	139,315	
Expected growth		1,005	1,005	1,005	1,005	4,020
Expected growth (%)		0.74	0.74	0.73	0.73	2.97
Sydney Water actuals						
Total non-residential water customers	115,423	117,379	117,875	118,104	121,011	
Actual growth		1,956	496	229	2,907	5,588
Actual growth (%)		1.69	0.42	0.19	2.46	4.84

Wastewater

Residential wastewater customer growth was 5.10 per cent (96,367 customers), which is lower than the expected 7.38 per cent in the 2020 determination, while non-residential wastewater customer growth (by meter) was higher at 3.36 per cent (2,799 customers).

Compared with the forecast, the overall change in our wastewater customer base was 42,349 customers (2.13 per cent) lower than expected over these four years (see **Table 10.4** and **Table 10.5**).

Table 10.4: Residential wastewater customer numbers during 2020–24

Residential wastewater customers	2019–20	2020–21	2021–22	2022–23	2023–24	Total
2020 determination forecast						
Total residential customers*	1,891,396	1,927,361	1,963,332	1,997,860	2,030,903	
Expected growth		35,965	35,971	34,528	33,043	139,507
Expected growth (%)		1.90	1.87	1.76	1.65	7.38
Sydney Water actuals						
Total residential customers*	1,888,993	1,917,170	1,940,836	1,963,802	1,985,360	
Actual growth		28,177	23,666	22,966	21,558	96,367
Actual growth (%)		1.49	1.23	1.18	1.10	5.10

- * Excludes unmetered and non-residential in mixed multis

Table 10.5: Non-residential wastewater customers (by meter) during 2020–24

Non-residential wastewater customers	2019–20	2020–21	2021–22	2022–23	2023–24	Total
2020 determination forecast						
Total non-residential wastewater customers (by meter)	84,705	85,207	85,709	86,211	86,713	
Expected growth		502	502	502	502	2,008
Expected growth (%)		0.59	0.59	0.59	0.58	2.37
Sydney Water actuals						
Total non-residential wastewater customers (by meter)	83,247	83,670	84,433	85,275	86,046	
Actual growth		423	763	842	771	2,799
Actual growth (%)		0.51	0.91	1.00	0.90	3.36

Table 10.6: Non-residential wastewater customers during 2020–24

Non-residential wastewater customers	2019–20	2020–21	2021–22	2022–23	2023–24	Total
2020 determination forecast						
Total non-residential wastewater customers	120,349	121,083	121,817	122,551	123,285	
Expected growth		734	734	734	734	2,936
Expected growth (%)		0.61	0.61	0.60	0.60	2.44
Sydney Water actuals						
Total non-residential wastewater customers (by meter)	113,161	114,400	115,292	116,300	117,620	
Actual growth		1,239	892	1,008	734	3,873
Actual growth (%)		1.09	0.78	0.87	1.13	3.42

Stormwater

The residential stormwater customer growth was 3.64 per cent (19,746 customers), which is lower than the 8.16 per cent expected in the 2020 determination, and non-residential stormwater customer growth was –2.92 per cent (–1,554 customers), also lower than the projected 2.35 per cent.

Compared with the forecast, the overall change in our stormwater customer base was 27,475 customers (4.60 per cent) lower than expected over these four years (see **Table 10.7** and **Table 10.8**).

Table 10.7: Residential stormwater customer numbers during 2020–24

Residential stormwater customers	2019–20	2020–21	2021–22	2022–23	2023–24	Total
2020 determination forecast						
Total stormwater customers*	544,959	556,407	567,776	578,770	589,402	
Expected growth		11,448	11,369	10,994	10,632	44,443
Expected growth (%)		2.10	2.04	1.94	1.84	8.16
Sydney Water actuals						
Total stormwater customers*	542,868	548,975	553,683	557,462	562,614	
Actual growth		6,107	4,708	3,779	5,152	19,746
Actual growth (%)		1.12	0.86	0.68	0.92	3.64

- * Excludes Rouse Hill stormwater

Table 10.8: Non-residential stormwater customers during 2020–24

Non-residential stormwater customers	2019–20	2020–21	2021–22	2022–23	2023–24	Total
2020 determination forecast						
Total non-residential stormwater customers	52,099	52,405	52,711	53,017	53,323	
Expected growth		306	306	306	306	1,224
Expected growth (%)		0.59	0.58	0.58	0.58	2.35
Sydney Water actuals						
Total non-residential stormwater customers	53,271	51,174	51,326	51,433	51,717	
Actual growth		-2,097	152	107	284	-1,554
Actual growth (%)		-3.94	0.30	0.21	0.55	-2.92

* Excludes Rouse Hill stormwater

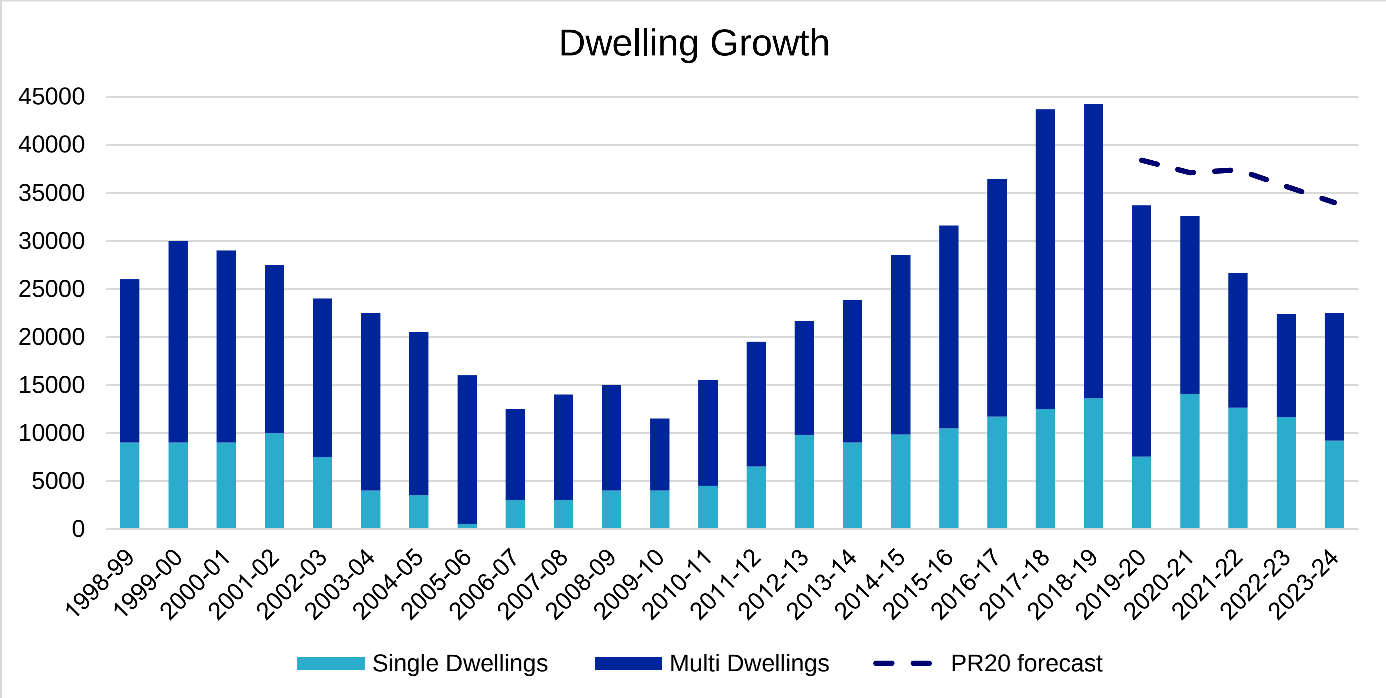
Reasons for variation in residential growth

Residential growth during 2020–24 was lower than expected across all services. Several factors contributed to this outcome, resulting in lower growth in customer numbers than originally forecasted. The factors are described below.

2020–24 forecast at the tail end of the Housing Cycle Peak

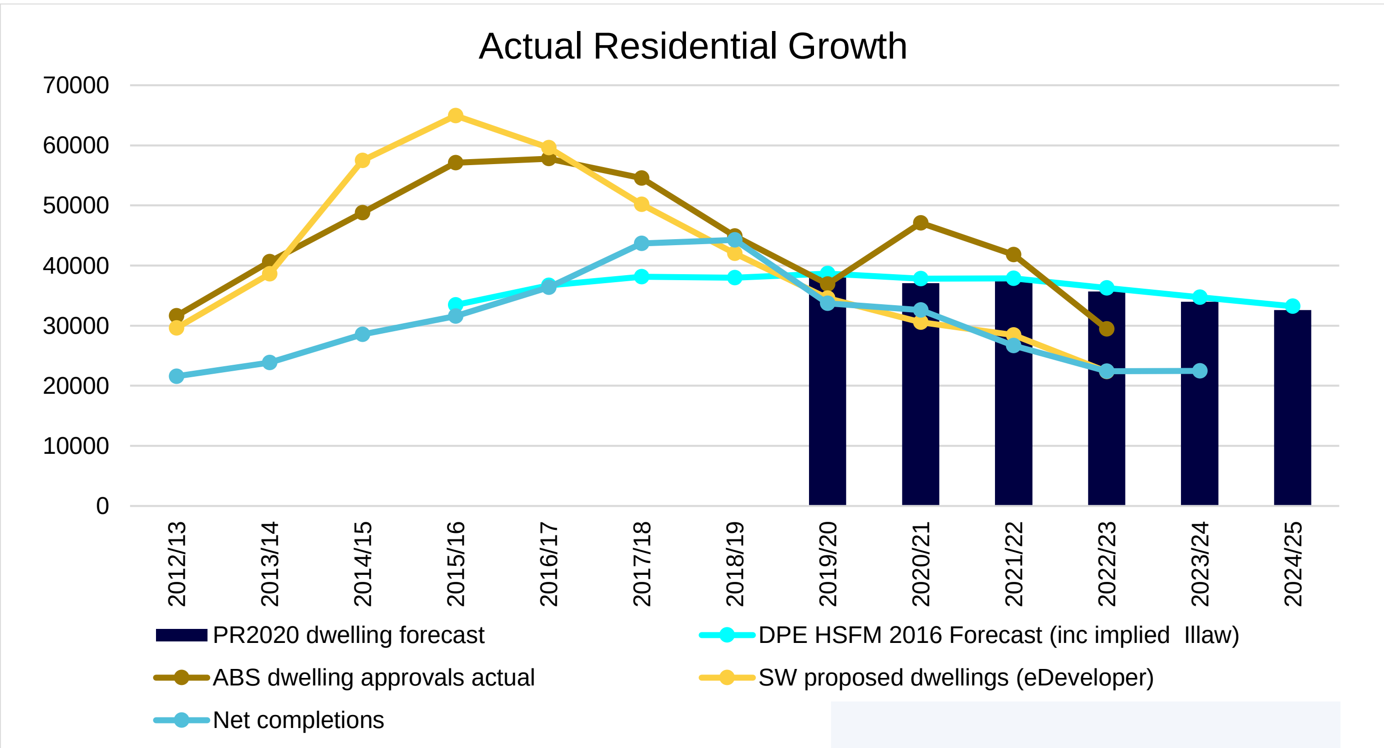
The 2020 determination forecast predicted residential water customer growth of 7.49 per cent over 2020–24. In 2018–19, dwelling growth was above the previous 30-year high. Despite actual growth continuing to rise leading into the determination period, it then experienced a significant and unexpected drop as shown in **Figure 10.1**. This decline, a consequence of the natural housing cycle, was accelerated by external factors like COVID-19 lockdowns, the global economic downturn, supply chain limitations, labour shortages, and subsequently increased building costs.

Figure 10.1: Historic trend for dwellings with water connected



Applications and net completions continued to trend downwards throughout 2020–24, with net completions currently at 2012–13 levels. Net completions in 2022–23 and 2023–24 were approximately 50 per cent lower than the peak of 2018–19. This low number of completions is unusual given the wave of approvals leading up 2018–19 (see **Figure 10.2**). Many approvals did not progress to completion.

Figure 10.2: Residential growth actuals

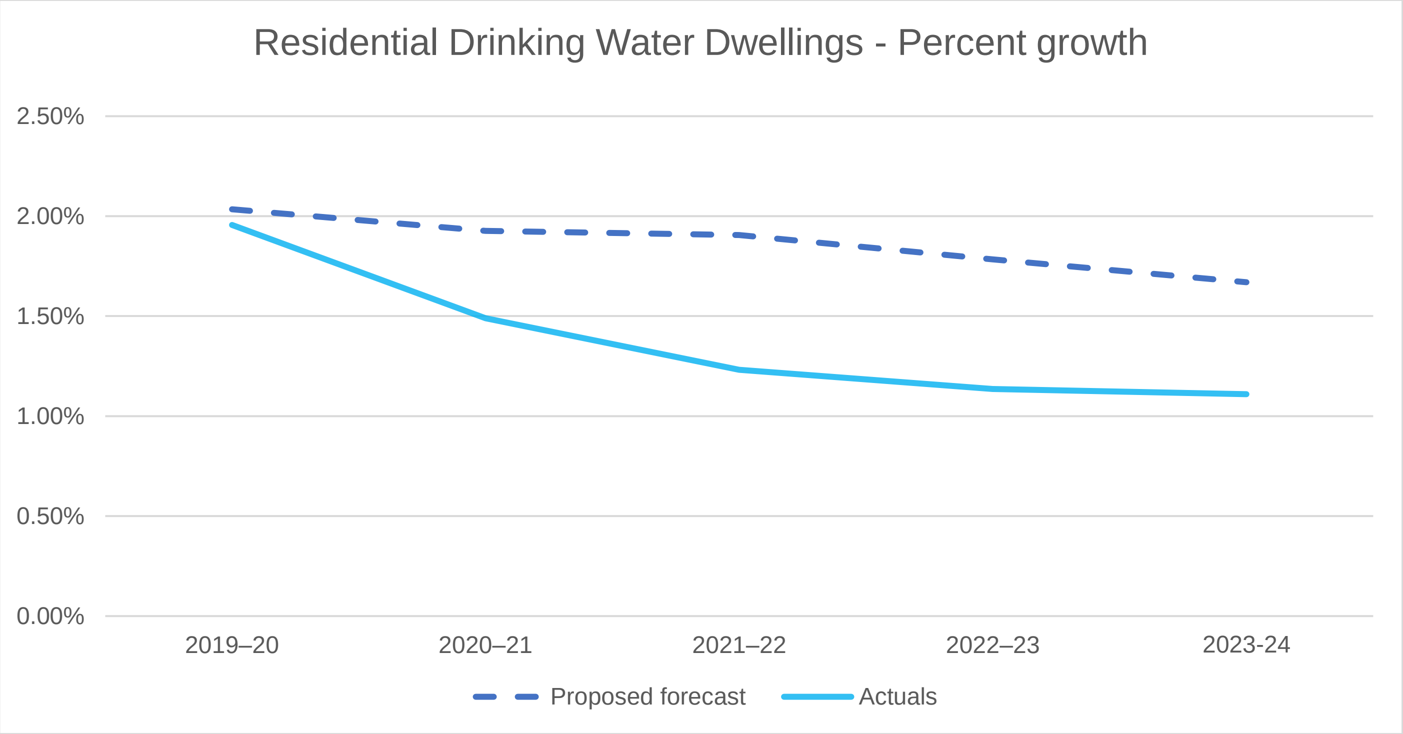


Dwelling approvals in the 12 months to July 2023 reached the lowest level in a decade. Multi-unit development currently makes up 47 per cent of total construction approvals, as compared to peak in 2016, which was around 60 per cent.

The greatest divergence from anticipated growth under IPART's 2020 decision was seen in non-residential water and both residential and non-residential stormwater. Additionally, non-residential wastewater growth has been trending upward, against the forecast trend.

Drinking water customers achieved higher than anticipated growth in 2019–20, before succumbing to local and global influences of COVID-19 and supply chain issues (see **Figure 10.3**).

Figure 10.3: Residential drinking water percentage growth over 2020–24



COVID-19

Dwelling growth during the determination period was significantly impacted by COVID-19 lockdowns and border closures, which slowed all stages of the application process, closed building sites, and restricted the use of skills, labour and building materials. Limitations on labour mobility and on-site work imposed by lockdowns led to project delays and decreased productivity. Many construction companies faced challenges in meeting project deadlines and ensuring the safety of their workers while adhering to pandemic-related guidelines.

Supply chain

The COVID-19 lockdowns resulted in the slowing and temporary stoppages of raw materials and finished goods, presenting significant challenges for supply chains globally. The availability of sea freight services became the major driver of global supply chain issues as demand rebounded from mid-2020 and demand among workers to continue working from home shifted global consumption patterns from services to goods.

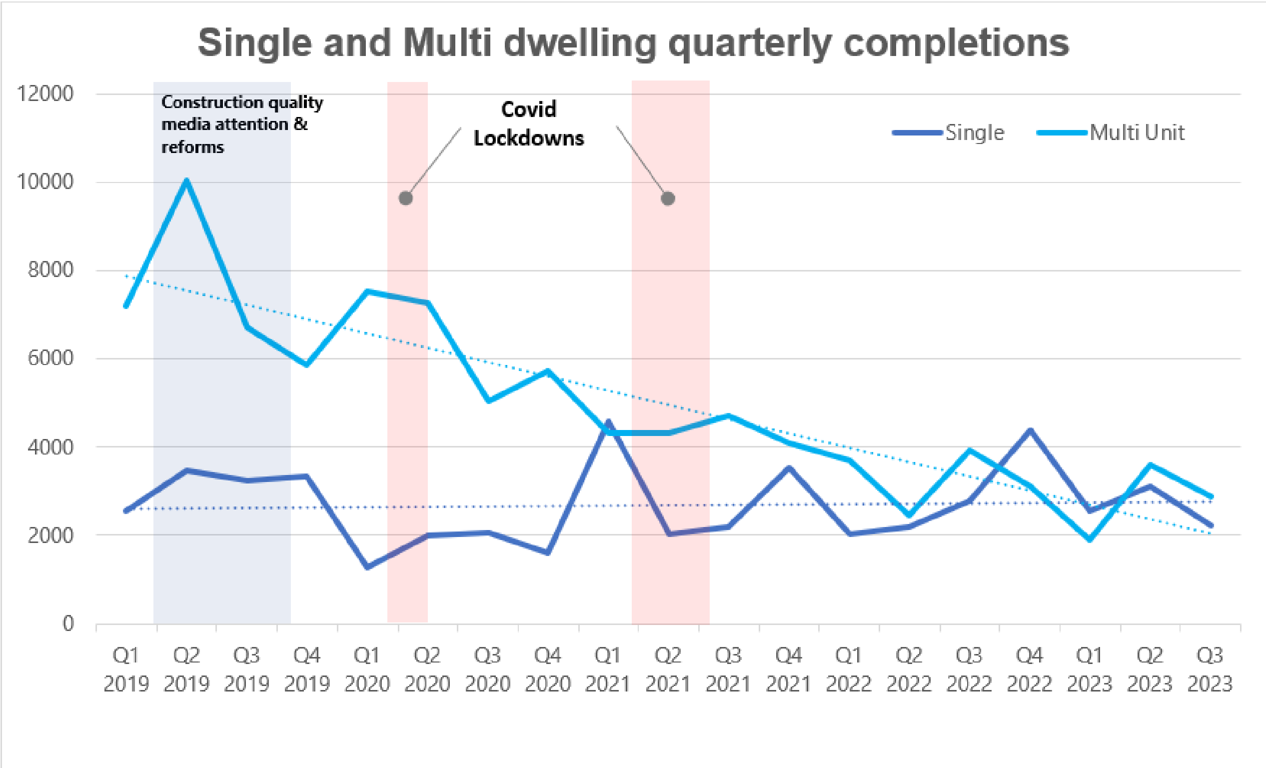
Supply chain disruptions and shortages in materials have resulted in prolonged delays and increased costs for many construction projects. Larger projects experienced the greatest impact, relying on higher volumes of imported materials to reduce costs and increase efficiencies.

The most significant supply chain challenge emerged in the form of labour and skill shortages. As a result, projects experienced delays and exceeded their budgetary allocations. Subcontractor companies were forced to close, and social distancing mandates limited the number of workers permitted on site simultaneously.[132]

Apartment construction

Multi-dwelling completions faced a downward trend throughout the determination period (see **Figure 10.4**). Customer complaints and media scrutiny of structural issues in apartments had a significant impact on apartment prices and off-the-plan sales[133] leading to a decreased demand for purchasing apartments.[134] This is likely a key contributor to the lower-than-expected growth in residential stormwater, as Sydney Water's stormwater services are generally provided in inner city and eastern/middle ring suburbs, which forecast a high proportion of multi dwellings.

Figure 10.4: Quarterly trend in multi versus single dwelling completions (source: Greater Sydney UDP Dashboard – DPHI)



Weather

Wet weather events impacted the forecast period, with significant flooding delaying construction and affecting the feasibility of development sites. As a result, precincts like Marsden Park North, West Schofields and Riverstone Town Centre underwent further review to determine their suitability for future development. These proposals have since been withdrawn, or significantly reduced, resulting in lower than anticipated dwelling growth for these sites. The uncertainty of these sites was apparent in the variation between the 2016 HSFM and the 2022 SHSF forecasts, where previously growth was anticipated to commence in 2021 for Marsden Park North but was subsequently removed from the 2022 SHSF forecast.

132 Statement on Monetary Policy – May 2021 https://www.rba.gov.au/publications/smp/2021/may/box-b-supply-chains-during-the-covid-19-pandemic.html [accessed Oct 2023]

133 https://www.planning.nsw.gov.au/research-and-demography/sydney-housing-supply-forecast [accessed Oct 2023]

134 Current housing pressures | Planning (nsw.gov.au), https://www.planning.nsw.gov.au/policy-and-legislation/housing/housing-supply-insights/quarterly-insights-monitor-q2/current-housing-pressures [Q2 2023, accessed Oct 2023]

Changes to planned development

Over 2020–24, several changes to precinct plans impacted growth projections. These included delays in development commencement, as well as development sites no longer progressing with planned residential growth. For example, in the 2016 HSFM, the Camellia precinct was anticipated to have first dwellings complete from 2020–21. Subsequent consultation with DPHI has revealed a change in scope to the structure of the development, as well as several constraints that have delayed the progression of the precinct. The 2022 SHSF has modified this precinct to have first dwellings complete in 2030–31.

