Attachment E: Additional detail on drivers of investment

In this attachment, we provide additional detail about the specific drivers and proposed investments for the upcoming pricing period.

For clarity, in describing the operating expenditure required for proposed investments, we only include proposed step changes. That is, other operating expenditure required to deliver or operate and maintain investments after completion is assumed to be covered by the growth trend factor and are not highlighted here.

Water security

Chapter 3 and Appendix D of our pricing proposal explain how a resilient water supply is essential for our customers and community. We presented the investment drivers and system performance for water security and the prioritised actions we propose to deliver from the Lower Hunter Water Security Plan (LHWSP) in the upcoming pricing period:

- source augmentation with the delivery of Belmont desalination plant
- increased investment in water conservation (water efficiency)
- increased investment in leakage reduction (referred to here as non-revenue water)

Chapters 1, 2, 4 and 5 of our pricing proposal discusses our community engagement and our Community Panel's recommendations about how much to invest in water efficiency and leakage reduction.

Source Augmentation

The Belmont desalination plant will help secure our region's water supply for generations to come as we face increasing climate variability and change. It will:

- reduce our reliance on rainfall, increasing our enduring supply to 60 ML per day
- reduce the chance we run out of water
- crucially, provide us more time to respond in a drought by slowing our rate of depletion.

Given the extent of supply shortfall and pace our system depletes, demand management and recycling remain important, but are not enough to protect us against drought.

We are futureproofing this investment by making the site resilient to climate change, and ensuring we can later expand the capacity of the plant – either as a response to drought, or to increase supply as our community grows.

Proposed investment

Investments	Proposed capex (2025-30)	Proposed opex (2025-30)	Explanation
Belmont desalination	$460 million (nominal)	$3.5 million step change	Design and construct the Belmont desalination plant to provide a 30 ML/day climate independent supply.

The project has progressed through design and early site works. Infrastructure NSW has undertaken independent review and assurance, it was considered and approved by the NSW Government in June 2024, and the contract to construct the plant awarded in October 2024, providing credibility to our proposal that we can deliver the investment by 2028.

Water conservation including non-revenue water

We expect our population to increase by around 170,000 people over the next 20 years and our climate is changing. When planning, we need to balance the demand for water with the available supply. Decreasing our water consumption can help reduce the amount the region needs to invest in new drinking water sources, reducing the likelihood of water restrictions and other drought response actions while preserving this precious resource.

Our approach to water conservation