In addition, both Cooks Cove and Ingleside were anticipated as residential development sites at the time of the last price submission. This is reflected in the 2016 HSFM, identifying residential growth to occur for both sites from 2021–22. Plans for residential growth have currently been withdrawn, with Cooks Cove likely to progress as a non-residential development and Ingleside unlikely to progress with any major development at this time.

Internal influences

In 2018–19, Sydney Water migrated its billing system to a new platform, SAP. This was a significant change that involved data cleansing, migration and reclassification, including the merging of legacy system boundary mappings. Calculations were also reviewed with some improvements implemented. The impact of this change is largely reflected in the 2018–20 non-residential stormwater reported from SAP and is apparent in other categories. This is not unexpected given that our stormwater figures are relatively low and highly susceptible to this kind of revision.

Reasons for variation in non-residential growth

Non-residential customer growth forecast for 2020–24 was guided by trends in approvals and proposed developments in LGA catchments. The factors leading to lower-than-forecast results in the residential forecast also correspond to those influencing the non-residential forecast as discussed above. It is worth highlighting that the economic factors relating to COVID-19 likely impacted non-residential growth more acutely, compounded by increased prevalence of remote working during the period.

Commercial and mixed development continued to drive the overall non-residential growth trend, however the static levels of proposed non-residential developments anticipated in the 2020 determination forecast did not occur. Instead, applications for commercial development rose leading into the determination period. Mixed development applications dropped to 2020–21 and remained below commercial, then dropped further in 2022–23. The forecast zero growth for industrial properties did not eventuate with applications trended upwards and doubling since 2017–18.

Water demand 2020-24

Total water demand during the 2020–24 determination period has been much lower than forecast – see Table 2.1. Based on actuals to 2022–23 and a preliminary actual for the final year (2023–24), we expect demand over the full four years of the 2020–24 determination period to be 7.6 per cent lower than IPART's decision.[135]

Total demand is made up of revenue demand, which constitutes about 90 per cent of total demand and determines revenue from water sales, and non-revenue demand. Because non-revenue water demand was higher than forecast, the shortfall in revenue demand is actually larger than the shortfall in total demand. While total demand is expected to be 7.6 per cent lower, revenue demand is expected to be about 10.2 per cent lower than determined.

Table 10.9: Water demand over 2020–24 (ML)

Demand component	2020–21	2021–22	2022–23	2023–24	Total
IPART decision (non-drought[136])					
Billed metered demand					
Residential	379,563	384,361	389,105	395,025	1,548,054
Non-residential	124,505	126,079	127,635	129,577	507,796
Unfiltered	1,807	1,807	1,807	1,812	7,233
Total billed metered	505,875	512,247	518,547	526,414	2,063,083
Billed unmetered, non-revenue and recycled top-up	56,464	56,597	56,730	56,905	226,696
Total[a]	562,339	568,843	575,277	583,319	2,289,778
Actual					
Billed metered demand					
Residential	358,818	349,243	349,679	366,315	1,424,055
Non-residential	102,413	96,239	108,629	115,542	422,558
Unfiltered	1,186	1,403	2,860	1,346	6,795
Total billed metered	462,417	446,885	460,903	483,203	1,853,408
Billed unmetered, non-revenue and recycled top-up	62,851	62,997	69,486	66,783	262,117
Total[a]	525,268	509,882	530,389	549,986	2,115,525
Variation (actual/updated forecast vs IPART decision)					
Total[a]	-37,071 (-6.6%)	-58,961 (-10.4%)	-44,888 (-7.8%)	-33,333 (-5.7%)	-174,253 (-7.6%)

a: Total may differ from sum of components due to rounding

b: Source: Annual Information Return (AIR); 2023–24 actual is preliminary.

[135] We have not included 2024–25 in Table 2.1 because IPART's decision covered the period to 2023–24 only.

[136] Water restrictions were in place for the first 5 months of 2020–21. While IPART did prepare a forecast for drought conditions, we have shown the non-drought forecast for 2020–21. Restrictions only applied during the first 5 months of 2020–21. Also, dam levels had recovered to more than 70 per cent by 1 July 2020, meaning the drought price associated with the drought forecast did not apply during the period in 2020–21 when restrictions were in place. Hence, from a revenue perspective, the non-drought forecast is the relevant reference point, not the drought forecast.

The main reasons for the much lower-than-forecast demand are:

- the lasting impacts of the drought water restrictions that were in place until November 2020
- water conservation programs that were implemented as part of Sydney Water's response to the drought, which were not included in the forecast submitted for PR2020
- COVID-19, which affected demand in two major ways:
  - border closures resulting in much lower population and dwelling growth than forecast
  - sharply reduced demand by non-residential customers during lockdown periods, and structural, lasting reductions as a result of changing work patterns, such as working from home
- wetter and cooler than average conditions for much of the first three years, due to a prolonged La Niña event
- lower-than-forecast demand for unfiltered water although the impact is negligible compared to the above factors.

The impact of these factors was counteracted somewhat by leakage, which was higher than assumed.

We note that IPART's decision, as shown in **Table 10.9**, was about 14 GL per year lower than the forecast in Sydney Water's 2019 submission to IPART. The difference is due to two reasons:

Sydney Water's submission proposed to keep the real water usage price unchanged. IPART decided to increase the real price and adjusted Sydney Water's original forecast down to account for this price increase. The adjustment was based on price elasticities estimated by Sydney Water. This adjustment resulted in a decrease of about 9,150 ML/year compared to Sydney Water's forecast.

IPART included real losses (system leakage) of 105 ML/day in its forecast. Sydney Water's forecast was based on a rate of about 118 ML/day. This resulted in a further decrease of about 4,750 ML/year compared to Sydney Water's original forecast.

Factors contributing to lower-than-forecast demand

Water restrictions and their lasting impact

Water restrictions came into effect on 1 June 2019 and remained in place until November 2020. Demand has not bounced back to pre-restrictions levels since restrictions were lifted, suggesting they are having a lasting impact on demand. This is consistent with the experience following the lifting of the 2003–09 water restriction.

Figure 10.5 shows total water demand for the past 25 years, including the period from 2003 to 2009 when water restrictions were in place. There was no discernible "bounce back" in demand to pre-restriction levels after restrictions were lifted in June 2009.[137] Some of this can be explained by the savings from Sydney Water's water conservation program, which was implemented between about 2000 and 2011, but these are not sufficient to fully explain the lack of full bounce-back. The conclusion is that the restrictions had a lasting impact on water use after they were lifted.[138]

It is reasonable to assume that, like the 2003–09 restrictions, the 2019–20 restrictions have had a lasting impact, which has contributed to lower-than-forecast demand after they were lifted. Customer attitudes towards water have altered over time, resulting in behavioural changes.

While the upward trend in demand in the past three years (shown in **Figure 10.5**) might be suggestive of a bounce back, much of this can be explained by population growth and weather patterns. **Figure 10.6** shows total per capita demand – that is, total demand divided by the population served by Sydney Water. On a per capita basis, demand is still lower than prior to the 2019–20 restrictions. The remaining upward trend in per capita demand in the past three years can be at least partly explained by weather patterns over that time – see the section on weather patterns, below.

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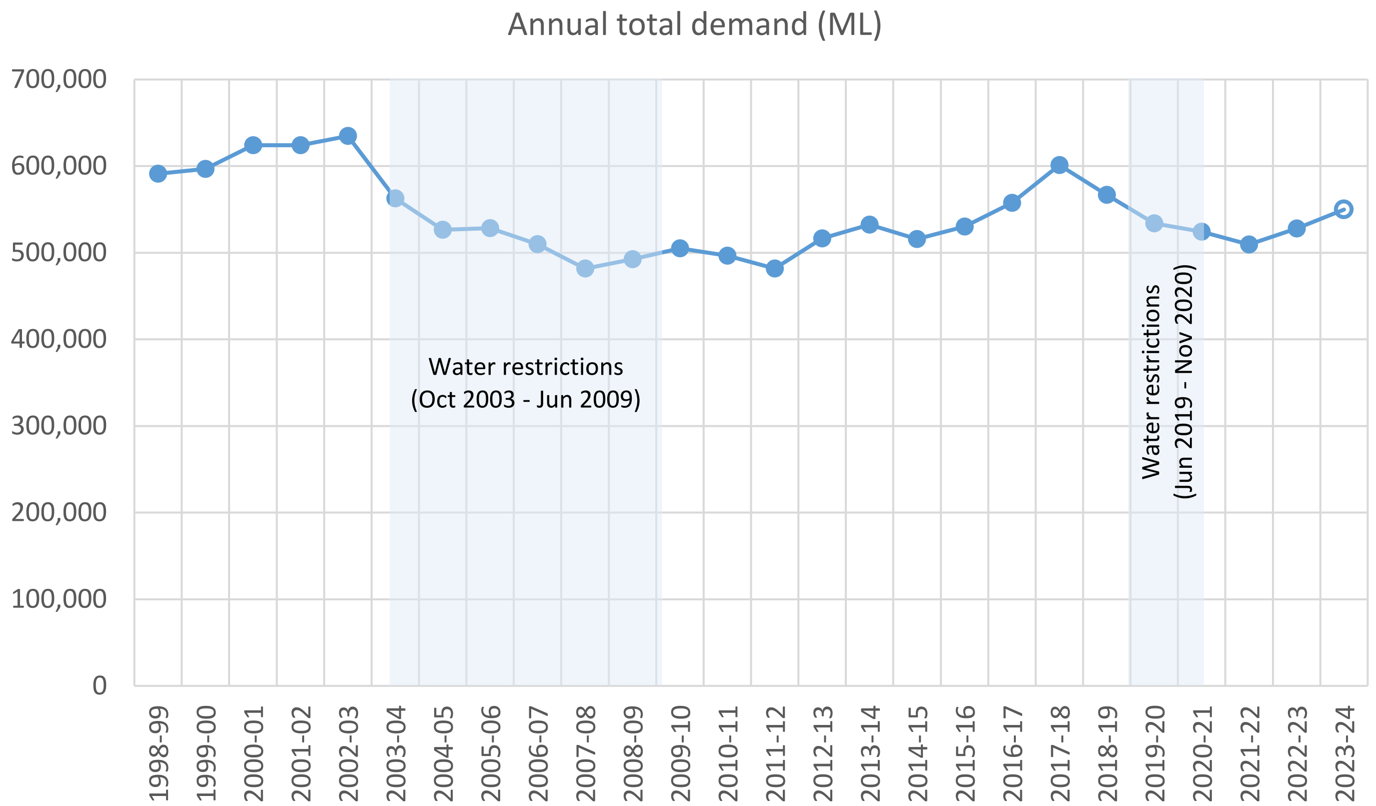
[137] Analysis carried out for PR2012 showed there was some limited bounce-back but that it was largely counteracted by the increase in the water usage price that came into effect on 1 July 2009 – see Sydney Water's submission to PR2012 (Sydney Water's submission to IPART's Review of prices for Sydney Water Corporation's water, sewerage, stormwater and other services, Sydney Water, 16 September 2011, Appendix 15).

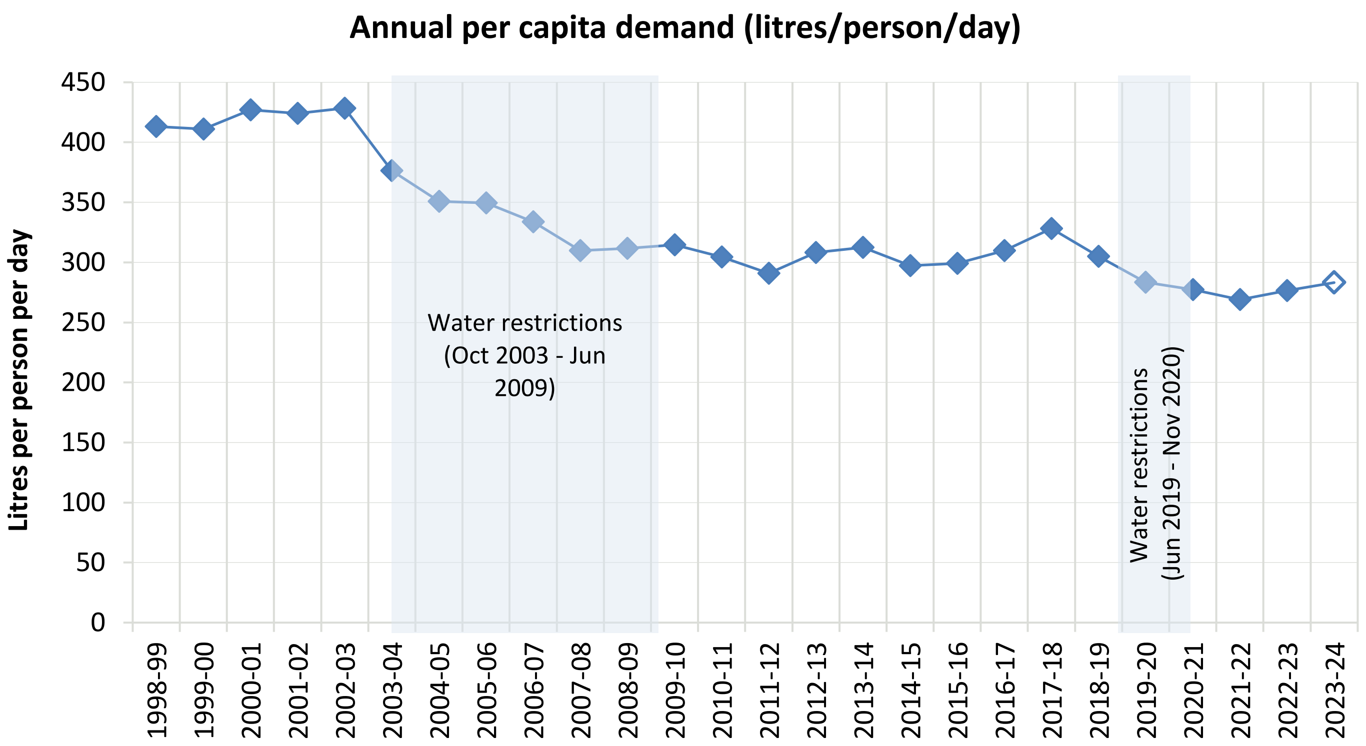
[138] The increase in demand between 2011–12 and 2018–19 is not an indication of a belated bounce back in behaviours but can be explained by population growth, weather fluctuations (2011–12 was very wet while the latter years of this period were characterised by some extremely hot and dry weather) and other one-off factors – see Sydney Water's 2019 submission to IPART's 2020 review of prices for a fuller discussion.

Figure 10.5: Total water demand from 1998–99 to 2022–23



Note: 2023–24 is a preliminary figure.

Figure 10.6: Annual per capita demand from 1998–99 to 2022–23



In response to the drought in 2019–20, Sydney Water expanded its water conservation program. The programs continued after drought conditions subsided. The savings from these programs were not included in the forecast submitted for PR2020 and therefore also contributed to the difference between forecast and observed demand.

Weather patterns

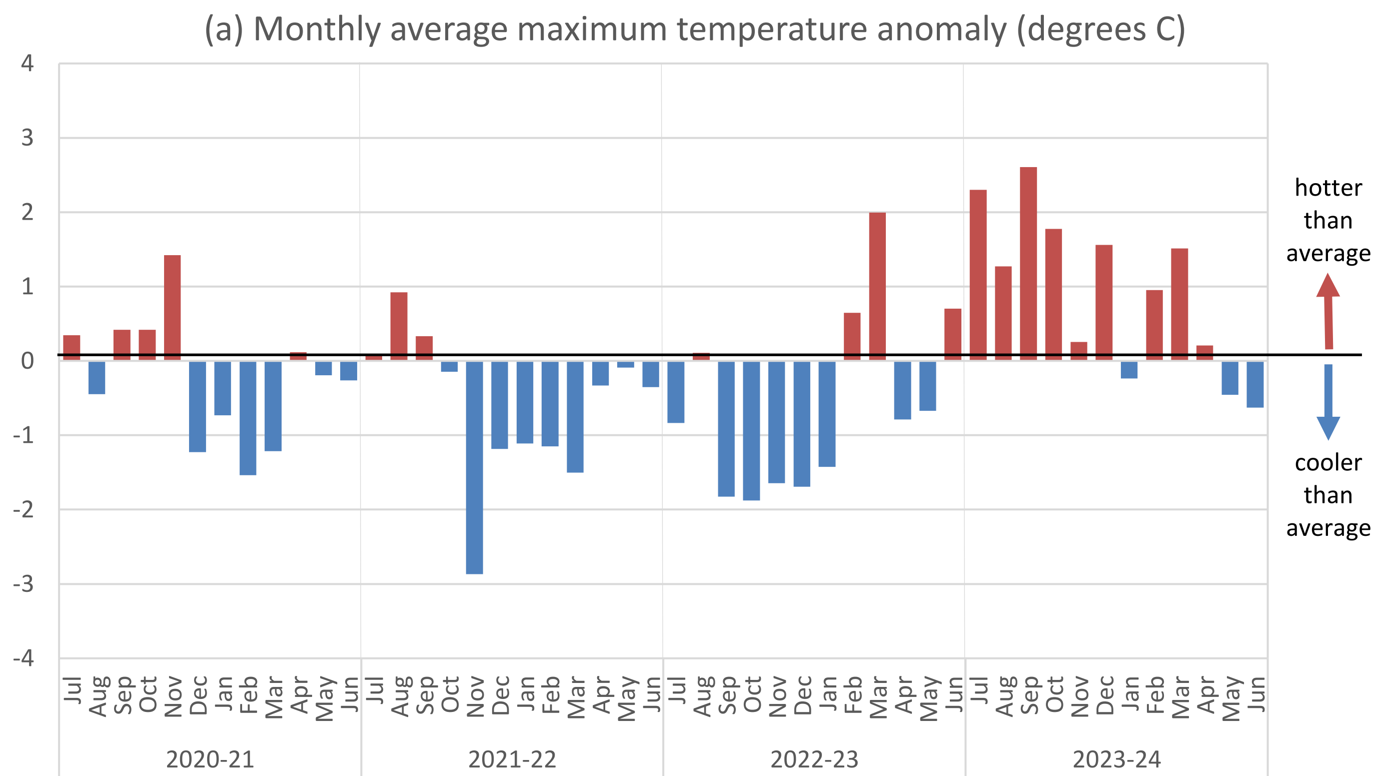
Water demand is influenced by prevailing weather conditions, including factors like temperature and rainfall. All else equal, demand tends to be lower during relatively cool and wet years compared to relatively hot and dry years.

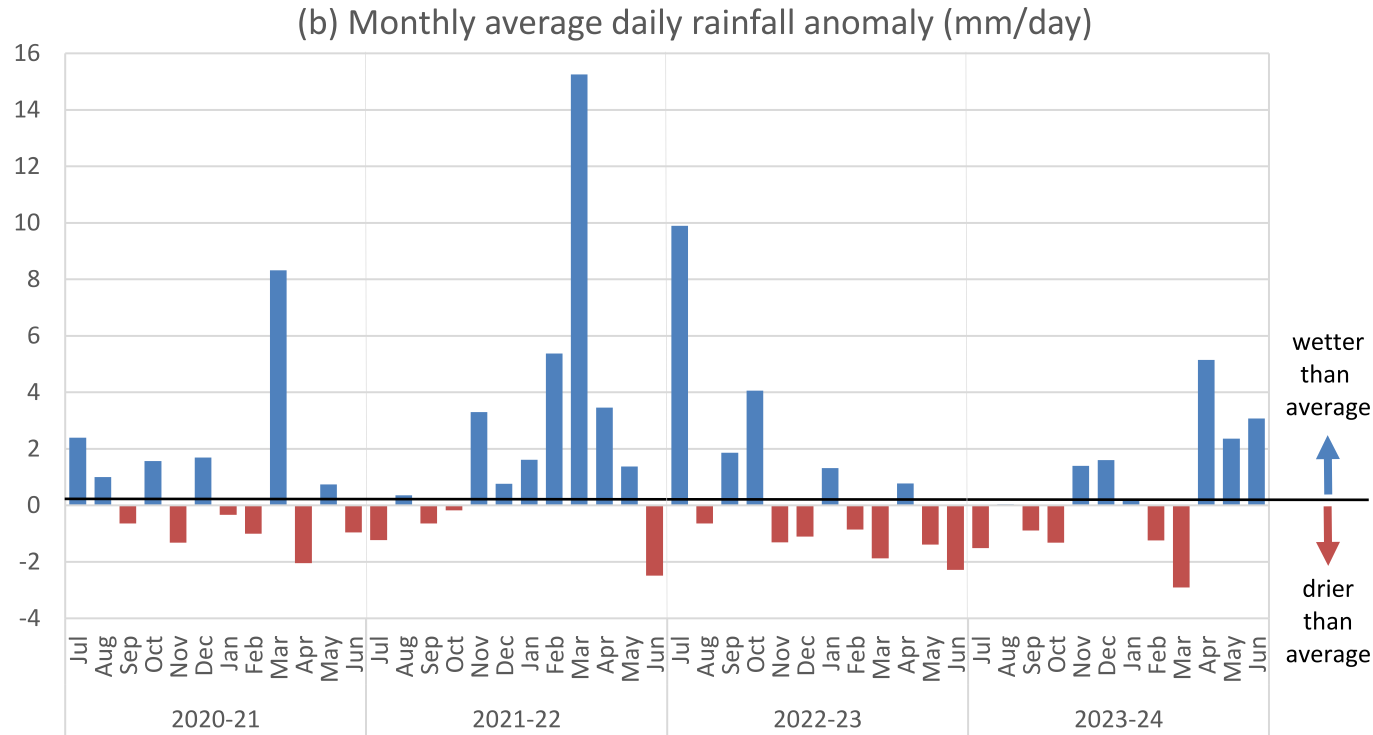
While Sydney Water's forecasting model includes weather as a predictive factor, it is not possible to forecast the exact weather conditions for the next five years with accuracy. Even for relatively short timeframes like the next three months, only probabilistic weather outlooks are available. For this reason, the forecast for 2020–24 was based on running the model with average weather conditions.

Figure 10.7 shows the monthly anomalies for the average maximum temperature and average daily rainfall. Much of the 2020–23 period, up to about December 2022 / January 2023 has been cooler and wetter than average, sometimes extremely so – for example, from late 2021 to late 2022.

Hotter weather returned in 2023–24. Except for a few months, it was generally hotter than the historical average. With regards to rainfall, the picture is more complex in 2023–24. Rainfall was below average during winter, early spring and late summer, and above average during early summer and autumn. The net effect has been slightly higher demand than expected had weather been average for the whole period. However, demand was still substantially lower than the PR2020 forecast for average weather because of the effect of all the other factors.

Figure 10.7: Rainfall and temperature anomalies





Notes: Based on gridded rainfall and maximum temperature data from the Bureau of Meteorology for grid cells located in the area supplied by Sydney Water. A positive rainfall anomaly indicates the month was wetter than the long-term average, a negative anomaly that it was drier. A positive maximum temperature anomaly means maximum temperatures were higher than the long-term average, a negative anomaly that they were lower. For example, in July 2022 average daily rainfall was almost 9.9 mm per day higher than the long-term average for July, and the average maximum temperature was 0.8°C lower than the long-term average maximum temperature for July. Bar colours correspond with the direction of the impact on demand: a red bar indicates this anomaly would increase demand (all else equal), while a blue bar indicates this anomaly would decrease demand (all else equal). Hence, a positive temperature anomaly is coloured red (increased demand, all else equal) while a positive rainfall anomaly is coloured blue (decreased demand, all else equal). Long-term averages are calculated over the 30-year period to June 2023, 30-years being the standard period for climatic averaging. For example, the rainfall anomaly for July 2022 (+9.9 mm per day) is the difference between average daily rainfall in July 2022 (11.8 mm per day) and the average daily rainfall for all Julys over the 30-year period to June 2023 – that is, July 1993, July 1994 etc. up to July 2022 – at 1.9 mm per day.

Dwelling and population growth

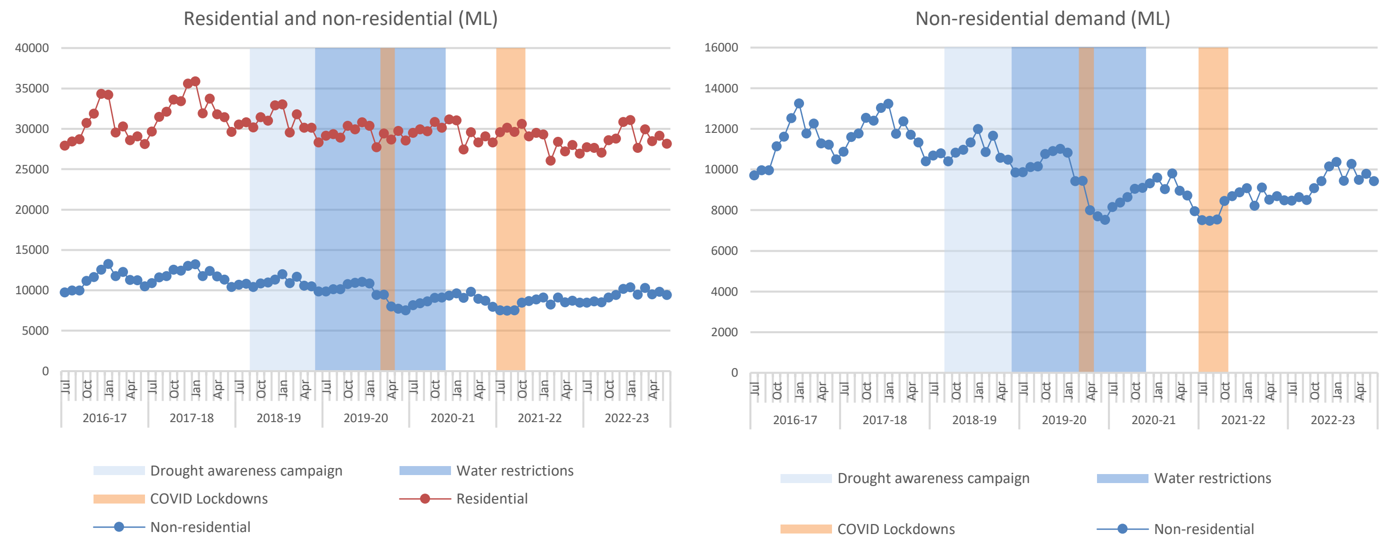
Water demand was forecast to grow at between 6 GL and 7 GL per year over 2020–24, driven mainly by residential customer growth. Actual customer growth has been substantially less than the forecast that underlies this demand forecast, mainly due to COVID-19 and its impact on international and internal migration.

COVID-19

COVID-19 was a major contributor to the lower-than-forecast demand due to its impact on migration which meant the population served with water effectively did not grow for about three years compared to a forecast growth of about 85,000 persons per year. In addition to this, COVID-19 resulted in a reduction in non-residential demand due to its impact on economic activity and the practice of working from home. **Figure 10.8** shows monthly total consumption by residential (left) and non-residential properties (right). The residential chart also shows non-residential to illustrate the relativity of demand in these sectors: residential demand is about three times as large as non-residential demand. Demand in both segments shows a clear impact of the water restrictions that started June 2019 – note the flattening of the seasonal pattern following the introduction of restrictions.

While there is no obvious substantial additional impact on residential demand during the first lockdown period (April/May 2019), there is a sharp additional reduction in non-residential demand. This is followed by an apparent recovery leading up to the second lockdown period, followed by another decrease during the second lockdown. Care should be taken in interpreting the increase in non-residential demand between the latter part of 2021–22 and 2023 due to bounce-back. Differences in weather patterns are likely to play a more significant role. A similar increase can be observed in residential demand, which was clearly not affected as much by COVID-19 to start with. The December 2023 peak is not significantly higher than the peak between the first and second lockdowns, and this summer peak is still only about the level of what used to be the winter low prior to restrictions and COVID.

Figure 10.8: Monthly residential and non-residential demand



Other analysis suggests a small percentage increase in residential demand in response to COVID-19, most likely due to customers spending more time at home during lockdowns and working from home. This increase is hidden by weather and seasonal effects. We estimate that the net effect of this decrease in non-residential and increase in residential demand has been a decrease in total demand of about 2-3 per cent during lock down periods.

Quantification

In this section we quantify the impact of each of the factors that contributed to the variation of actual demand from forecast demand. Due to the complexities involved in separating the lasting impact of restrictions and COVID-19, we estimate only their combined impact, with the exception of the period before the first lockdown (March 2020). The results from the analysis are summarised in **Table 10.10**. Restrictions+ is used to refer to the combined impact of water restrictions, the drought awareness campaign and water conservation programs that were implemented in response to the drought.

Table 10.10: Actual demand versus PR2020 forecast by factor (ML)

	2019–20	2020–21	2021–22	2022–23	2023–24	2020–24 Total
Leakage	+2,147	+3,540	+6,971	+9,015	+8,564	+28,092
Unfiltered water	-501	-1,002	-1,355	+1,060	-466	-1,764
Population	-2,546	-10,476	-18,080	-17,367	-15,069	-60,992
Weather	+16,872	-9,934	-20,287	-5,013	+5,822	-29,412
Restrictions+ (to March 2020)	-43,074					
Restrictions+ and COVID-19 (from April 2020)	-9,132	-20,097	-26,087	-34,638	-31,878	-112,700
Total	-36,234	-37,969	-58,838	-46,943	-33,027	-176,776

Note: Figures for 2023–24 are based on a preliminary actual.

Financial year 2019–20 is included for completeness but has been excluded from the total in the last column as it is not part of the PR2020 determination period.[9] Over the four years from 2020–21 to 2023–24, the percentage variation due to each factor below resulted in a net variation of -7.7 per cent:

- leakage: +1.2 per cent
- unfiltered water demand: -0.1 per cent
- population served: -2.7 per cent
- weather: -1.3 per cent
- restrictions[+] and COVID-19: -4.9 per cent.

The effect of the lower-than-forecast population is largely due to COVID-19. This net variation in total demand understates the impact on revenue because this net effect includes a positive contribution from leakage which does not contribute to water sales revenue. See below for more detail on the analysis that was carried out to arrive at the above estimates.

Demand volatility adjustment mechanism

The DVAM was implemented to address uncertainty in actual versus forecasted water demand. See **Chapter 10** for details.

Demand forecasting model

Model overview

The demand forecasting model is prepared using a bottom-up approach. Separate models are used to forecast the different components of total demand. These forecasts are then combined into a forecast of total demand. The components of total demand are based on the water balance.

The starting point for the water balance is the total volume of filtered and unfiltered water that enter the distribution system. This is sometimes known as 'total system input' but it will be referred to it as total demand in this document. The water balance disaggregates this total demand into several components.

Table 10.11 shows the water balance for 2022–23. Rather than showing volumes, which can be highly variable between years, we show what percentage of total demand is accounted for by each component. This illustrates the relative importance of each component. Percentages do vary from year to year, but variations generally do not exceed one to 2 percentage points.

Table 10.11: Water balance 2022–23

Total demand	Revenue water	Billed metered consumption	Residential	66.0%
			Non-residential	21.6%
		Billed unmetered consumption		0.5%
	Non-revenue water	Unbilled metered consumption		0.1%
		Unbilled unmetered consumption		1.0%
		Unauthorised consumption		0.1%
		Customer meter under-registration		1.8%
		Real losses		9.0%

There are various ways of splitting total demand but the most relevant for revenue forecasting, is into 'revenue' and 'non-revenue' water. The former refers to that part of total demand which generates revenue and makes up almost 90 per cent of total demand. Non-revenue water is that part of total water use that does not generate revenue. While it is not of interest for the purpose of revenue forecasting, it is still of interest for the demand forecast as it determines the forecast of raw water purchases and treatment costs.

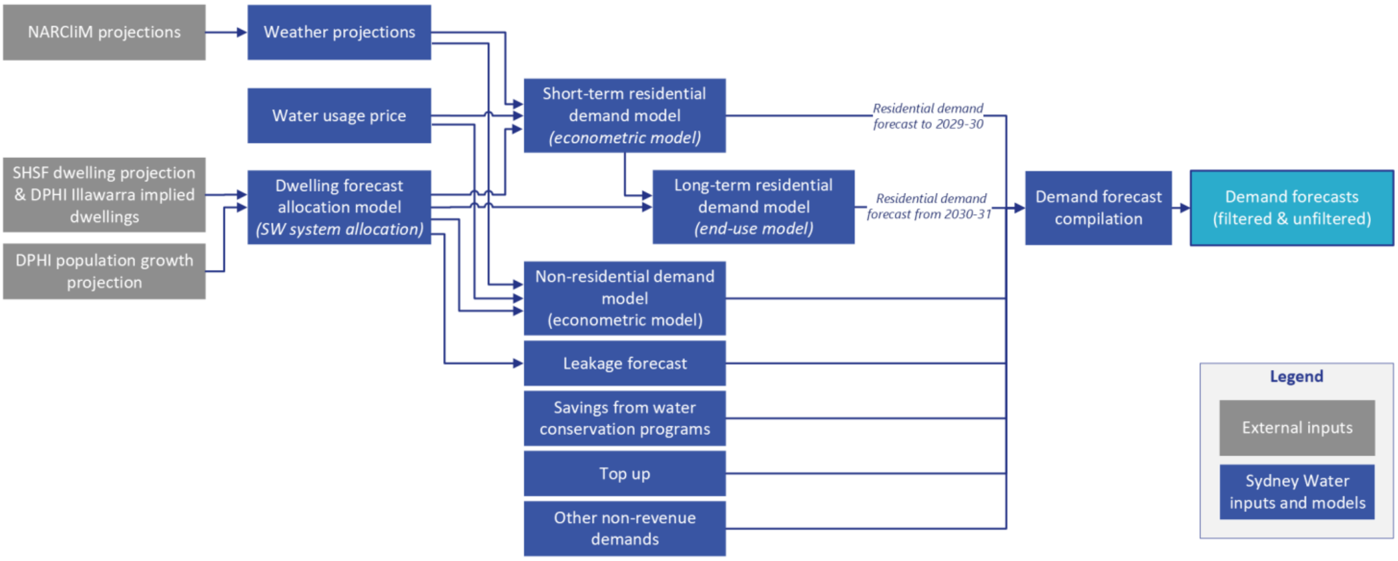
Most revenue water is consumption by metered residential customers. This **billed metered residential consumption makes up almost two-thirds of total demand**. Billed metered consumption by non-residential properties makes up just over one-fifth of total demand. Consumption by unmetered properties makes up less than one per cent of total demand.[139]

The largest component of non-revenue water is real losses or system leakage, responsible for about 9 per cent of total demand in 2022–23. Unbilled metered consumption (0.1 per cent) refers to metered consumption that is not billed, mainly consumption by Sydney Water properties. Unbilled unmetered consumption (one per cent) refers to water used for unmetered and unbilled activities like firefighting, and water used in network maintenance like flushing mains. Unauthorised consumption (0.1 per cent) refers to water theft – for example, via illegal connections and use of unmetered standpipes. Customer meter under-registration (1.8 per cent) refers to the volume of water used by metered customers that is not registered by the meters. Meters tend to have small inaccuracies and tend to understate true consumption.

[139] Billed unmetered consumption cannot be measured directly and needs to be estimated. This applies to most components of the water balance except for billed metered consumption and unbilled metered consumption. Total demand is measured by the meters at the outlet of the filtration plants.

A separate model and approach are used to forecast each component of the water balance. For example, the models for billed metered consumption which are critical for forecasting water sales revenue are based on econometric analysis. Components like unbilled metered and unbilled unmetered demand which are relatively small and constant over time, are forecast based on historical averages. For forecasting of real losses, see **Chapter 10**.

Figure 10.9: How various models and inputs are combined to produce the total demand forecast



The remainder of this section discusses the models or assumptions used to forecast each component. The emphasis will be on the models for billed metered residential and non-residential demand. These are the most complex and relevant to revenue forecasting.

Short-term residential model

Two models are used to forecast residential demand. A short-term model for demand up to 2029–30 and a long-term model for demand from 2030–31. This section describes the short-term model.

The short-term model builds on a method used in a 2011 study of the residential price elasticity by Sydney Water and Dr Vasilis Sarafidis, then lecturer in econometrics at the University of Sydney.[140] The approach was first used to build the forecasting model for the 2012 price review. The models were updated in 2014 in preparation for the 2016 price review and again in 2018 for the 2020 review.

Due to the disruptions to demand caused by the recent drought, immediately followed by the COVID-19 pandemic, the model has not been fully updated for the 2025 price review. Parts of the 2018 model have been recalibrated using the limited post-COVID-19 data up to June 2023.

The approach relies on a combination of detailed segmentation of residential properties and econometric analysis of historical demand in each segment. The regression models are used to generate forecasts of average demand for each segment which is then multiplied by the forecast number of properties for each segment.

Estimating segment specific models reduces the potential for so-called aggregation bias. For example, Sydney Water bills the owner of a house, which means that owner-occupied properties tend to face a stronger, more direct price signal than tenanted properties. Therefore, they are likely to respond more significantly to price changes. If a single model was estimated for both types of properties, it might result in a biased estimate of the overall average price effect.[141]

Different types of residential properties also tend to grow at different rates. For example, the number of units grows faster than the number of houses. Unless units and houses have the same consumption patterns, which they do not, a single model for units and

[140] B. Abrams, S. Kumaradevan, F. Spaninks and V. Sarafidis. An Econometric Assessment of Pricing Sydney's Residential Water Use. The Economic Record, Vol. 88, No. 280, March 2012, page 89-105.

[141] Ibid.

houses could quickly become inaccurate when used for forecasting as the proportion of units in the total dwelling stock increases and starts to deviate from the proportion in the sample that was used to estimate the model.

The explanatory variables considered in the regression analysis include the water usage price, various weather variables and season. The remainder of this section discusses the segmentation variables, regression model specification and results, updates to the model that were applied for the 2025 price review, implementation of the models for forecasting purposes and hindcast results.

Segments

For the model, residential properties were segmented based on the following variables:

- Sydney Water dwelling type classification
- whether they were built before or after the introduction of the BASIX regulation
- the presence of a reticulated recycled water supply (single dwellings only)
- tenure – that is, owner-occupied or tenanted (single dwellings and townhouse strata units only)
- lot size band (single dwellings only)
- the number of units in the property (strata units only).

This resulted in a total of 34 segments, as shown in **Table 10.12**. For technical reasons, segments 28 and 30 were combined for the regression analysis. Also, no models were estimated for dual occupancies. In the implementation phase, the models estimated for single dwellings were recalibrated to forecast dual occupancy demand. As a result, a total of 31 separate regression models were estimated instead of 34.

Table 10.12: Residential segments

Property type	BASIX	RCLD	Tenure	Lot size (m²)	# of units	Segment #
SINGLE DWELLINGS	PRE	NO	OWN-OCC	<=332	NA	1
SINGLE DWELLINGS	PRE	NO	OWN-OCC	333-508	NA	2
SINGLE DWELLINGS	PRE	NO	OWN-OCC	509-662	NA	3
SINGLE DWELLINGS	PRE	NO	OWN-OCC	663-870	NA	4
SINGLE DWELLINGS	PRE	NO	OWN-OCC	871-1262	NA	5
SINGLE DWELLINGS	PRE	NO	OWN-OCC	>1262	NA	6
SINGLE DWELLINGS	PRE	NO	TENANT	<=332	NA	7
SINGLE DWELLINGS	PRE	NO	TENANT	333-508	NA	8
SINGLE DWELLINGS	PRE	NO	TENANT	509-662	NA	9
SINGLE DWELLINGS	PRE	NO	TENANT	663-870	NA	10
SINGLE DWELLINGS	PRE	NO	TENANT	871-1262	NA	11
SINGLE DWELLINGS	PRE	NO	TENANT	>1262	NA	12
SINGLE DWELLINGS	PRE	YES	OWN-OCC	NA	NA	13
SINGLE DWELLINGS	PRE	YES	TENANT	NA	NA	14
SINGLE DWELLINGS	POST	NO	OWN-OCC	NA	NA	15
SINGLE DWELLINGS	POST	NO	TENANT	NA-	NA	16
SINGLE DWELLINGS	POST	YES	OWN-OCC	NA	NA	17
SINGLE DWELLINGS	POST	YES	TENANT	NA	NA	18
VERTICAL STRATA UNITS	PRE	NA	NA	NA	2	19
VERTICAL STRATA UNITS	PRE	NA	NA	NA	>2	20
VERTICAL STRATA UNITS	POST	NA	NA	NA	2	21
VERTICAL STRATA UNITS	POST	NA	NA	NA	>2	22
TOWNHOUSE STRATA UNITS	PRE	NA	OWN-OCC	NA	2	23
TOWNHOUSE STRATA UNITS	PRE	NA	OWN-OCC	NA	>2	24
TOWNHOUSE STRATA UNITS	PRE	NA	TENANT	NA	2	25
TOWNHOUSE STRATA UNITS	PRE	NA	TENANT	NA	>2	26
TOWNHOUSE STRATA UNITS	POST	NA	OWN-OCC	NA	2	27
TOWNHOUSE STRATA UNITS	POST	NA	OWN-OCC	NA	>2	28
TOWNHOUSE STRATA UNITS	POST	NA	TENANT	NA	2	29
TOWNHOUSE STRATA UNITS	POST	NA	TENANT	NA	>2	30
FLATS	PRE	NA	NA	NA	NA	31
FLATS	POST	NA	NA	NA	NA	32
DUAL OCCUPANCIES	PRE	NA	NA	NA	NA	33
DUAL OCCUPANCIES	POST	NA	NA	NA	NA	34

NA: Not applicable or not used; OWN-OCC: owner-occupied; Property type “FLATS” includes mixed developments.

Model specification

Panel regression analysis was used to model historical demand data in each segment. The dependent variable is the (natural logarithm of) quarterly average daily demand. Explanatory variables include the (real) water usage price, weather variables and season. To test if price effects are asymmetric – that is, whether consumption is less responsive to price decreases than to price increases – price is included twice in the model, together with an indicator variable that indicates whether price has increased or decreased compared to the preceding quarter. This allows the estimation of two price elasticities, one for price increases and one for price decreases.

The formal specification of the model is:

$$\ln c_{it} = \alpha \times \ln c_{it-1} + \beta_1 \times \left(price_{it-1} \times I_{(\Delta price_{it-1}<0)}\right) + \beta_2 \times \left(price_{it-1} \times \left(1 - I_{(\Delta price_{it-1}<0)}\right)\right) + \sum_{k=1}^{8} \gamma_k \times weather_{k,it} + \sum_{k=2}^{4} \delta_k \times season_{k,it} + u_{it}$$

$$u_{it} = \eta_i + \varepsilon_{it}$$

$\ln c_{it}$ denotes the natural logarithm of average daily consumption by property *i*, as measured by the meter read taken in quarter *t*. As it takes about 10 weeks each quarter to read all meters, the exact dates covered by the quarter *t* meter reading will not be the same for every property, which needs to be considered when matching weather data to the meter reading data for each property.

$price_{it-1}$ is the real usage price faced by property *i* in quarter *t*-1, and $I_{(\Delta price_{it-1}<0)}$ is an indicator variable that takes on the value 1 if price has decreased in quarter *t*-1 and takes on the value 0 otherwise. What this effectively accomplishes is that β_1 will measure the effect of a price decrease and β_2 will measure the effect of a price increase. By comparing the two coefficients we can test if price effects are asymmetric.

$\sum_{k=1}^{8} \gamma_k \times weather_{k,it}$ denotes the eight weather variables that have been included in the model and their coefficients:

- $d\_precip\_30y_{it}$: average daily rainfall anomaly
- $d\_pen\_pet\_30y_{it}$: average daily evaporation anomaly
- $d\_tmax\_30y_{it}$: average maximum temperature anomaly
- $gt30c_{it}$: number of days with temperature greater than 30°C
- $gt40cy_{it}$: number of days with temperature greater than 40°C
- $gt2mm_{it}$: number of days with rainfall greater than 2 mm
- $continuous0mm_{it}$: longest consecutive number of days with no rainfall
- $continuous1mm_{it}$: longest consecutive number of days with no rainfall or rainfall not exceeding 1 mm (0 <= rainfall <= 1).

The reference period for the rainfall, evaporation and maximum temperature anomalies is July 1998 to June 2017. For some segments we did not include all eight of the above weather variables, depending on statistical significance.

The values of the weather variables are property specific. That is, for each property i, we calculate the value of the weather variables at the specific location and for the specific dates covered by the quarter t meter reading. To calculate the location and meter reading date specific weather variables for each property, we use daily gridded weather data produced by the Bureau of Meteorology.

$\sum_{k=2}^{4} \delta_k \times season_{k,it}$ denotes three (pseudo) dummy variables for season and their coefficients. The base season is spring.

Several other weather variables were included initially:

- number of days with temperature greater than 35°C
- longest consecutive number of days with no rainfall or rainfall not exceeding 2 mm
- longest consecutive number of days with temperature greater than 30°C, 35°C and 40°C.

These were found not to be statistically significant and removed from the final specification.

The disturbance term, u_{it}, consist of two components: a property specific, time-invariant component η_i and the usual idiosyncratic error term ε_{it}. η_i can be interpreted as a property specific constant term (intercept) capturing the impact of unknown but time-invariant variables not included in the equation, such as household size or the presence of a pool.

Results: price elasticity of demand

Dr Sarafidis carried out model estimation for the 2018 update in collaboration with Sydney Water staff. Given the large number of models estimated (31) and limited space, we do not present detailed numerical results for each segment here. The coefficient estimates and other statistics like statistical significance and model fit for each of the 31 models have previously been supplied to IPART's reviewer of the demand forecast for PR2020.

Regarding weather-related variables, we suffice with the observation that the coefficient estimates had the expected signs. The signs for the coefficient estimates for rainfall-related variables indicate that demand decreases with rainfall depth and the number of days with rainfall, while demand increases with the length of the longest run of days with no or very low rainfall. The signs for the coefficient estimates for temperature-related variables indicate that demand increases with maximum temperature and the number of days exceeding 30°C or 40°C. The sign for the coefficient estimates for evaporation indicate demand increases with increasing levels of evaporation.

Occasionally, for some segment and weather variables the coefficient estimate did not have the expected sign. This was generally only the case for segments where one would expect demand to be less sensitive to weather conditions. Also, when this happened, the coefficient estimate was generally not statistically significant to start with and the variable was removed from the final model specification for that segment.

Instead of reporting detailed results for all variables for each segment we focus here on the results for the average price elasticity for single and multi-dwellings as estimated using the models. The price elasticity, e_p, is a measure of the sensitivity of demand to price and is defined as the ratio of the percentage change in demand and the percentage change in price:

$$e_p = \frac{\%\ change\ in\ demand}{\%\ change\ in\ price}$$

For example, if a 10 per cent increase in the water usage price would decrease water demand by 5 per cent then the price elasticity is

$$e_p = \frac{\%\ change\ in\ demand}{\%\ change\ in\ price} = \frac{-5\%}{10\%} = -0.5$$

If the value of the elasticity is between 0 and -1 then demand is called inelastic. For these values of the price elasticity, the percentage change in demand is less than the percentage change in price (in absolute terms). If the value is less than -1, demand is called elastic. For these values of the price elasticity the percentage change in demand is greater than the percentage change in price (in absolute terms).[142]

The value of the price elasticity can be estimated using the coefficients from the demand model. For the particular form of the demand model described in the preceding section the short and long term price elasticity can be calculated from the coefficients of the model as follows in **Table 10.13**.

Table 10.13: Model coefficients

	Price decrease	Price increase
Short term	$\beta_1 \times price$	$\beta_2 \times price$
Long term	$\frac{\beta_1}{(1-\alpha)} \times price$	$\frac{\beta_2}{(1-\alpha)} \times price$

[142] Positive values for the price elasticity are generally not considered because they imply that the demand for a good increases as its price increases.

The short-term elasticity gives the immediate impact of a price change while the long-term elasticity gives the full impact of a price change once demand has fully adjusted. Price elasticity is not fixed but depends on price. Demand becomes more elastic as price increases.

Table 10.14 shows the estimates for the average long-term price elasticities for single dwellings and multi-dwellings (strata units, flats and dual occupancies). These were calculated by calculating the short- and long-term price elasticity for each segment and then averaging those estimates, weighted by each segment's share of total consumption.

Price elasticities depend on price and the estimates shown in **Table 10.14** are for the current (2022–23) price levels. The coefficient estimates for a price decrease (β_1) and price increase (β_2) were so close that statistically they can be considered equal. We therefore present a single price elasticity for both price increases and decreases based on the average of β_1 and β_2.

Table 10.14: Long-term price elasticities

	Long-term price elasticity
Single dwellings	-0.223
Multi-dwellings	-0.071

The value of the estimates in **Table 10.14** mean that the demand for water is price inelastic. Specifically, these estimates mean that at current price levels:

- a 10 per cent increase in price is estimated to decrease demand by single dwellings and multi-dwellings by 2.23 per cent and 0.71 per cent, respectively
- a 20 per cent increase in price is estimated to decrease demand by single dwellings and multi-dwellings by 4.46 per cent and 1.42 per cent, respectively

For forecasting purposes, we do not use the price elasticity. To forecast demand at a certain price we simply insert the proposed price in the model which will give us the predicted demand at that price. The price elasticity is calculated and presented here because it provides a simple and easily interpretable metric for summarising the sensitivity of demand to price changes.

Update for PR2025

For PR2025, we have not re-estimated the full model. Doing so is hampered by the lack of a sufficiently long period of post-restrictions/COVID-19 data and the lack of (real) price variation during that period.

Instead, we used a particular feature of the estimation method that was used to estimate the model coefficients to recalibrate the model to the post-restrictions/COVID-19 demand.

The estimator that was used to estimate the regression coefficients converts the model to first differences.[143] This conversion means that the property specific constants, η_i, drop out of the equation. Following estimation of the remaining regression coefficients the η_i are then estimated as follows:

- for each property *i*:
  - calculate the predicted value during the sample period using the estimated model excluding η_i
  - calculate the residuals – that is, the difference between the predictions and actuals
  - η_i is estimated by the average of the residuals.

This feature of the estimation method allows us to recalibrate the models for the shift due to restrictions, COVID-19 etc. without the need to re-estimate the full model. All coefficient estimates were retained except for the estimates of η_i which were re-estimated using the available post restrictions and COVID-19 data to capture the shift in demand as follows:

[143] The estimator that was used is the generalised method of moments estimator for dynamic panel regression models developed by Arellano and Bond as implemented in the statistical software package Stata (xtabond2 command).

- for each property:
  - use the model excluding η_i to hindcast demand for the post restrictions period. Specifically, apply to the 4 quarters from July 2022 to June 2023
  - calculate the residuals – that is, the difference between the hindcast excluding η_i and actuals for this period
  - average the residuals to obtain an updated estimate for η_i that is consistent with demand following restrictions etc.

This updated estimate of the constant term is based on one year or four quarters of data only for a period, which is skewed to weather conditions that are wetter and cooler than average. However, this does not mean this updated estimate is biased downward. The hindcast excluding the constant term accounts for the effect of weather during this period because it is obtained by inserting the observed values of the weather variables during this period. Therefore, the residuals exclude the effect of non-average weather conditions and therefore the effect is excluded from the updated constant.

Implementation

To use the regression models to forecast demand requires several additional steps. These are of a highly technical nature and are not described in detail.

The main purpose of these steps is to recalibrate the models to so-called apportioned consumption. This measure of consumption splits consumption measured by meter reads that cover a period that is partly in one financial year and partly in another. Consumption is split over the two years based on the number of days covered in each financial year. By doing so, the demand forecast for each financial year can simply be multiplied by the assumed price for that financial year to forecast revenue. There is no need to calculate a weighted average price for meter reads that cover a period that is partly in one and partly in another year.

The models are applied to each individual property on our database and a so-called property specific constant term is estimated for each property (see previous section). This is to ensure proper weighting of the segments in the final forecast.[144] It also allows for proper weighting of localised factors like weather.

To generate a forecast, we first generate a forecast for each individual property. This is done by inputting into the model for that property the assumed values of the explanatory variables (price, weather, and season) for each quarter of which a forecast is required. Price will be the same for all properties, but the value of the weather variables will depend on the location of the property.

The values of the weather variables are the average values for that quarter for the location. These values are based on regional climate change projections produced by the NSW and Australian Regional Climate Modelling (NARCliM) project – see below for more detail.

We then average these forecasts by property type and BASIX status.[145] This is done separately for each delivery system. This gives us 11 forecasts of average demand for each system:

- pre-BASIX single dwellings
- post-BASIX single dwellings – no recycled water
- post-BASIX single dwellings – with recycled water
- pre-BASIX townhouse units
- post-BASIX townhouse units
- pre-BASIX vertical units
- post-BASIX vertical units
- pre-BASIX flats
- post-BASIX flats
- pre-BASIX dual occupancies
- post-BASIX dual occupancies.

[144] Only properties with at least four quarters of apportioned consumption data are included to allow a meaningful estimate of the property specific constant.

[145] Before doing so the forecasts need to be converted from logarithms to levels. This requires the calculation of a bias correction factor. This is a rather technical step and is not discussed here.

Because these averages are based on individual forecasts for almost all dwellings in each system, they are property weighted for the specific proportion of each of the subsegments in each system. For example, the distribution of proportion of single dwelling over the six lot size bands is likely to differ to some degree between the systems.

In the final step, the forecasts of average demand for each of the above 11 segments are multiplied by the forecast number of dwellings in each of these segments in each system.

Long-term residential forecast model

The regression models used to estimate residential demand in the short term (in this case, up to 2029–30) are less valid in the longer term as they assume a static relationship between demand and price, seasonality and weather, and do not capture changes like the decreases in demand that occur due to replacement of older appliances such as washing machines with newer more water efficient models. Beyond 2029–30, Sydney Water estimates demand with an end-use model.

The end use model estimates residential demand as the sum of the demands associated with each of five indoor end uses (washing machines, toilets, showers, dishwashers and taps), customer-side leaks and outdoor use for the average household in each of 38 segments (single dwellings and multi-dwellings in 19 delivery areas). The total potable and non-potable demand for indoor end uses is determined by stock models and behaviour parameters. **Table 10.15** contains the modelled end use volumes and use frequencies for the 2024–25 starting point.

Table 10.15: Modelled indoor efficiency and behaviour

End use	Parameter	2024–25	2029–30	2034–35
Washing machines	L/use	101	92.2	84.7
	Uses/household/week	4.3	4.2	4.2
Toilets	L/use	4.6	4.3	4.1
	Uses/person/day	7.2	7.1	7.1
Showers	L/min	7.8	7.7	7.6
	Min/person/day	6.0	5.9	5.9
Dishwashers	L/use	13.2	12.1	11.6
	Uses/household/week	2.5	2.5	2.5
Indoor taps	L/person/day	30.8	30.4	30.4
Leaks	5.7% of other end uses	-	-	-

The stock models simulate the shifts over time between different levels of water efficiency in appliances. They are informed by available sales data[146], calibrated primarily against a 2016 stock survey of Sydney Water customers. The behaviour parameters are informed by an end use metering study of a sample of Sydney Water customers in 2018–19 and 2020–21.

Initial outdoor use is estimated as the balance of these indoor demands and the average weather total demand predicted by the regression models for each segment. Demand is split into potable demand and demand supplied by other sources based on the current and expected future prevalence of rainwater tanks, dual reticulation, and similar schemes in pre- and post-BASIX dwellings in each segment. This approach allows the long-term residential demand forecast to follow expected changes of water efficiency of appliances as well as household size. The end use approach is also used for modelling some types of water conservation programs,

[146] Statewide sales data from GfK is used for washing machines and dishwashers. For washing machines, where the most significant changes are occurring, sales data was updated to December 2023 for this forecast.

like changes to BASIX regulation and appliance buyback schemes. The end use model also provides outputs other than the potable demand totals which are used in long-term planning processes – namely the total potable and non-potable demand, minimum residential demand to be supplied by potable water (that is, excluding end uses which could use alternative sources), wastewater discharge factors, and reductions in demand caused by drought responses.

Non-residential model

As explained in **Chapter 10**, we have prepared a new model of non-residential demand based on non-residential demand per capita as this provides a more stable and easier to implement basis for forecasting.

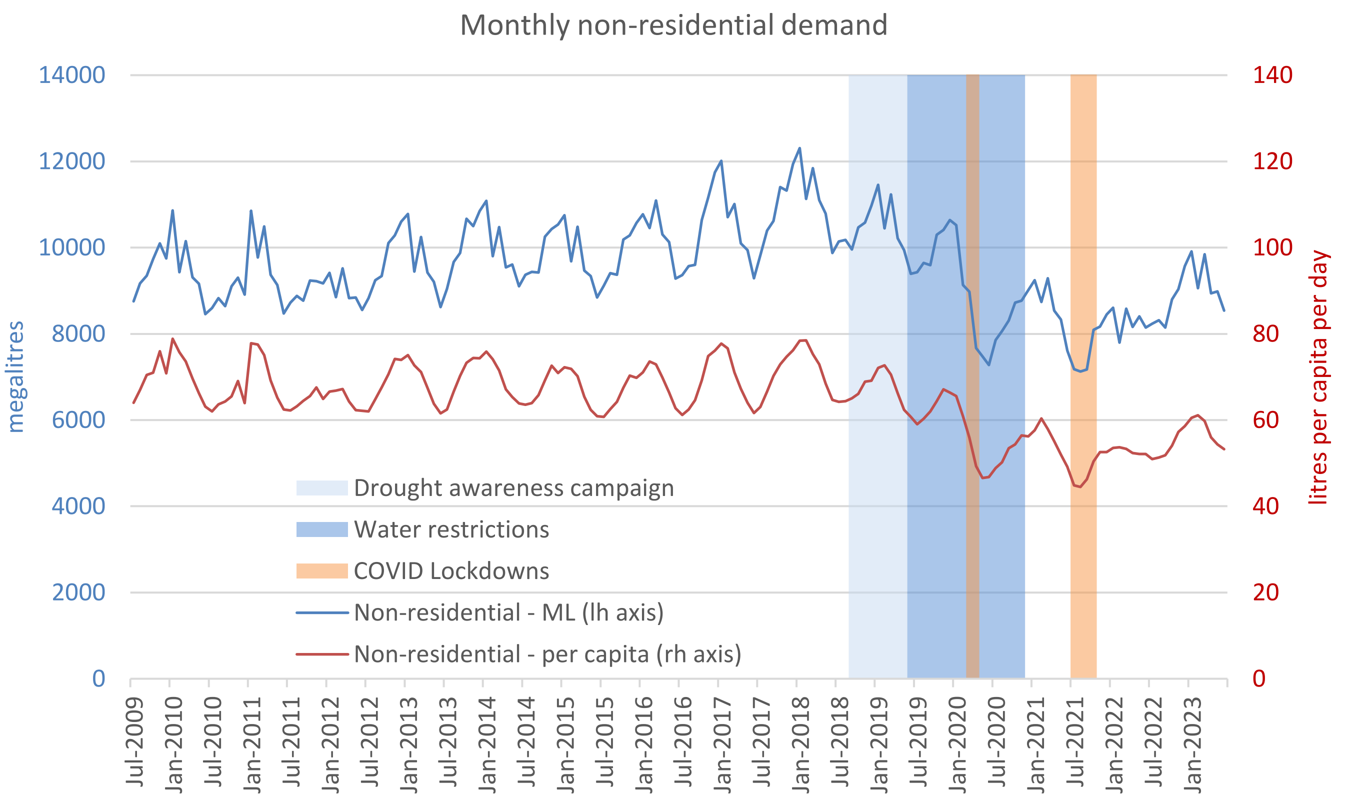
The model is based on a combined seasonal decomposition and regression analysis of per capita non-residential demand from July 2011 to June 2023. Explanatory variables include season, weather, water usage price and various indicator variables to capture the impacts of water restrictions and COVID-19.

The model excludes demand by the Top 6 customer segment. The demand of the Top 6 customers as well as the new Western Sydney Airport is forecast separately. Demand by Sydney Water–owned properties is excluded as well. Their demand is forecast separately and included in unbilled metered demand.

The chart below shows monthly non-residential demand (excluding Top 6 customers and Sydney Water–owned properties) and monthly non-residential daily per capita demand. The daily per capita demand is calculated by converting the total monthly demand to litres and dividing by the estimated resident population for the month, and the number of days in the month.

While it may appear non-residential demand has started to bounce back in 2022–23, weather conditions were quite different than in 2021–22 and a lockdown was in place between about July and October 2021. In fact, non-residential per capita demand was quite like the period between the first and second lockdown and the summer peak. In other words, about one-and-a-half years after the last lockdown, there is still no obvious sign of substantial bounce-back other than from the short-term effect of lockdown periods. This suggests the shift compared to the pre-restrictions and COVID-19 period (2009–18) is likely to be permanent.

Figure 10.10: Monthly non-residential demand



To model non-residential per capita demand, we first deseasonalise it, using multiplicative seasonal factors.

$$c'_t = \frac{c_t}{sf_t}$$

Where:

- c'_t: deseasonalised non-residential per capita demand in month *t*
- c_t: non-residential per capita demand in month *t*
  - sf_t: seasonal factor for month *t*
-
- The seasonal factors were estimated using the ratio-to-moving-average method.

We then apply regression analysis to the deseasonalised demand to explain the remaining variation. The regression model specification is:

$$\begin{aligned} c'_t = \alpha &+ \beta_1 \times d\_tmax_t + \beta_2 \times d\_gt30c_t + \beta_3 \times d\_gt40c_t + \beta_4 \times d\_precip_t + \beta_5 \times d\_gt2mm_t + \beta_6 \times d\_pen\_pet_t + \beta_7 \times advertising_t \\ &+ \beta_8 \times restrictions\_l1a_t + \beta_9 \times restrictions\_l2_t + \beta_{10} \times restrictions\_l1b_t + \beta_{11} \times lockdown\_1_t \\ &+ \beta_{12} \times lockdown\_2_t + \beta_{13} \times covid_t + \beta_{14} \times fy2022.23_t + \beta_{15} \times pr_t \end{aligned}$$

Where:

- d_tmax_t: average maximum temperature (anomaly)
- d_gt30c_t: proportion of days with temperature greater than 30°C (anomaly)
- d_gt40c_t: proportion of days with temperature greater than 40°C (anomaly)
- d_precip_t: average daily rainfall (anomaly)
- d_gt2mm_t: proportion of days with rainfall greater than 2 mm (anomaly)
- $d\_pen\_pet_t$: pan evaporation (anomaly)
- $advertising_t$: indicator variable for drought awareness and education campaign prior to restrictions; equals 1 if month is between August 2018 and May 2019 (inclusive) and 0 otherwise
- $restrictions\_l1a_t$: indicator variable for first period of Level 1 water restrictions; equals 1 if month is between June 2019 to November 2019 (inclusive) and 0 otherwise
- $restrictions\_l2_t$: indicator variable for level 2 water restrictions; equals 1 if month is between December 2019 and February 2020 (inclusive) and 0 otherwise
- $restrictions\_l1b_t$: indicator variable for second period of Level 1 water restrictions; equals 1 if month is between March 2019 and November 2020 (inclusive) and 0 otherwise
- $covid_t$: indicator variable for the period since COVID-19; equals 0 up to and including February 2020 and 1 thereafter
- $lockdown\_1_t$: indicator variable for the first major lockdown in Sydney area; equals 1 if month is April or May 2020 and 0 otherwise
- $lockdown\_2_t$: indicator variable for the second major lockdown; equals 1 if month is between July and October 2021 (inclusive) and 0 otherwise
- $fy2022.23_t$: indicator for the financial year 2022–23; equals 0 up to and including June 2022 and 1 thereafter
- pr_t: real water usage price (dollars of 2016–17)

The weather variables are all expressed as anomalies. The reference point for the anomalies is the 30 years to June 2023.

With regards to the $covid$ variable, this variable captures the combined impact of COVID-19 *and* the lasting effect of restrictions. The $lockdown\_1$ and $lockdown\_2$ variables capture the additional impact of COVID-19 during the two major lockdown periods. The $fy2022.23$ variable is included to capture any bounce-back in demand that may have occurred during the last year included in the analysis.

Table 10.16: Non-residential model coefficient estimates

Variable	Coefficient estimate
constant (α)	78.316
d_tmax	0.346
d_gt30c	5.139
d_gt40c	10.202
d_precip	-0.013
d_gt2mm	-2.826
d_pen_pet	0.889
Advertising	-3.236
restrictions_l1a	-6.033
restrictions_l2	-10.581
restrictions_l1b	-1.373
lockdown_1	-4.571
lockdown_2	-6.512
COVID-19	-13.706
fy2022.22	1.465
Pr	-0.045

The coefficients estimates are shown in **Table 10.16** and have the expected signs: maximum temperature and evaporation have a positive impact while rainfall has a negative effect.

The coefficients for the various restrictions related variables indicate that depending on the level of restrictions they reduced non-residential demand by about 1.3 to 10.6 lpd. Care should be taken in interpreting the relative values of the coefficients for the different levels of restrictions. In addition to the relative effectiveness of each level, these also reflect differences in the potential savings from restrictions due to time of the year and specific weather conditions when each level applied. For example, level 2 restrictions only applied for a short period during summer when potential savings from outdoor water restrictions are higher to start with, and weather conditions during the second period of level 1 restrictions were very different from those during the first period.

The coefficient estimate for $covid$ indicates that outside of lockdown periods COVID-19 has reduced demand by close to 14 litres per person per day. However, note that due to the definition of this variable this includes only lasting impact of restrictions as well. The coefficient estimates for $lockdown\_1$ and $lockdown_2$ indicate an additional reduction of about 4.5 and 6.5 lpd during the first and second lockdown periods, respectively.

The coefficient estimate for $fy2022.23$ indicates that bounce-back in 2022–23, the first full financial year after the last lockdown period, has been limited: in the order of 1.5 lpd only. This is equivalent to about a 2.5 per cent bounce-back.

Demand is negatively correlated with the water usage price as expected. The price elasticity estimated using this model is about -0.17. This is lower than the estimate from the literature that we have used in the past (-0.264). However, the latter was an average of estimates for other locations – i.e. was not Sydney-specific. Also, this new estimate is well within the range of estimates in the literature.

Figure 10.11 shows the hindcast demand that is produced by the model for the estimation period (January 2011 to December 2022). This hindcast was obtained as follows:

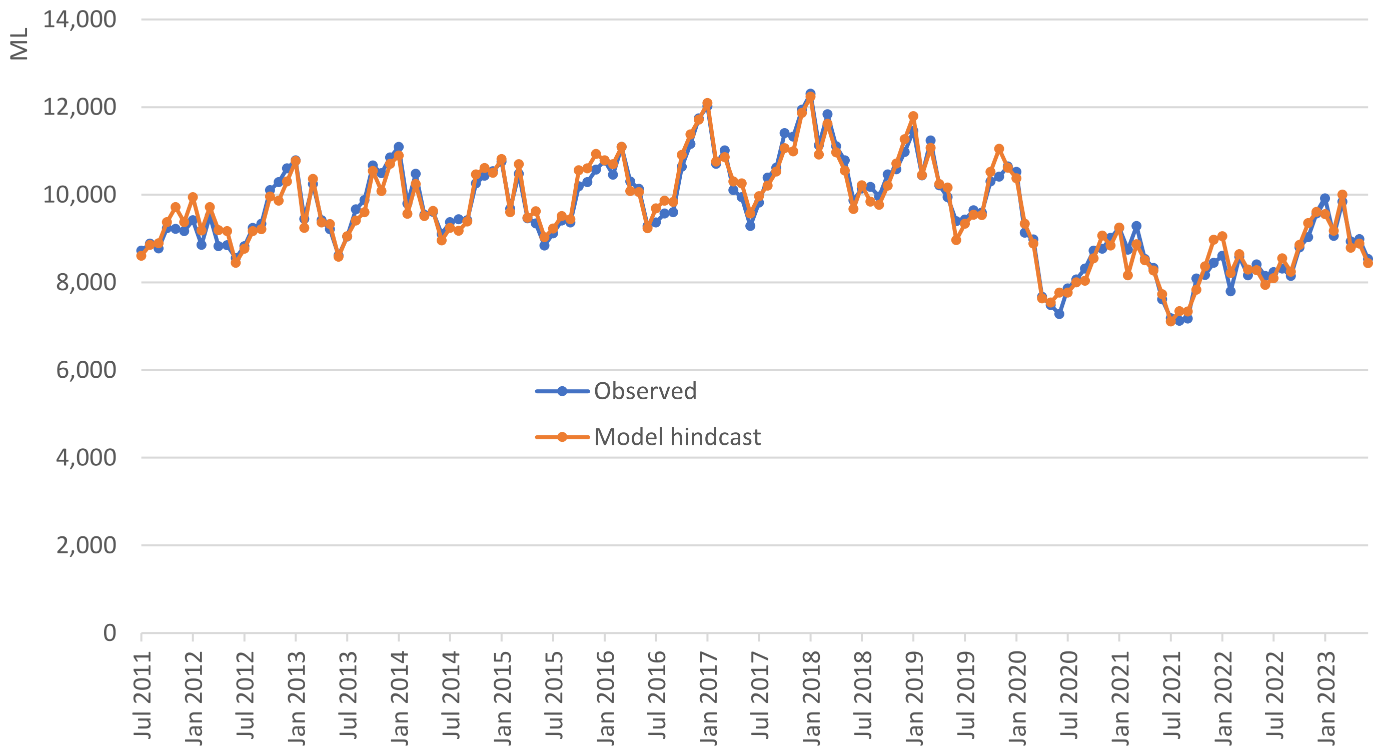
Use the regression model to hindcast monthly deseasonalised daily per capita demand by inserting the actual values of the explanatory variables during this period.

Multiply by the seasonal factors to hindcast daily per capita demand.

Multiply by the population served and the number of days in each month and divide by 1,000,000 to convert to ML.

The R-squared for the hindcast produced this way is 0.96.[147]

Figure 10.11: Non-residential model fit



To forecast demand using the model, we follow a similar approach to producing the hindcast except that now we enter average values for the weather variables and the proposed values for the water usage price. We set the values of the $covid$ and $fy2022.23$ variables to 1 for the forecast period, which is equivalent to an assumption of no further bounce-back from restrictions and COVID-19 beyond the level of bounce-back in 2022–23.

As for the residential model, average weather conditions as based on the NARCliM projections.

[147] Calculated by regressing the hindcast values on the observed values.

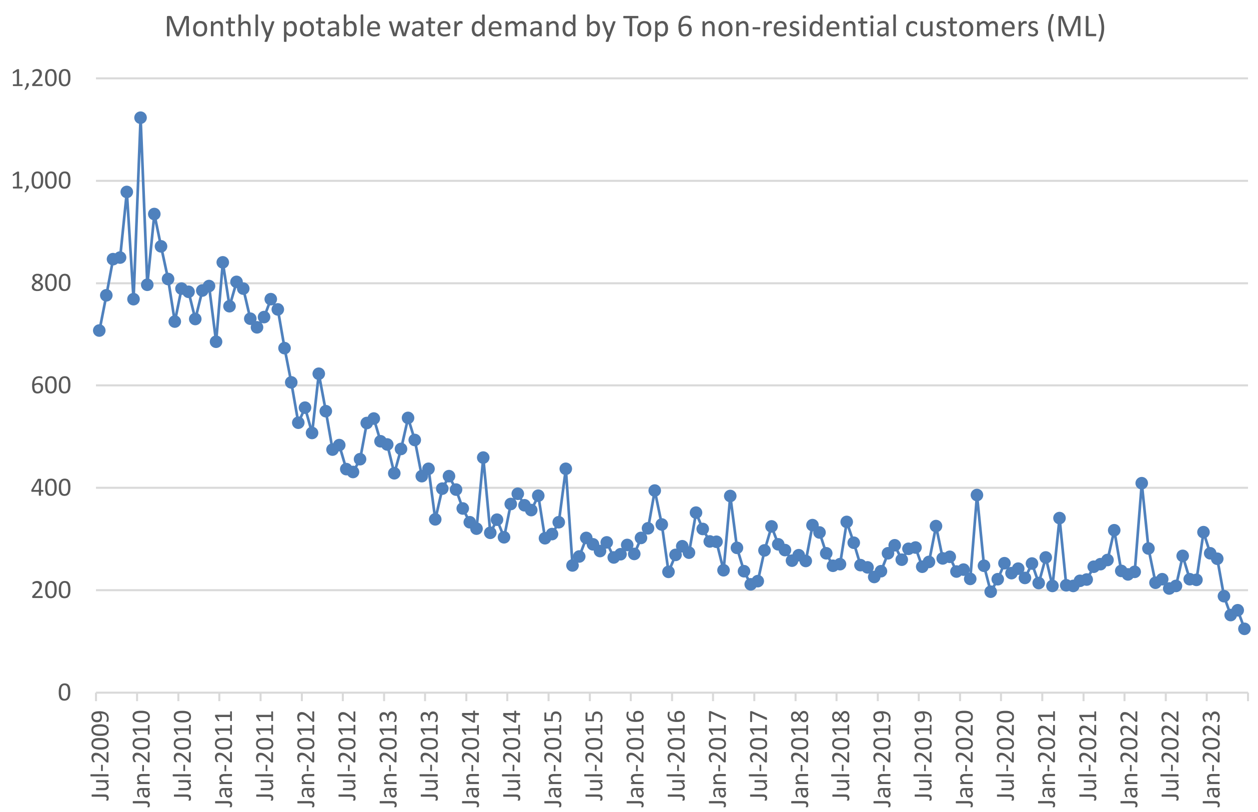
Top 6 customers

As per the previous model, the new non-residential model does not include the Top 6 non-residential customers. The demand of each of these customers is forecast separately. However, we do not present data for each individual customer here as this would mean identifying individual customers.

Potable water demand by the Top 6 customers has decreased significantly since they were first identified in 2010 for the previous version of the non-residential model – see **Figure 10.12**. Back then, potable water demand was about 800 ML/month or about 8 per cent of total non-residential potable water demand. Since then, it has decreased by almost three-quarters to about 250 ML/month or less than three per cent of total non-residential.

This reduction is mostly due to replacement of potable water by recycled water and a significant downscaling of activities by some of these customers. Potable demand by the Top 6 has been very stable since these changes. Therefore, for the forecast we have assumed that demand by the Top 6 will remain constant at the levels observed in the last two years.

Figure 10.12: Monthly Top 6 demand



Western Sydney Airport

As for the Top 6 customers, demand by the new Western Sydney Airport is forecast separately. This forecast is based on advice received from the airport's hydrological consultants.

Billed metered consumption

Billed unmetered demand is consumption by properties that do not have a meter.

Consumption by unmetered residential customers is forecast by applying the model for metered properties of a similar type. It is assumed that the average consumption of unbilled properties is like the average use of metered properties of the same type.

For unmetered non-residential properties, the forecast is based on the (current) deemed usage as determined by IPART (45 kilolitres per property per quarter).

From a revenue forecasting point of view, the actual consumption of these properties is not required. Forecast revenue from unmetered properties depends on the number of such properties and their deemed usage only.

Unbilled metered consumption

Unbilled metered consumption is that by metered properties owned by Sydney Water. Consumption by these properties is not billed, for obvious reasons. Unbilled metered consumption represents an extremely small proportion of total demand (0.03 per cent). It is forecast to be about 160ML/year based on historical averages.

Real losses

See **Chapter 10** for discussion of the real losses component of the demand forecast.

Customer meter under-read

Customer meter under-read is assumed to be two per cent of billed metered demand, consistent with assumptions used in the calculation of the water balance.

Unbilled unmetered consumption

Unbilled unmetered consumption varies from year to year but does not show any systematic upward or downward trend. For forecasting purposes, it is assumed constant at 4,652 ML/year. This is based on a historical average.

Unauthorised consumption

Unauthorised consumption is assumed to be 0.1 per cent of total demand, consistent with the assumptions used for the water balance calculations.

Recycled water top-up

Rouse Hill and other operational schemes

Recycled water top-up in Rouse Hill is forecast on the basis of historical average top-up (top-up per dwelling) and the forecast number of properties in this scheme.

Schemes not yet operational

Top-up is based on average consumption recorded by the recycled water meter, which is currently 100 per cent top-up and forecast property growth for each scheme. Schemes are assumed to become operational in 2027. Top-up following commissioning is forecast based on top-up rates in the Rouse Hill scheme, which is already operational and forecast property growth for each scheme.

Defining average weather conditions: NARCliM projections

As explained above, when producing the demand forecast for the price submission, we input average weather conditions into the short-term residential and non-residential forecasting model. In the presence of climate change, simply using past observed weather to define average weather may not produce valid estimates. Such an approach assumes weather conditions are stationary. That is, weather conditions can vary from year to year but there is no systematic upward or downward trend. This assumption is not valid in the presence of climate change which, for example, results in an underlying upward trend in temperatures.

To address this problem, for the 2020 price review, we adopted the climate change projections for the 2020–40 period as produced by the NARCliM project to calculate average weather conditions. Since then, NARCliM has released a new set of projections (labelled 1.5), intended to supplement its original (1.0) climate change projections. The average weather conditions included in the demand forecast in this submission are based on consideration of the NARCliM 1.0 and 1.5 climate projections.

NARCliM is a research partnership between the NSW and ACT governments and the Climate Change Research Centre at the University of NSW. Other project partners included, among others, Sydney Water and the Sydney Catchment Authority (now WaterNSW), Hunter Water and the NSW Department of Transport (now Transport for NSW).

The project was developed in response to the need for high-resolution climate change projections for use in regional and localised decision making. It provides planners and policy makers with high resolution projections of the impacts of climate change and is now endorsed for use by the Common Planning Assumptions Group.

NARCliM takes the outputs of global climate change models, which produce averaged results for large areas, and translates them into projections for much smaller areas. Results are downscaled to areas that measure approximately 10x10 km covering the whole of NSW and the ACT.

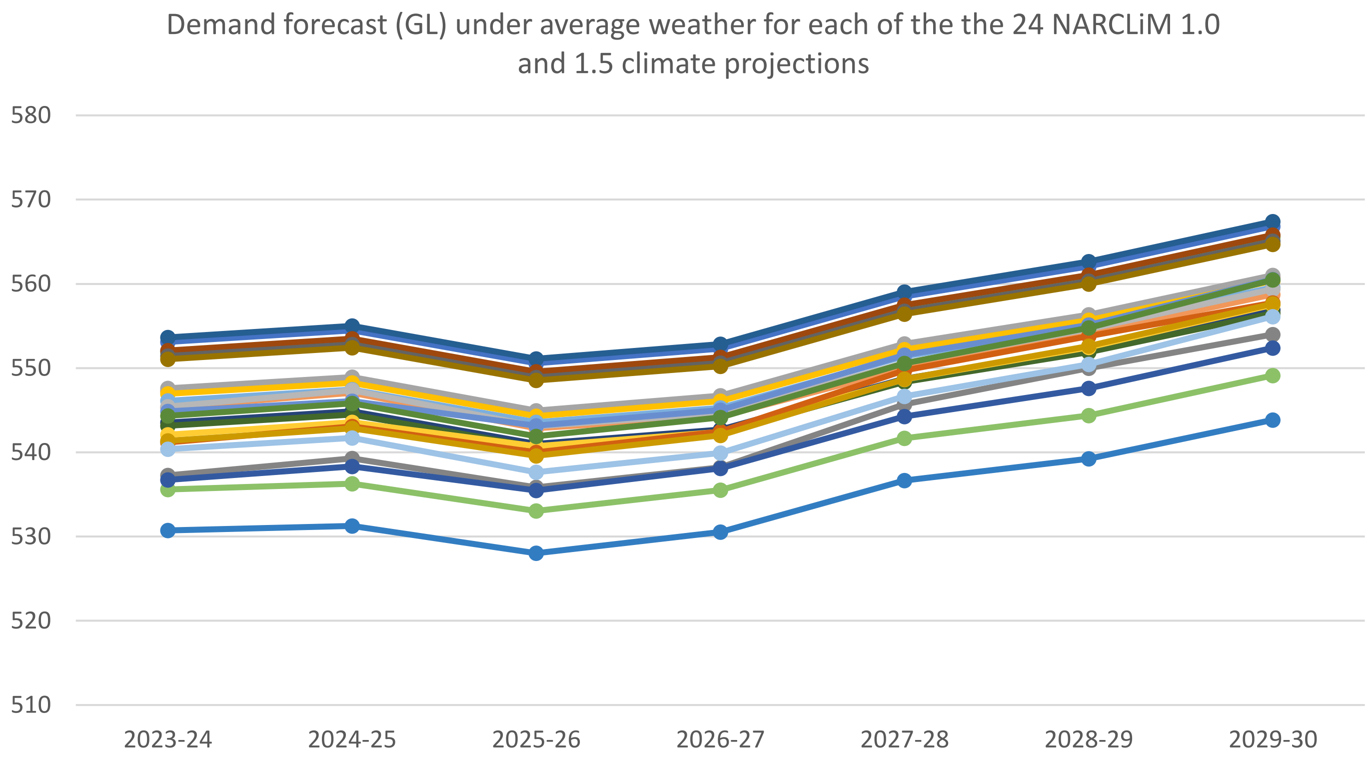
The project took the outputs of multiple global models, chosen for their performance in the Australian context and downscaled them using regional climate models using up to three different approaches. This resulted in a total of 24 different projections.[148]

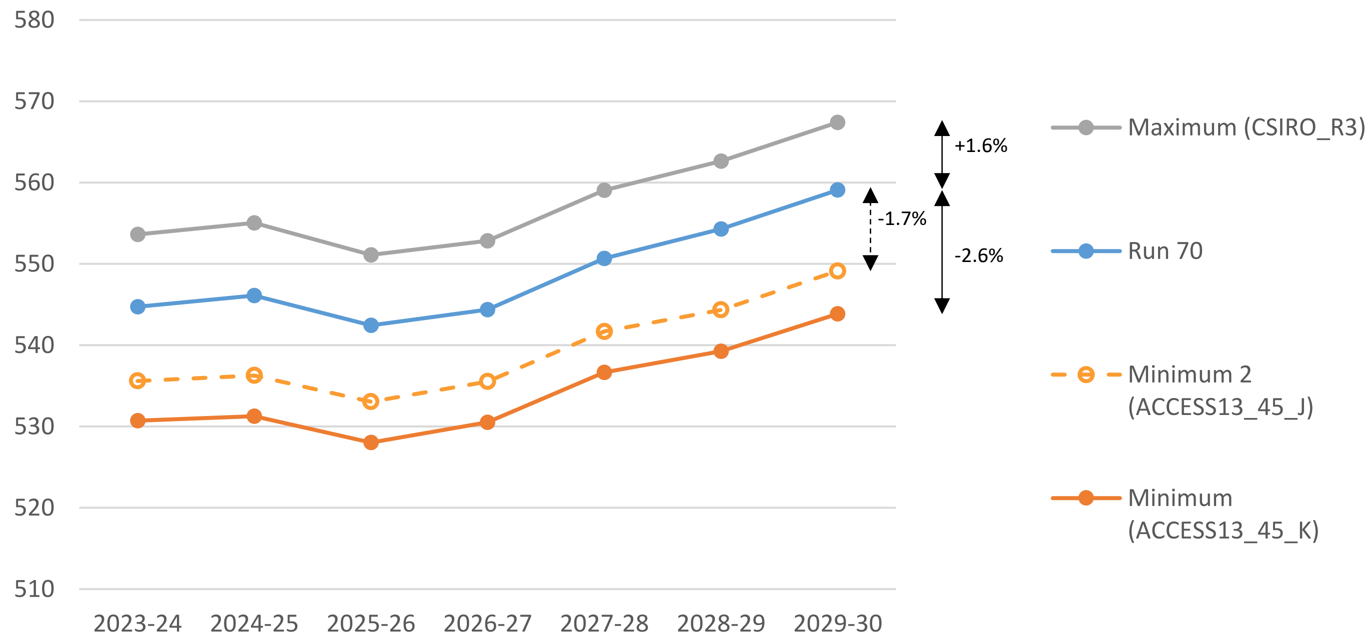
A forecast was produced for the average weather conditions according to each of these 24 projections, and the final forecast is the average of those 24 projections. The upper panel of **Figure 10.13** shows the 24 demand forecasts as well as the average. The bottom panel summarises the results by showing only the maximum, minimum and the average which constitutes the final forecast.

The average is skewed towards the upper end of the range as this is where the highest density of forecasts occurs. The width of the range appears disproportionately affected by one outlier at the lower end. Disregarding this one outlier, the average is very close to the middle of the range. There is no material difference between the average (mean) and the median of the forecasts.

[148] For further information on the NARCliM project see https://climatechange.environment.nsw.gov.au/Climate-projections-for-NSW/About-NARCliM/ and https://climatechange.environment.nsw.gov.au/.

Figure 10.13: Total demand forecasts for 24 NARCliM climate projections





Billed unmetered deman

PR2020 forecast vs actuals

This section provides further detail on the analysis that was carried out to explain the variation between the forecast submitted for PR2020 and actuals to 2023–24.

Instead of using the detailed residential and non-residential models that were used to prepare the original forecast, we used a model of monthly total system demand. This model can closely reproduce IPART's decision and therefore provides a valid basis for the analysis.

The model was originally developed to track the impact of the drought awareness campaign that started late 2018 and the impact of the water restrictions that came in to effect in June 2019. To allow frequent and immediate tracking of their impact, the model was based on monthly total system demand rather than quarterly customer metered demand which is reported less frequently and with a lag.

The model is based on a combination of seasonal decomposition and time series regression of monthly total system demand, excluding leakage and unfiltered water, between July 2011 and June 2018. Explanatory variables include season (monthly), maximum temperature, rainfall and evaporation and population served.

Because it uses population rather than property growth, it should be able to capture the effect of COVID-19 more accurately than a model using property growth. While population growth basically stalled for about three years, the number of properties kept growing (although at a reduced rate.)

We used the model to produce a forecast for 2019–20 to 2023–24, using the same leakage assumptions as used by IPART for PR2020 and adjusting demand for the price increase in July 2020 using the same price elasticities as used by IPART. The resulting forecast is extremely close to IPART's decision (within 0.05 per cent) and therefore provides a good basis for the analysis of variations between actuals and IPART's forecast.

To quantify the impact of each of the factors that contributed to the variation we followed the following steps:

Use the model to reproduce a monthly version of IPART's forecast.

Run the model again but insert actual instead of the assumed leakage. The difference between this forecast and the forecast at 1 Is the variation that is due to the higher than assumed leakage.

Run the model, inserting actual leakage and actual unfiltered water demand. The difference between this forecast and the forecast at 2 is the variation due to unfiltered water demand.

Run the model, inserting actual leakage and unfiltered water demand as well as actual population served. The difference between this forecast and the forecast at 3 is the variation in demand due to lower than forecast population.

Run the model with actual leakage, unfiltered water demand, population served and actual weather. The difference between this forecast and the forecast at 3 is the variation in demand due to weather varying from average weather.

Finally, compare the forecast at 5 with actual demand. The difference is assumed to be the impact of restrictions, the education/awareness campaigns and water conservation programs not included in the original forecast, as well as the impact of COVID-19 from about March 2020. For brevity, we use the term restrictions^{+} to refer to "restrictions, including education/awareness campaigns and water conservation programs not included in the original forecast".

This approach is illustrated graphically in **Figure 10.14**. Panel A shows the monthly version of the PR2020 forecast. Panel B adds the forecast with actual leakage and shows the variation that is due to higher-than-assumed leakage.

Panel C adds the forecast with actual leakage and unfiltered water, and shows the additional variation due to variations in unfiltered water demand. These are so small as to be virtually indistinguishable in the chart, but have been included for completeness. Except for the last few months shown, unfiltered demand has been less than forecast for PR2020.

Panel D adds the forecast using actual leakage and unfiltered water as well as actual (estimated) population served, and shows the additional variation due to lower than forecast population, which is largely due to impacts of COVID-19 on migration.

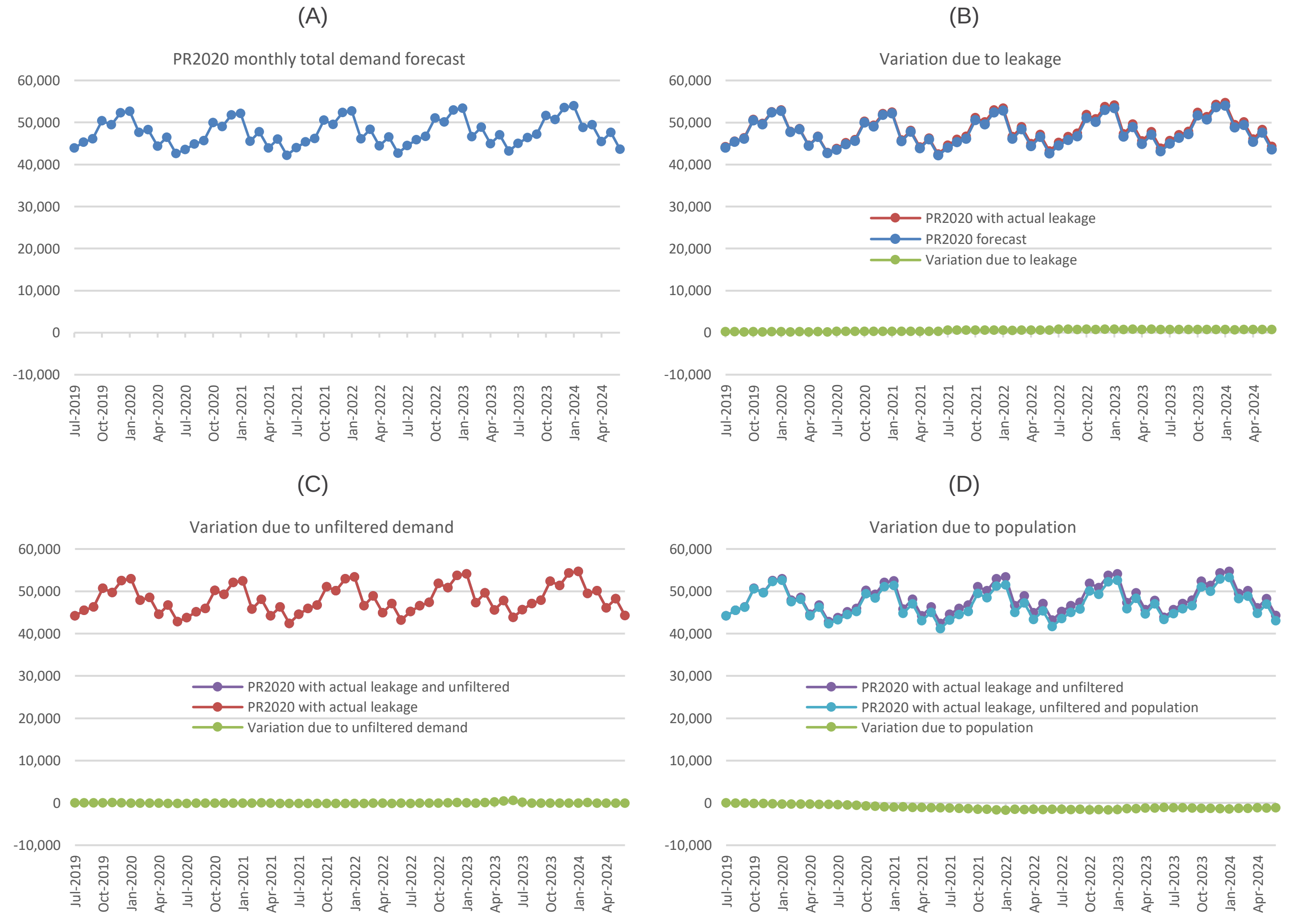
Panel E adds the forecast using actual leakage, unfiltered water, actual population served and actual weather. It shows the additional variation due to weather deviating from average conditions. This represents the estimated variation assuming no restrictions had been in place and given the lower population, not for the population as was originally assumed for PR2020.

Panel F adds the actual observed demand. The difference between the forecast with actual leakage, unfiltered water, actual population and actual weather, and this actual is assumed to be the variation that is due to restrictions+ and COVID-19. The peak in savings from restrictions in the summer of 2019–20 reflects the increase in the level of restrictions from level 1 to level 2 between December 2019 and February 2020, and the fact that savings from restrictions tend to be higher in summer due to outdoor demand and therefore the savings potential is higher. It also indicates the further increase in potential savings due to the fact that the start of this summer was generally hotter and drier than an average summer.

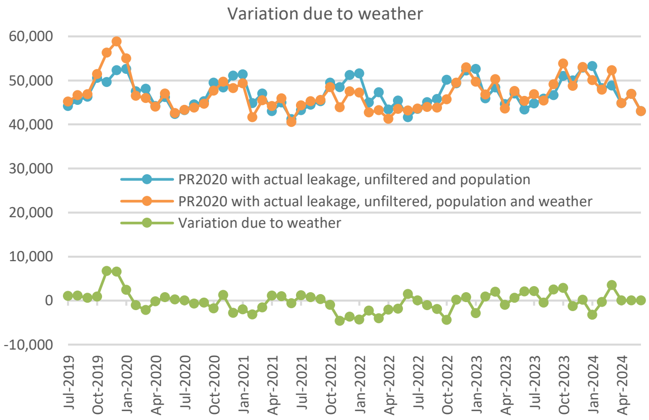
The lack of such distinct peaks in savings in later years does not necessarily point to bounce-back in behaviours. It is at least partly due to a lower potential for large savings from restrictions during those summers due to generally wetter and cooler than average conditions during those summers. In this context, note the much lower summer peaks in the forecast using actual weather during those latter years compared to 2019–20.

Because of the way the impact of restrictions and COVID-19 are calculated – that is, as the final balancing item between observed demand and hindcast demand after accounting for variations due to population, price, leakage and unfiltered water – this estimate will include the effect of any other, unspecified factors that have contributed to the difference. However, we are confident that the analysis has captured all the major factors, and that any factors that may have been overlooked would be minor.

Figure 10.14: Estimating the variation from forecast demand by factor – graphical illustration



(E)


Variation due to weather
60,000
50,000
40,000
30,000
20,000
10,000
0
-10,000
PR2020 with actual leakage, unfiltered and population
PR2020 with actual leakage, unfiltered, population and weather
Variation due to weather
Jul-2019
Oct-2019
Jan-2020
Apr-2020
Jul-2020
Oct-2020
Jan-2021
Apr-2021
Jul-2021
Oct-2021
Jan-2022
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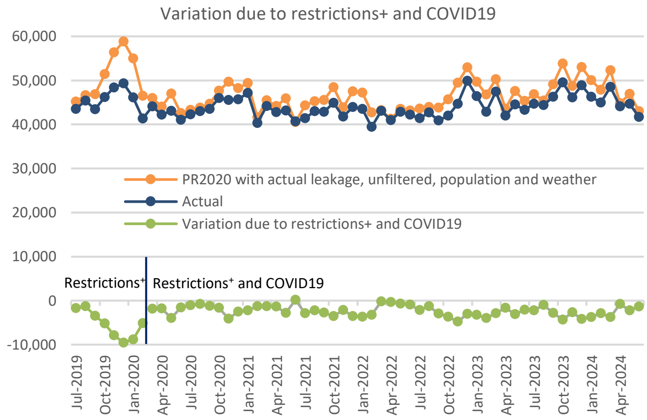
Jan-2024
Apr-2024

(F)


Variation due to restrictions+ and COVID19
60,000
50,000
40,000
30,000
20,000
10,000
0
-10,000
PR2020 with actual leakage, unfiltered, population and weather
Actual
Variation due to restrictions+ and COVID19
Restrictions+
Restrictions+ and COVID19
Jul-2019
Oct-2019
Jan-2020
Apr-2020
Jul-2020
Oct-2020
Jan-2021
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Jul-2021
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Jan-2022
Apr-2022
Jul-2022
Oct-2022
Jan-2023
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Jan-2024
Apr-2024

Appendix 11
Proposed prices for all products

Charges

Please note that:

- All charges presented for the 2030-35 period are indicative forecasts. These are expected to be proposed as part of Sydney Water's next price submission to IPART in 2029 and reflect Sydney Water's point in time forecast of these prices as at the time of submission.
- Charges with prices set to 'Nil' are charges that Sydney Water will no longer issue.
- Charges with prices set to 'NA' are charges that Sydney Water does not have a 10-year forecast for, but a price is proposed between 2025–30. We will provide prices for these charges as part of our 2029 pricing submission.

Charges for major services

Water prices

Table 11.1: Water usage charges ($24-25)

	Units	2024–25	2025–26	2026–27	2027–28	2028–29	2029–30	2030–31	2031–32	2032–33	2033–34	2034–35
Water usage charge	$/kL	$2.67	$3.12	$3.12	$3.12	$3.12	$3.12	$3.12	$3.12	$3.12	$3.12	$3.12
Drought uplift price	$/kL	$0.94	$0.66	$0.66	$0.66	$0.66	$0.66	$0.66	$0.66	$0.66	$0.66	$0.66
Unfiltered water usage charge	$/kL	$2.32	$2.75	$2.75	$2.75	$2.75	$2.75	$2.75	$2.75	$2.75	$2.75	$2.75

Table 11.2: Base water supply service charge ($24-25)

Meter size	2024–25	2025–26	2026–27	2027–28	2028–29	2029–30	2030–31	2031–32	2032–33	2033–34	2034–35
20 mm	$67.04	$85.23	$141.46	$202.16	$267.67	$338.37	$362.81	$387.87	$413.57	$439.92	$466.94
25 mm	$104.74	$133.17	$221.04	$315.87	$418.23	$528.70	$566.89	$606.05	$646.20	$687.37	$729.59
32 mm	$171.61	$218.18	$362.15	$517.53	$685.23	$866.23	$928.79	$992.95	$1,058.74	$1,126.19	$1,195.36
40 mm	$268.14	$340.91	$565.85	$808.64	$1,070.67	$1,353.48	$1,451.24	$1,551.48	$1,654.27	$1,759.67	$1,867.75
50 mm	$418.98	$532.67	$884.15	$1,263.49	$1,672.92	$2,114.81	$2,267.56	$2,424.19	$2,584.80	$2,749.49	$2,918.36
80 mm	$1,072.59	$1,363.64	$2,263.42	$3,234.55	$4,282.68	$5,413.92	$5,804.96	$6,205.94	$6,617.10	$7,038.70	$7,471.00
100 mm	$1,675.91	$2,130.68	$3,536.59	$5,053.98	$6,691.68	$8,459.25	$9,070.25	$9,696.78	$10,339.21	$10,997.96	$11,673.44
150 mm	$3,771.17	$4,794.03	$7,957.33	$11,371.45	$15,056.29	$19,033.31	$20,408.07	$21,817.75	$23,263.23	$24,745.41	$26,265.24
200 mm	$6,704.30	$8,522.72	$14,146.36	$20,215.91	$26,766.73	$33,836.99	$36,281.01	$38,787.11	$41,356.85	$43,991.85	$46,693.76
250 mm	$10,475.47	$13,316.75	$22,103.69	$31,587.36	$41,823.02	$52,870.29	$56,689.08	$60,604.86	$64,620.07	$68,737.26	$72,959.01
300 mm	$15,084.68	$19,176.12	$31,829.31	$45,485.80	$60,225.15	$76,133.22	$81,632.28	$87,270.99	$93,052.91	$98,981.66	$105,060.97
500 mm	$41,901.90	$53,267.00	$88,414.75	$126,349.45	$167,292.09	$211,481.18	$226,756.34	$242,419.43	$258,480.29	$274,949.04	$291,836.03
600 mm	$60,338.74	$76,704.48	$127,317.24	$181,943.21	$240,900.61	$304,532.89	$326,529.13	$349,083.97	$372,211.62	$395,926.62	$420,243.88
Unmetered[149]	$547.64	$646.83	$703.06	$765.30	$829.27	$899.97	$924.41	$951.01	$975.17	$1,001.52	$1,028.54

[149] Note that this unmetered price is based on 180 kL per 365 days of deemed water usage plus a 20 mm water service charge

Recycled water charges

Table 11.3: Recycled water charges ($24-25, $kL)

	2024–25	2025–26	2026–27	2027–28	2028–29	2029–30	2030–31	2031–32	2032–33	2033–34	2034–35
Recycled water charges – non-Wentworth Point	$2.40	$2.81	$2.81	$2.81	$2.81	$2.81	$2.81	$2.81	$2.81	$2.81	$2.81
Recycled water charges – Wentworth Point	$2.67	$3.12	$3.12	$3.12	$3.12	$3.12	$3.12	$3.12	$3.12	$3.12	$3.12

Wastewater prices

Table 11.4: Wastewater usage charge ($24-25)

	Units	2024–25	2025–26	2026–27	2027–28	2028–29	2029–30	2030–31	2031–32	2032–33	2033–34	2034–35
Wastewater usage charge	$/kL	$1.36	$1.41	$1.41	$1.41	$1.41	$1.41	$1.41	$1.41	$1.41	$1.41	$1.41
Deemed usage charge	$/year	$204.00	$211.50	$211.50	$211.50	$211.50	$211.50	$211.50	$211.50	$211.50	$211.50	$211.50

Table 11.5: Unadjusted wastewater service charge ($24-25)

Meter size	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35
20 mm	$551.04	$691.05	$745.48	$802.96	$863.65	$927.74	$966.67	$1,006.84	$1,048.32	$1,091.12	$1,135.30
25 mm	$860.99	$1,079.77	$1,164.82	$1,254.63	$1,349.46	$1,449.60	$1,510.42	$1,573.19	$1,637.99	$1,704.88	$1,773.91
32 mm	$1,410.65	$1,769.09	$1,908.44	$2,055.58	$2,210.95	$2,375.02	$2,474.67	$2,577.52	$2,683.69	$2,793.27	$2,906.37
40 mm	$2,204.15	$2,764.21	$2,981.94	$3,211.84	$3,454.62	$3,710.97	$3,866.67	$4,027.38	$4,193.26	$4,364.48	$4,541.21
50 mm	$3,443.98	$4,319.07	$4,659.27	$5,018.51	$5,397.84	$5,798.38	$6,041.67	$6,292.78	$6,551.97	$6,819.50	$7,095.64
80 mm	$8,816.60	$11,056.83	$11,927.74	$12,847.38	$13,818.46	$14,843.86	$15,466.67	$16,109.51	$16,773.04	$17,457.92	$18,164.84
100 mm	$13,775.94	$17,276.29	$18,637.10	$20,074.03	$21,591.34	$23,193.54	$24,166.67	$25,171.11	$26,207.88	$27,278.00	$28,382.56
150 mm	$30,996.00	$38,871.65	$41,933.47	$45,166.57	$48,580.53	$52,185.46	$54,375.01	$56,635.01	$58,967.72	$61,375.50	$63,860.75
200 mm	$55,104.00	$69,105.16	$74,548.39	$80,296.12	$86,365.38	$92,774.15	$96,666.68	$100,684.45	$104,831.51	$109,112.00	$113,530.23
250 mm	$86,100.00	$107,976.81	$116,481.87	$125,462.69	$134,945.90	$144,959.61	$151,041.68	$157,319.46	$163,799.23	$170,487.50	$177,390.98
300 mm	$123,984.00	$155,486.61	$167,733.89	$180,666.28	$194,322.10	$208,741.83	$217,500.02	$226,540.02	$235,870.90	$245,502.01	$255,443.01
500 mm	$344,400.00	$431,907.25	$465,927.47	$501,850.77	$539,783.62	$579,838.42	$604,166.73	$629,277.84	$655,196.93	$681,950.01	$709,563.92
600 mm	$495,936.00	$621,946.44	$670,935.55	$722,665.11	$777,288.41	$834,967.33	$870,000.09	$906,160.09	$943,483.58	$982,008.02	$1,021,772.04

Table 11.6: Wastewater discretionary charge ($24-25)

Meter size	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35
20 mm	$1.58	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
25 mm	$2.47	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
32 mm	$4.05	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
40 mm	$6.32	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
50 mm	$9.88	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
80 mm	$25.29	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
100 mm	$39.51	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
150 mm	$88.88	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
200 mm	$158.00	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
250 mm	$246.88	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
300 mm	$355.50	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
500 mm	$987.50	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
600 mm	$1,422.00	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil

Stormwater prices

Table 11.7: Stormwater drainage charge ($24-25)

	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35
Residential											
Residential property not within a multi-premises (not assessed as low impact)	$87.21	$104.05	$117.10	$131.78	$148.31	$166.91	$166.60	$166.29	$165.98	$165.67	$165.36
Residential property within a multi-premises (not assessed as low impact)	$27.22	$32.48	$36.55	$41.13	$46.29	$52.09	$52.00	$51.90	$51.81	$51.71	$51.61
Low impact assessed residential property	$27.22	$32.48	$36.55	$41.13	$46.29	$52.09	$52.00	$51.90	$51.81	$51.71	$51.61
Non-residential											
Small property area (≤ 200 m^2)	$27.22	$32.48	$36.55	$41.13	$46.29	$52.09	$52.00	$51.90	$51.81	$51.71	$51.61
Medium property area (> 200 m^2 to 1,000 m^2)	$87.21	$104.05	$117.10	$131.78	$148.31	$166.91	$166.60	$166.29	$165.98	$165.67	$165.36
Large property area (> 1,000 m^2 to 10,000 m^2)	$508.20	$606.36	$682.39	$767.96	$864.26	$972.63	$970.83	$969.03	$967.23	$965.44	$963.65
Very large property area (> 10,000 m^2 to 45,000 m^2)	$2,258.73	$2,695.01	$3,032.94	$3,413.26	$3,841.26	$4,322.93	$4,314.91	$4,306.91	$4,298.93	$4,290.96	$4,283.00
Largest property area (> 45,000 m^2)	$5,646.83	$6,737.54	$7,582.38	$8,533.16	$9,603.17	$10,807.35	$10,787.31	$10,767.31	$10,747.35	$10,727.43	$10,707.54
Non-residential property within a multi-premises (irrespective of property area)	$27.22	$32.48	$36.55	$41.13	$46.29	$52.09	$52.00	$51.90	$51.81	$51.71	$51.61
Low impact assessed non-residential property (irrespective of property area)	$87.21	$104.05	$117.10	$131.78	$148.31	$166.91	$166.60	$166.29	$165.98	$165.67	$165.36

Table 11.8: Land drainage charges ($24-25)

	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35
Land drainage charges[150] for new sites	$384.58	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
Land drainage charges for sites that have not made 20 payments[151]	$384.58	$384.58	$384.58	$384.58	$384.58	$384.58	$384.58	$384.58	$384.58	$384.58	$384.58

[150] Only payable by new properties in Rouse Hill who cannot demonstrate a developer has paid an Infrastructure Contribution for stormwater services for their property. This will include all properties who have begun but not finished making all 20 payments, and any new properties who go through the Section 73 compliance certificate process before the revised Rouse Hill stormwater DSP is registered with IPART (scheduled for July 2025).

[151] As this charge is levied quarterly, all remaining customers should have completeted their 20 payments by Q4 2029-30

Table 11.9: Removed and phased-out stormwater charges ($24-25)

	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35
Stormwater discretionary charge	$0.97	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
Rouse Hill drainage – residential property	$143.93	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
Rouse Hill drainage – vacant land	$143.93	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
Rouse Hill Drainage – non-residential property ≤ 1000 m^2	$143.93	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
Rouse Hill Drainage – non-residential property > 1000 m^2	$143.93 x (land area in m^2/1000)	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
Kellyville Village stormwater drainage charges – residential property not within a multi-premises (not assessed as low impact)	$87.21	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
Kellyville Village stormwater drainage charges – residential property within a multi-premises (not assessed as low impact)	$27.22	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
Kellyville Village stormwater drainage charges – low impact assessed residential property	$27.22	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
Kellyville Village stormwater drainage charges – non-residential small property ≤ 200 m^2	$27.22	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
Kellyville Village stormwater drainage charges – non-residential medium property 200 m^2 to 1,000 m^2	$87.21	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil

	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35
Kellyville Village stormwater drainage charges – non-residential large property 1,000 m^2 to 10,000 m^2	$508.20	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
Kellyville Village stormwater drainage charges – non-residential very large property 10,000 m^2 to 45,000 m^2	$2,258.73	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
Kellyville Village stormwater drainage charges – non-residential largest property > 45,000 m^2	$5,646.83	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
Kellyville Village stormwater drainage charges – non-residential property within a multi-premises (not assessed as low impact)	$27.22	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
Kellyville Village stormwater drainage charges – low impact assessed non-residential property (irrespective of property area)	$87.21	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil

Charges for minor services

Trade waste prices

Table 11.10: Commercial pollutant charges ($24-25, $kL)

	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35
Low-strength BOD[152] food	$2.019	$2.759	$2.849	$2.930	$3.054	$3.114	NA	NA	NA	NA	NA
Higher strength BOD food	$2.799	$3.880	$3.926	$4.035	$4.176	$4.245	NA	NA	NA	NA	NA
Automotive	$0.575	$0.804	$0.832	$0.853	$0.889	$0.904	NA	NA	NA	NA	NA
Laundry	$0.473	$0.637	$0.685	$0.705	$0.744	$0.762	NA	NA	NA	NA	NA
Lithographic	$0.332	$0.492	$0.501	$0.516	$0.535	$0.545	NA	NA	NA	NA	NA
Photographic	Nil	Nil	Nil	Nil	Nil	Nil	NA	NA	NA	NA	NA
Equipment hire wash	$3.331	$4.287	$4.375	$4.495	$4.669	$4.750	NA	NA	NA	NA	NA
Ship to shore	Nil	Nil	Nil	Nil	Nil	Nil	NA	NA	NA	NA	NA
Miscellaneous	Nil	Nil	Nil	Nil	Nil	Nil	NA	NA	NA	NA	NA
Other (default)	Nil	Nil	Nil	Nil	Nil	Nil	NA	NA	NA	NA	NA
Charge for low- and high-strength BOD food if pre-treatment is not maintained in accordance with requirements	$15.618	$23.398	$23.887	$24.778	$24.574	$24.923	NA	NA	NA	NA	NA

[152] BOD stands for biochemical oxygen demand.

Table 11.11: Commercial agreement charges ($24-25)

	Units	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35
Commercial agreement charge – first process	$/year	$127.58	$124.14	$124.14	$124.14	$124.14	$124.14	NA	NA	NA	NA	NA
Commercial agreement charge – each additional process	$/year	$42.52	$37.85	$37.85	$37.85	$37.85	$37.85	NA	NA	NA	NA	NA
Wastesafe charge for commercial customers	$/year per trap	$48.11	$28.02	$28.02	$28.02	$28.02	$28.02	NA	NA	NA	NA	NA

Table 11.12: Industrial pollutant charges ($24-25)

		2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35
Primary wastewater treatment plants (WWTPs)												
BOD Treatment charge – Primary WWTPs[1]	$/kg above Acceptance standard	$0.383	$0.458	$0.522	$0.528	$0.603	$0.620	NA	NA	NA	NA	NA
BOD Corrosion charge – Primary WWTPs	$/kg above Acceptance standard	$0.166	$0.235	$0.300	$0.323	$0.310	$0.328	NA	NA	NA	NA	NA
Suspended solids	$/kg above Acceptance standard	$0.540	$0.567	$0.635	$0.644	$0.723	$0.741	NA	NA	NA	NA	NA
Grease	$/kg above Acceptance standard	$0.490	$0.536	$0.604	$0.611	$0.690	$0.707	NA	NA	NA	NA	NA
Secondary and tertiary WWTPs												
BOD Treatment charge	$/kg above Acceptance standard	$1.890	$2.997	$2.678	$2.738	$2.771	$2.769	NA	NA	NA	NA	NA
BOD Corrosion charge	$/kg above Acceptance standard	$0.166	$0.235	$0.300	$0.323	$0.310	$0.328	NA	NA	NA	NA	NA
Suspended solids	$/kg above Acceptance standard	$1.233	$2.045	$2.063	$2.092	$2.092	$2.095	NA	NA	NA	NA	NA
Grease	$/kg above Acceptance standard	$1.276	$1.752	$1.764	$1.793	$1.794	$1.797	NA	NA	NA	NA	NA

The total BOD price is calculated using the formula a + (b x $\frac{c}{600}$)
Where: a is BOD treatment charge; b is the BOD corrosion charge; and c is the BOD concentration in the customer's discharge, measured in mg/L.

Table 11.13: Corrosive substance charges ($24-25, $/ML)

		2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35
Acidity (pH < 7)	Per ML of wastewater where pH < 7#	$87.355	$90.500	$90.500	$90.500	$90.500	$90.500	NA	NA	NA	NA	NA
Temperature	Per ML of wastewater with temperature > 25 °C*	$9.670	$10.018	$10.018	$10.018	$10.018	$10.018	NA	NA	NA	NA	NA

The charge is multiplied by the number of pH units by which the wastewater is less than pH7 – for example, at pH5 the charge will be multiplied by two. Where the pH is not a whole number, it will be rounded up or down for charging purposes. It will be rounded up where the decimal number is 0.5 or more, and rounded down where the decimal number is less than 0.5. For example, pH6.5 will be rounded up to pH7, and pH6.3 will be rounded down to pH6.

* The charge is multiplied by the number of degrees Celsius (°C) by which the temperature of the wastewater is greater than 25°C. For example, if the temperature of the wastewater is 27°C, the charge will be multiplied by two. Where the temperature is not a whole number, it will be rounded up or down for charging purposes. It will be rounded up where the decimal number is 0.5 or more, and rounded down where the decimal number is less than 0.5. For example, a temperature of 25.5°C will be rounded up to 26°C and a temperature of 25.3°C will be rounded down to 25°C. (Note: Where Sydney Water declares a wastewater system to be affected by accelerated odour and corrosion, the temperature and pH charge will only apply if the customer is not committed to or not complying with an effluent improvement program.)

Table 11.14: Trade waste industrial agreement charges for industrial customers by risk index ($24-25)

Risk Level	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35
Level 1	$12,755.58	$19,376.41	$19,376.41	$19,376.41	$19,376.41	$19,376.41	NA	NA	NA	NA	NA
Level 2	$12,755.58	$18,714.39	$18,714.39	$18,714.39	$18,714.39	$18,714.39	NA	NA	NA	NA	NA
Level 3	$12,755.58	$16,886.30	$16,886.30	$16,886.30	$16,886.30	$16,886.30	NA	NA	NA	NA	NA
Level 4	$5,887.19	$8,604.59	$8,604.59	$8,604.59	$8,604.59	$8,604.59	NA	NA	NA	NA	NA
Level 5	$3,924.80	$5,017.14	$5,017.14	$5,017.14	$5,017.14	$5,017.14	NA	NA	NA	NA	NA
Level 6	$1,962.39	$2,785.78	$2,785.78	$2,785.78	$2,785.78	$2,785.78	NA	NA	NA	NA	NA
Level 7	$981.21	$2,532.54	$2,532.54	$2,532.54	$2,532.54	$2,532.54	NA	NA	NA	NA	NA

Table 11.15: Industrial application fees ($24-25)

	Units	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35
Trade waste industrial application – standard	$/application	$954.97	$1,070.67	$1,070.67	$1,070.67	$1,070.67	$1,070.67	NA	NA	NA	NA	NA
Trade waste industrial application non-standard	$/hour	$131.72	$140.57	$140.57	$140.57	$140.57	$140.57	NA	NA	NA	NA	NA
Trade waste industrial application fee – variation	$/application	$537.86	$784.85	$784.85	$784.85	$784.85	$784.85	NA	NA	NA	NA	NA
Additional inspection	Per inspection	$241.49	$246.00	$246.00	$246.00	$246.00	$246.00	NA	NA	NA	NA	NA

Table 11.16: New trade waste charges ($24-25)

	Units	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35
Commercial trade waste agreement application charge – low complexity	$/application	NA	$536.51	$536.51	$536.51	$536.51	$536.51	NA	NA	NA	NA	NA
Commercial trade waste agreement application charge – medium complexity	$/application	NA	$595.08	$595.08	$595.08	$595.08	$595.08	NA	NA	NA	NA	NA
Commercial trade waste agreement application charge – high complexity	$/application	NA	$782.50	$782.50	$782.50	$782.50	$782.50	NA	NA	NA	NA	NA
Commercial trade waste permit variation fee	$/variation	NA	$313.94	$313.94	$313.94	$313.94	$313.94	NA	NA	NA	NA	NA
Commercial customers – trade waste discharge meter reading fee	$/read	NA	$58.57	$58.57	$58.57	$58.57	$58.57	NA	NA	NA	NA	NA
Trade waste industrial variation non-standard	$/hour	NA	$140.57	$140.57	$140.57	$140.57	$140.57	NA	NA	NA	NA	NA
Administering non-compliance charge	$/event	NA	$136.50	$141.41	$146.51	$151.78	$157.24	NA	NA	NA	NA	NA

Ancillary and miscellaneous charges

Table 11.17: Ancillary and miscellaneous charges ($24-25)

		2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35
Conveyancing certificate – electronic	$/certificate	$8.41	$9.02	$9.02	$9.02	$9.02	$9.02	$9.02	$9.02	$9.02	$9.02	$9.02
Property sewerage diagram – over the counter	$/diagram	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Property sewerage diagram – electronic	$/diagram	$16.07	$17.25	$17.25	$17.25	$17.25	$17.25	$17.25	$17.25	$17.25	$17.25	$17.25
Property sewerage diagram – online	$/diagram	$28.86	$30.98	$30.98	$30.98	$30.98	$30.98	$30.98	$30.98	$30.98	$30.98	$30.98
Service location diagram – over the counter	$/diagram	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Service location diagram – electronic	$/diagram	$9.15	$9.82	$9.82	$9.82	$9.82	$9.82	$9.82	$9.82	$9.82	$9.82	$9.82
Service location diagram – online	$/diagram	$19.44	$20.87	$20.87	$20.87	$20.87	$20.87	$20.87	$20.87	$20.87	$20.87	$20.87
Special meter reading statement	$/request	$43.80	$47.01	$47.01	$47.01	$47.01	$47.01	$47.01	$47.01	$47.01	$47.01	$47.01
Billing record search statement	$/request	$40.58	$43.55	$43.55	$43.55	$43.55	$43.55	$43.55	$43.55	$43.55	$43.55	$43.55

		2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35
Building over/adjacent to asset advice	$/request	$55.26	$59.31	$59.31	$59.31	$59.31	$59.31	$59.31	$59.31	$59.31	$59.31	$59.31
Water reconnection	$/request	$66.41	$71.28	$71.28	$71.28	$71.28	$71.28	$71.28	$71.28	$71.28	$71.28	$71.28
Workshop test of water meter – 20 mm, 25 mm and 32 mm meters	$/request	$212.68	$228.27	$228.27	$228.27	$228.27	$228.27	$228.27	$228.27	$228.27	$228.27	$228.27
Workshop test of water meter – 40 mm and 50 mm light meters	$/request	$262.82	$282.08	$282.08	$282.08	$282.08	$282.08	$282.08	$282.08	$282.08	$282.08	$282.08
Workshop test of water meter – 50 mm, 80mm, 100 mm and 150 mm meters	$/request	$293.03	$314.51	$314.51	$314.51	$314.51	$314.51	$314.51	$314.51	$314.51	$314.51	$314.51
Workshop test of water meter – 200 mm, 250 mm and 300 mm meters	$/request	$488.82	$524.65	$524.65	$524.65	$524.65	$524.65	$524.65	$524.65	$524.65	$524.65	$524.65
Water service disconnection application	$/request	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
Water service connection installation application	$/request	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
Water service connection approval application (32–65 mm)	$/request	$392.65	$421.43	$421.43	$421.43	$421.43	$421.43	$421.43	$421.43	$421.43	$421.43	$421.43

		2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35
Water service connection approval application (80mm or greater)	$/request	$392.65	$421.43	$421.43	$421.43	$421.43	$421.43	$421.43	$421.43	$421.43	$421.43	$421.43
Application to assess a water main adjustment	$/application	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Standpipe hire – security bond	$/standpipe	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Standpipe hire – annual fee	$/year	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Standpipe water usage fee	$/kL	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Major works inspection fee	$/request	N/A	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
Statement of available pressure and flow	$/request	N/A	$45.32	$44.38	$43.47	$42.59	$41.73	$41.73	$41.73	$41.73	$41.73	$41.73
Request for asset construction details	$/request	$60.56	$65.00	$65.00	$65.00	$65.00	$65.00	$65.00	$65.00	$65.00	$65.00	$65.00
Supply system diagram	$/request	$174.43	$187.22	$187.22	$187.22	$187.22	$187.22	$187.22	$187.22	$187.22	$187.22	$187.22
Building plan approval application	$/request	$20.70	$22.22	$22.22	$22.22	$22.22	$22.22	$22.22	$22.22	$22.22	$22.22	$22.22

		2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35
Asset adjustment application	$/request	$319.92	$343.37	$343.37	$343.37	$343.37	$343.37	$343.37	$343.37	$343.37	$343.37	$343.37
Water main fitting adjustment application	$/request	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
Water pump application	$/request	$162.65	$174.58	$174.58	$174.58	$174.58	$174.58	$174.58	$174.58	$174.58	$174.58	$174.58
Extended private service application	$/request	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
Wastewater connection installation application	$/request	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
Wastewater ventshaft relocation application	$/request	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
Disuse of wastewater pipe or structure	$/request	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
Stormwater connection approval application	$/request	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
Application for inspection of stormwater connection	$/request	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
Development requirements application	$/request	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil

		2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35
Development requirements – complying development	$/request	$234.65	$251.85	$251.85	$251.85	$251.85	$251.85	$251.85	$251.85	$251.85	$251.85	$251.85
Development requirements – other	$/request	$620.55	$666.03	$666.03	$666.03	$666.03	$666.03	$666.03	$666.03	$666.03	$666.03	$666.03
Road closure application (eDev)	$/request	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
Water and sewer extension application (eDev)	$/request	$620.55	$666.03	$666.03	$666.03	$666.03	$666.03	$666.03	$666.03	$666.03	$666.03	$666.03
Monthly meter reading request by customer	$/request	$14.12	$15.16	$15.16	$15.16	$15.16	$15.16	$15.16	$15.16	$15.16	$15.16	$15.16
Replacement of meter stolen/damaged by customer or customer's agent – replaced with smart meter – 20 mm	$/request	$231.93	$388.19	$388.19	$388.19	$388.19	$388.19	$388.19	$388.19	$388.19	$388.19	$388.19
Replacement of meter stolen/damaged by customer or customer's agent – replaced with smart meter 25 mm, 30 mm and 40 mm	$/request	$321.09	$512.51	$512.51	$512.51	$512.51	$512.51	$512.51	$512.51	$512.51	$512.51	$512.51
Integrated service connection application	$/request	$309.80	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

		2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35
Sydney Water hourly rate	$/hour	$176.80	$189.75	$189.75	$189.75	$189.75	$189.75	$189.75	$189.75	$189.75	$189.75	$189.75
Remote read meter (one-off fee) – 20mm	$/request	$257.64	$357.43	$357.43	$357.43	$357.43	$357.43	$357.43	$357.43	$357.43	$357.43	$357.43
Remote read meter (one-off fee) – 25mm	$/request	$271.46	$291.35	$291.35	$291.35	$291.35	$291.35	$291.35	$291.35	$291.35	$291.35	$291.35
Remote read meter (one-off fee) – 32mm, 40mm, 50mm light	$/request	$297.93	$319.77	$319.77	$319.77	$319.77	$319.77	$319.77	$319.77	$319.77	$319.77	$319.77
Remote read meter (one-off fee) – 50mm heavy, 80mm, 100mm	$/request	$522.66	$560.97	$560.97	$560.97	$560.97	$560.97	$560.97	$560.97	$560.97	$560.97	$560.97
Inaccessible meter fee	$/instance	$11.75	$12.61	$12.61	$12.61	$12.61	$12.61	$12.61	$12.61	$12.61	$12.61	$12.61

Table 11.18: Backflow prevention charges ($24-25)

	Units	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35
Backflow prevention device application and registration fee	$/application	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backflow prevention device annual administration fee	$/year	N/A	$45.32	$44.38	$43.47	$42.59	$41.73	$41.73	$41.73	$41.73	$41.73	$41.73
Backflow annual test	$/test	$274.69	$462.70	$462.70	$462.70	$462.70	$462.70	$462.70	$462.70	$462.70	$462.70	$462.70
Backflow annual test – no access charge	$/year	N/A	$361.11	$361.11	$361.11	$361.11	$361.11	$361.11	$361.11	$361.11	$361.11	$361.11

Table 11.19: Ancillary smart metering charges ($24-25)

	Units	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35
Smart meters for new connections – digital – 20 mm	$/meter	N/A	$289.45	$289.45	$289.45	$289.45	$289.45	$289.45	$289.45	$289.45	$289.45	$289.45
Workshop test of water meter (digital meter) – 20 mm, 25 mm and 32 mm meters	$/test	N/A	$352.59	$352.59	$352.59	$352.59	$352.59	$352.59	$352.59	$352.59	$352.59	$352.59
Workshop test of water meter (digital meter) – 40 mm meter	$/test	N/A	$406.40	$406.40	$406.40	$406.40	$406.40	$406.40	$406.40	$406.40	$406.40	$406.40
Smart meter – opt out, requires manual meter read	$/read	N/A	$9.01	$9.01	$9.01	$9.01	$9.01	$9.01	$9.01	$9.01	$9.01	$9.01
Smart meter – pulse splitter / double adapter installation	$/splitter	N/A	$586.94	$586.94	$586.94	$586.94	$586.94	$586.94	$586.94	$586.94	$586.94	$586.94

Table 11.20: Effluent disposal charges ($24-25)

	Units	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35
Interim Operating Procedure (IOP) charge	$/kL	NA	$22.65	$22.65	$22.65	$22.65	$22.65	$20.67	$20.67	$20.67	$20.67	$20.67

Late payments and declined payment fees (Section 12A)

Table 11.21: Late payments and declined payment fees ($24-25)

	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35
Dishonored fee charge	$16.80	$18.03	$18.03	$18.03	$18.03	$18.03	$18.03	$18.03	$18.03	$18.03	$18.03
Late payment fee	$5.57	$5.98	$5.98	$5.98	$5.98	$5.98	$5.98	$5.98	$5.98	$5.98	$5.98

Chapter 12 Indicative bill impacts

Cost-of-living impacts

Sydney Water is proposing this pricing submission within the broader context of cost-of-living challenges.

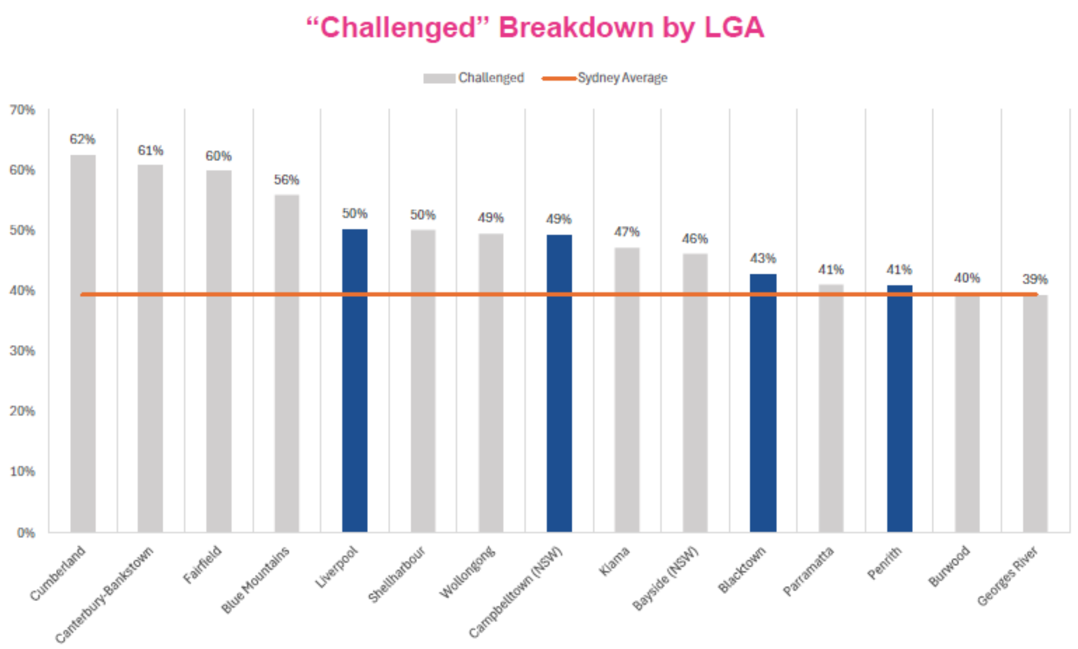
This analysis details the impacts these challenges are having on our diverse customer base, and how those who may be disproportionately affected will benefit from access to Sydney Water's proposed suite of rebates.

Who is currently disproportionally impacted?

Some customer cohorts may find paying their bills challenging even if their water consumption is lower, or may have less discretionary income (the total amount of money left over after paying all their bills) as a result of higher water bills.

We have quantified this state as being when a household's discretionary income is less than the Greater Sydney average. Using market-scanning methods, Sydney Water has established the following baseline of customers who are challenged within its area of operations, by local government area (LGA).

Figure 12.1: "Challenged" breakdown by LGA



How Sydney Water's prices affect renters

Sydney Water currently charges property owners for water and wastewater services, irrespective of whether the properties are owner-occupied or rented to tenants. Water bills comprise of two components: fixed service charges, and variable water usage charges that are based on water consumption.

Under the current legislative framework:

- A single bill is issued to the owner for individually metered properties.
- Where a property is individually metered and water-efficient fixtures are installed, a tenant may be requested to pay water usage upon receipt of that component of the bill from the landlord (under the NSW Residential Tenancies Act 2010).
- The owner/landlord, however, remains responsible for any unpaid charges, regardless of whether they are for the service or usage component of the bill.
- Where a property is serviced by a common meter (for example, in strata unit complexes), a service charge bill is issued to each individual unit owner, and a usage charge bill for the building's total water usage is issued to the owners' corporation in the building. The owners' corporation may, in turn, bill the individual owners for their share, or it may add the water costs to the strata levies.

We estimate that up to 40 per cent or 820,000 residential properties within our area of operation are currently tenanted. Around half (405,000) are managed by a managing agent. The remaining properties we have assumed are tenanted based on available data, where the bill's postal address does not match the property address. Of these 'tenanted' properties, around 48 per cent or 390,000 are individually metered.

Renters who pay the usage element of their water bill will pay the price increase shown below.

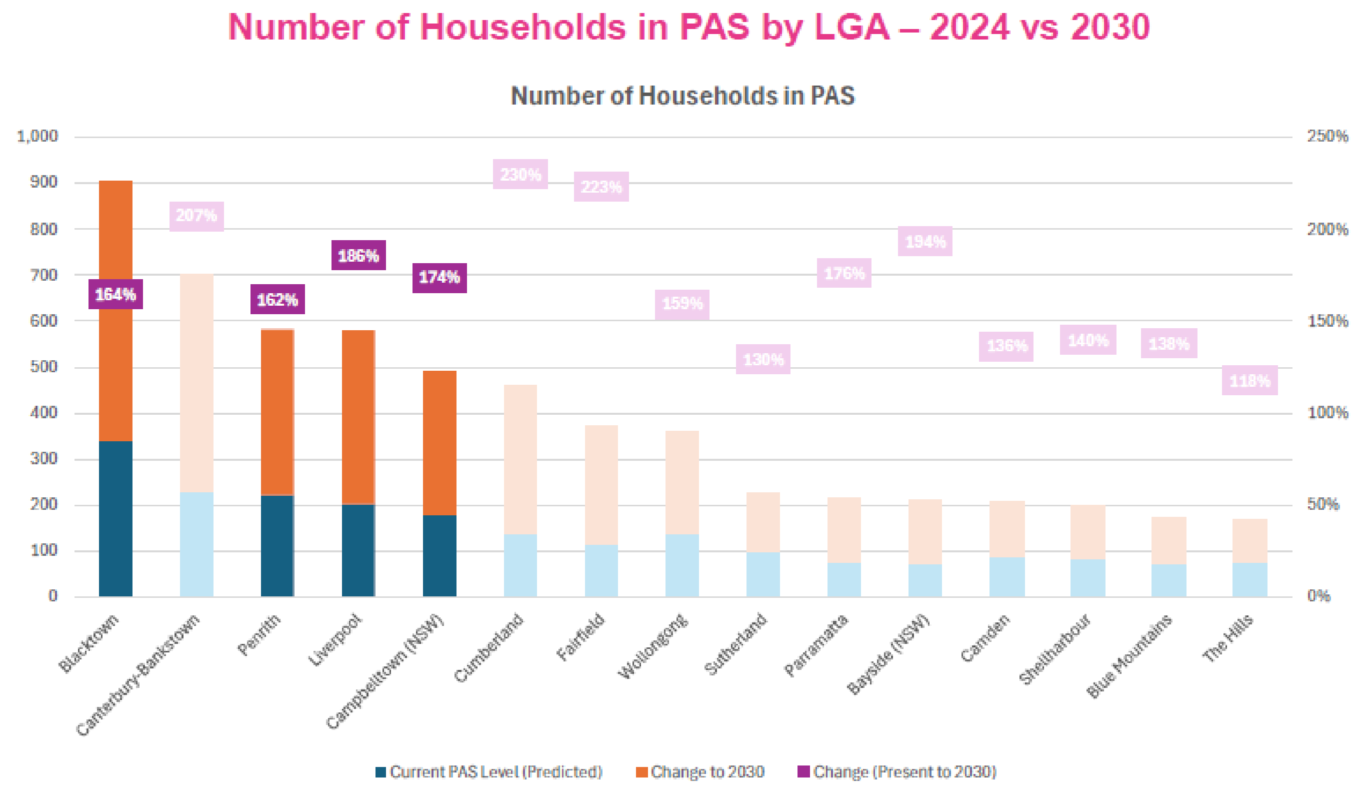
Table 12.1: Water usage charges ($24–25)

	Units	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
Water usage charge	$/kL	2.67	3.12	3.12	3.12	3.12	3.12
Drought uplift price	$/kL	0.94	0.66	0.66	0.66	0.66	0.66

How might this change under the proposed price path

We estimate that after the initial increase to customer bills, each LGA will have between 200 and 9,000 additional households whose discretionary income will drop below the Sydney average as a result of the proposed path depending on the impacted LGA. We also forecast that this will create an uplift in payment assistance of between 7–12 per cent.

Figure 12.2: Upper limit forecast of payment assistance uptake by LGA



Under Sydney Water's Community Service Obligation CSO Model, we will deliver financial assistance to this amount where we identify customers who are eligible for payment support, and will continue to support programs for such customers in the most affected LGAs.

The effectiveness of rebates

Sydney Water's suite of support services and programs will scale to reflect higher service and usage charges in response to the proposed prices.

Pensioner concessions will hold their value in real terms

We provide concessions on water, wastewater and stormwater drainage service charges to holders of a Centrelink Pensioner Concession Card and certain Department of Veterans' Affairs cards. Through this scheme, eligible pensioners (that is, home owner-occupiers) currently receive a rebate of 100 per cent on water, 86 per cent on wastewater and 50 per cent on stormwater service charges.

Our approach is to keep pensioner bills in line with non-pensioner bills. That is, at each price determination, pensioner bills will increase or decrease by a similar percentage to non-pensioner bills. This means the wastewater service charge rebate percentage for pensioners is adjusted to reflect the price changes. Subject to the final prices determined by IPART, we will adjust pensioner concessions so that pensioner bills are have parity with non-pensioner bills.

In 2023–24, around 220,000 pensioners received concessions, to the value of $125 million ($2023–24). Concessions are incorporated into our billing system so that recipients are only required to pay the net amount. Pensioner concessions are funded by the NSW Government as a Community Service Obligation.

We plan to scale the proposed pensioner concession rebate in line with the proposed bill increase. As a result, pensioners will receive similar bill reductions to their bills to those they currently receive under the concession.

Table 12.2: Value of an annual pensioner concession ($24–25)

	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
Water service charge ($)	67	85	141	202	268	338
Wastewater service charge ($)	532	628	640	651	662	680
Stormwater service charge ($)						
• House	44	52	60	70	80	93
• Unit/apartment	14	16	19	22	25	29

Payment Assistance Scheme

The Payment Assistance Scheme (PAS) is a longstanding initiative that aims to assist customers suffering acute financial hardship and provide emergency relief to customers struggling to pay their bill. For eligible customers, a credit is directly applied to their bill. This ensures they retain access to water and wastewater services.

We partner with over 100 community agencies to connect with vulnerable groups such as low-income earners, seniors, people from culturally and linguistically diverse backgrounds, people with a disability, people experiencing mental illness or other health issues, and families experiencing separation or family violence to administer the PAS.

Owner-occupiers who only own one home can receive credits of up to $300 a quarter (up to $1,200/year) towards service and usage charges on their bills. Private residential tenants can receive up to $150 each quarter (up to $600/year) to help pay for water usage charges. Customers with multiple properties are not eligible for payment assistance, but can still be managed by our Customer Care team. Social and community housing customers are not eligible.

In 2023–24, we provided 3,304 properties with $1.36 million in payment assistance, an average of $411 per household. Of these, 341 were private residential tenants, who received an average of $343 per household. Tenants accounted for around 10 per cent of households who received payment assistance, with the remainder being owner-occupiers. We anticipate the demand for payment assistance will continue to increase over the coming years.

For 2025–30, our PAS forecast will increase in line with the proposed price increase plus five per cent year-on-year growth in demand. We will also review our credit limits each quarter (and each year) in line with proposed price increases. The PAS is funded by the NSW Government as a Community Service Obligation.

Typical bill impacts

IPART's 2020 report on Sydney Water's prices considered the bill impacts on the customer segments show below. This analysis has been replicated under Sydney Water's proposed prices. We have also included in this analysis further information on the bill impacts for renters and property owners.

Almost all residential customers' bills include water services and wastewater services. About 25% also include stormwater services.

We have undertaken analysis of the customer base to assess affordability and bill impacts for various customers at different usage levels under our drought and non-drought water prices (tables D.1 through D.4). These show the estimated bill impacts for the above services, including discretionary expenditure, for several customer categories, including:

- House - small household – water usage 100 kL/year
- House – typical household – water usage 200 kL/year
- House – large household – water usage 300 kL/year
- Apartment – typical apartment – water usage 160 kL/year
- Pensioner – typical household – water usage 100 kL/year
- Industrial users – low usage (150 kL/year), medium usage (5,800 kL/year), high usage (26,000 kL/year)
- Commercial users – low usage (310 kL/year), medium usage (6,700 kL/year), high usage (21,000 kL/year)
- Public hospitals – medium usage (20,000 kL/year) and high usage (33,000 kL/year)
- Private schools – low usage (7,700 kL/year), medium usage (24,000 kL/year), high usage (35,000 kL/year)
- Commercial strata units – low usage (130 kL/year), medium usage (180 kL/year), high usage (2,100 kL/year)
- Industrial strata units – low usage (75 kL/year), medium usage (90 kL/year), high usage (32,000 kL/year).

We have also taken an estimated the value of a typical household's bill as a proportion of median household income in Sydney.

Residential bill impacts

Table 12.2: Residential owner-occupier water, wastewater and stormwater bill impacts ($25–26)

Household type	kL/year	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35
House – including stormwater – (small household)	100	$1,073	$1,269	$1,383	$1,505	$1,636	$1,778	$1,833	$1,890	$1,948	$2,008	$2,070
House – excluding stormwater – (small household)	100	$982	$1,162	$1,262	$1,369	$1,484	$1,606	$1,661	$1,718	$1,777	$1,837	$1,899
House – including stormwater – (typical household)	200	$1,348	$1,591	$1,704	$1,827	$1,958	$2,100	$2,155	$2,211	$2,270	$2,329	$2,391
House – excluding stormwater – (typical household)	200	$1,257	$1,484	$1,584	$1,691	$1,805	$1,928	$1,983	$2,040	$2,098	$2,159	$2,221
House – including stormwater – (large household)	300	$1,624	$1,913	$2,026	$2,148	$2,280	$2,421	$2,476	$2,533	$2,591	$2,651	$2,713
House – excluding stormwater – (large household)	300	$1,533	$1,805	$1,905	$2,012	$2,127	$2,249	$2,305	$2,362	$2,420	$2,480	$2,542
Pensioner household – including stormwater (typical)	100	$412	$488	$525	$566	$620	$670	$688	$696	$706	$715	$725
Pensioner household – excluding stormwater (typical)	100	$365	$435	$465	$498	$543	$584	$602	$611	$620	$630	$639
Apartment – including stormwater (typical)	160	$1,176	$1,388	$1,493	$1,604	$1,724	$1,853	$1,908	$1,965	$2,023	$2,083	$2,145
Apartment – excluding stormwater (typical)	160	$1,147	$1,355	$1,455	$1,562	$1,677	$1,799	$1,854	$1,911	$1,970	$2,030	$2,092

Table 12.3: Residential renter water, wastewater and stormwater bill impacts ($25–26)

Household type	kL/year	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35
House – including stormwater – (small household)	100	$275	$322	$322	$322	$322	$322	$322	$322	$322	$322	$322
House – excluding stormwater – (small household)	100	$275	$322	$322	$322	$322	$322	$322	$322	$322	$322	$322
House – including stormwater – (typical household)	200	$551	$643	$643	$643	$643	$643	$643	$643	$643	$643	$643
House – excluding stormwater – (typical household)	200	$551	$643	$643	$643	$643	$643	$643	$643	$643	$643	$643
House – including stormwater – (large household)	300	$826	$965	$965	$965	$965	$965	$965	$965	$965	$965	$965
House – excluding stormwater – (large household)	300	$826	$965	$965	$965	$965	$965	$965	$965	$965	$965	$965
Pensioner household – including stormwater (typical)	100	$275	$322	$322	$322	$322	$322	$322	$322	$322	$322	$322
Pensioner household – excluding stormwater (typical)	100	$275	$322	$322	$322	$322	$322	$322	$322	$322	$322	$322
Apartment – including stormwater (typical)	160	$440	$515	$515	$515	$515	$515	$515	$515	$515	$515	$515
Apartment – excluding stormwater (typical)	160	$440	$515	$515	$515	$515	$515	$515	$515	$515	$515	$515

Table 12.4: Residential property owner water, typical wastewater and stormwater bills ($25–26)[153]

Household type	kL/year	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35
House – including stormwater – (small household)	100	$798	$948	$1,061	$1,183	$1,315	$1,456	$1,511	$1,568	$1,626	$1,686	$1,748
House – excluding stormwater – (small household)	100	$707	$840	$940	$1,047	$1,162	$1,284	$1,340	$1,396	$1,455	$1,515	$1,577
House – including stormwater – (typical household)	200	$798	$948	$1,061	$1,183	$1,315	$1,456	$1,511	$1,568	$1,626	$1,686	$1,748
House – excluding stormwater – (typical household)	200	$707	$840	$940	$1,047	$1,162	$1,284	$1,340	$1,396	$1,455	$1,515	$1,577
House – including stormwater – (large household)	300	$798	$948	$1,061	$1,183	$1,315	$1,456	$1,511	$1,568	$1,626	$1,686	$1,748
House – excluding stormwater – (large household)	300	$707	$840	$940	$1,047	$1,162	$1,284	$1,340	$1,396	$1,455	$1,515	$1,577
Pensioner household – including stormwater (typical)[60]	100	$136	$167	$203	$244	$298	$348	$366	$375	$384	$393	$403
Pensioner household – excluding stormwater (typical)[154]	100	$89	$113	$143	$176	$221	$262	$280	$289	$298	$308	$318
Apartment – including stormwater (typical)	160	$736	$874	$978	$1,090	$1,210	$1,338	$1,393	$1,450	$1,508	$1,569	$1,631
Apartment – excluding stormwater (typical)	160	$707	$840	$940	$1,047	$1,162	$1,284	$1,340	$1,396	$1,455	$1,515	$1,577

[153] Property owner bills are calculated as the residual between a typical owner occupier bill and the water usage element paid by a properties tenant.

[154] Note that Pensioners who rent their property may not be eligible for pensioner concessions used in this calculation

Non-residential bill impacts

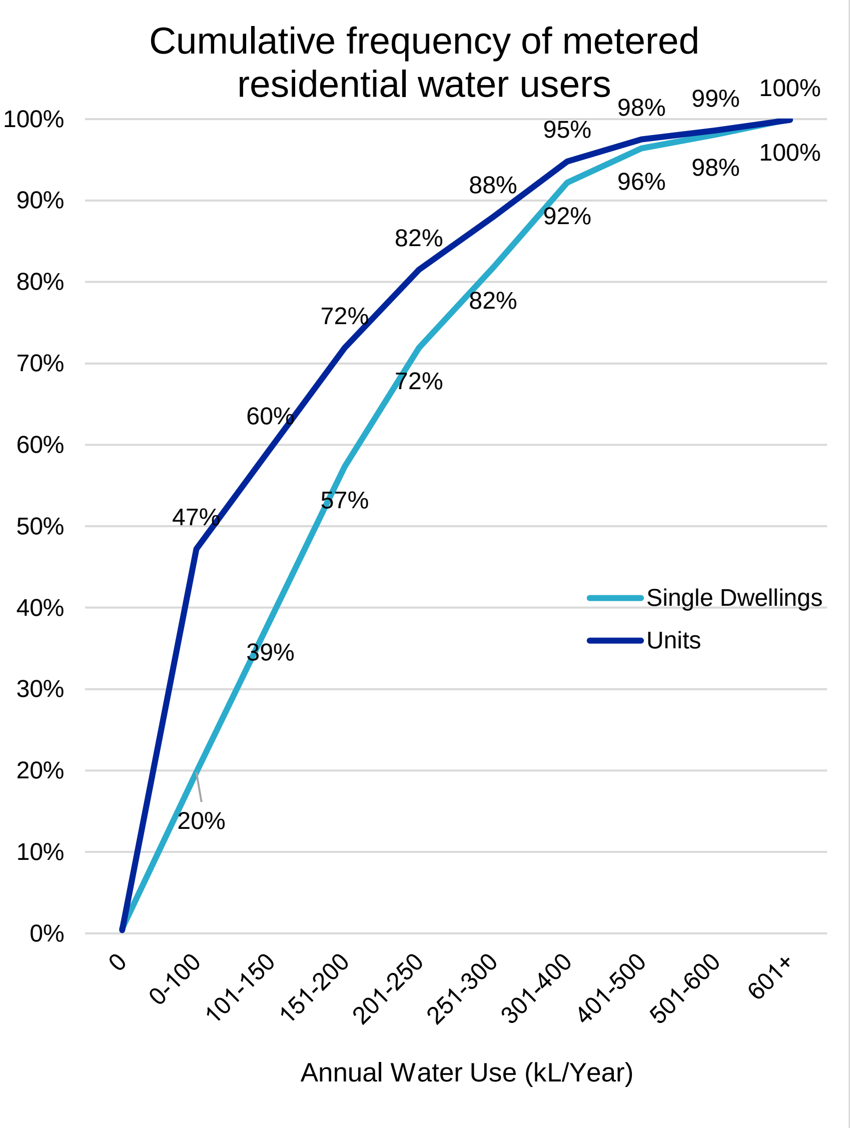
Table 12.5: Non-residential bill impacts – typical annual water and wastewater bills ($25–26)

Household type	kL/year	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35
Industrial – low	150	$1,122	$1,333	$1,437	$1,549	$1,667	$1,795	$1,853	$1,912	$1,974	$2,037	$2,103
Industrial – medium	5800	$24,259	$27,695	$28,100	$28,533	$28,996	$29,491	$29,715	$29,946	$30,184	$30,428	$30,680
Industrial – high	26,000	$104,123	$118,986	$120,533	$122,189	$123,960	$125,856	$126,702	$127,573	$128,469	$129,391	$130,339
Commercial – low	310	$1,756	$2,050	$2,155	$2,267	$2,386	$2,514	$2,572	$2,633	$2,695	$2,758	$2,824
Commercial – medium	6700	$29,499	$33,739	$34,389	$35,084	$35,827	$36,621	$36,984	$37,358	$37,743	$38,139	$38,546
Commercial – high	21,000	$90,534	$103,338	$105,002	$106,780	$108,682	$110,715	$111,645	$112,602	$113,586	$114,600	$115,644
Public hospital – medium	20,000	$89,233	$101,762	$103,489	$105,334	$107,306	$109,413	$110,387	$111,391	$112,423	$113,487	$114,581
Public hospital – high	33,000	$146,428	$166,897	$169,595	$172,478	$175,558	$178,851	$180,374	$181,941	$183,555	$185,216	$186,926
Private school – low	7,700	$33,689	$38,461	$39,118	$39,820	$40,571	$41,373	$41,742	$42,120	$42,511	$42,912	$43,325
Private school – medium	24,000	$103,525	$117,953	$119,643	$121,451	$123,382	$125,447	$126,396	$127,373	$128,378	$129,413	$130,478
Private school – high	35,000	$150,630	$171,796	$174,410	$177,204	$180,191	$183,384	$184,847	$186,353	$187,902	$189,497	$191,139
Commercial strata unit – low	130	$1,029	$1,227	$1,330	$1,440	$1,558	$1,683	$1,741	$1,800	$1,860	$1,923	$1,987
Commercial strata unit – medium	180	$1,529	$1,830	$1,992	$2,164	$2,349	$2,547	$2,637	$2,730	$2,825	$2,923	$3,025

Household type	kL/year	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35
Commercial strata unit – high	2100	$10,654	$12,301	$12,730	$13,189	$13,680	$14,204	$14,446	$14,695	$14,952	$15,216	$15,487
Industrial strata unit – low	75	$816	$986	$1,089	$1,199	$1,317	$1,443	$1,500	$1,559	$1,620	$1,682	$1,746
Industrial strata unit – medium	90	$1,169	$1,422	$1,583	$1,755	$1,938	$2,135	$2,224	$2,317	$2,411	$2,509	$2,610
Industrial strata unit – high	32,000	$121,937	$138,655	$139,259	$139,906	$140,598	$141,338	$141,669	$142,009	$142,359	$142,719	$143,090

How representative are these profiles of the community?

Figure 12.3: Cumulative frequency of metered residential water users (kL/year)



Every customer gets a different bill, based on how much water they used in the latest quarter. As a result, bill impacts are higher for customers who use more water use that for those who use less.

Typical water use is different for detached dwellings and units due the amount of outdoor water use. As a result, customers who live in units tend to use less water on average, and receive lower bills.

How does this link to our personas?

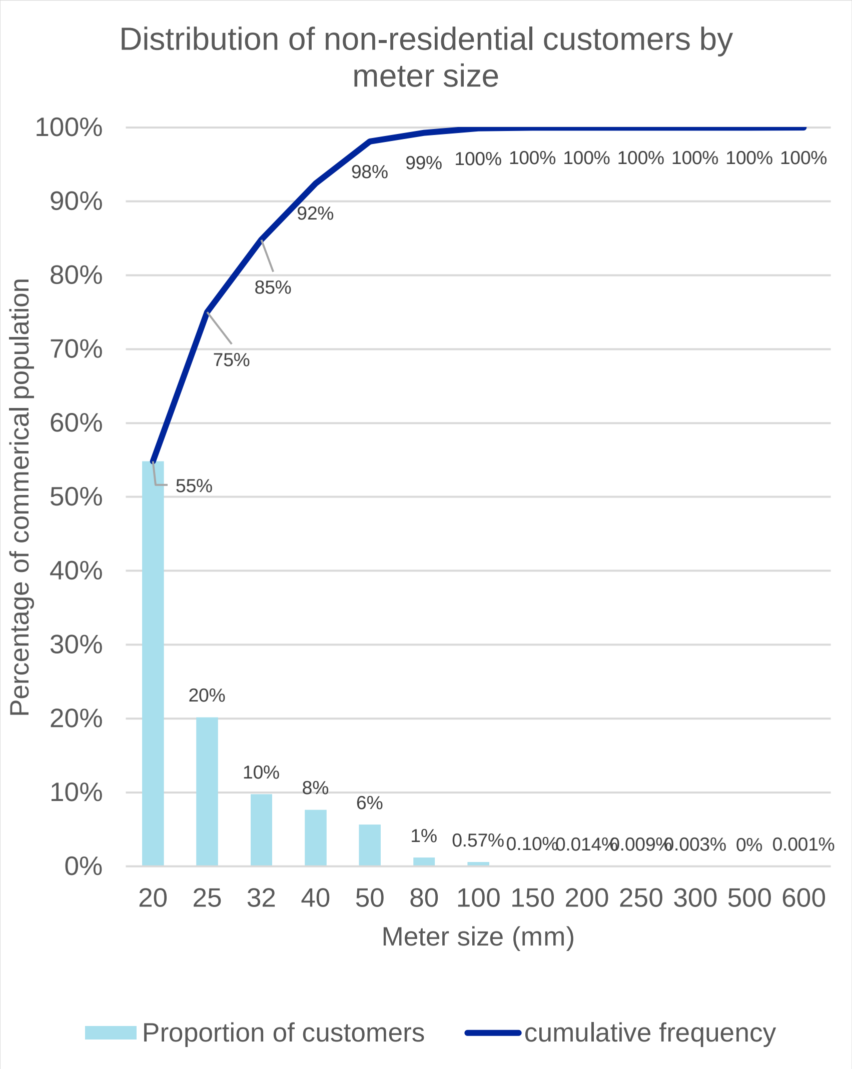
The personas from **Chapter 12** broadly cover the typical range of water and wastewater bills and show the bill impacts that 95 per cent of residential customers might expect under the proposed prices.

Table 12.6: Customer personas

Rose uses 100 kL per year (but gets a pensioner rebate) Tim and Wendy use 100 kL	~45% of customers use less than Rose, Tim and Wendy
John and Kerry use 160 kL	~60% of customers use less than John and Kerry
Tiffany and Ed use 200 kL	~72% of customers use less than Tiffany and Ed
The Bailey family uses 400 kL	~95% of customers use less than the Bailey family

How representative are these profiles of non-residential customers?

Figure 12.4: Distribution of non-residential customers by meter size (XX/XX)



Compared to residential customers, commercial and industrial customers tend to be impacted more by the fixed service charge on their bills, due to their larger meter size.

While the highest proposed service charges for commercial customers has a high upper limit, 98% of commercial customers should expect to pay fixed charges less than or equal to $5,798/year for wastewater services and $2,115/year for water services by 2029–30 ($25-26).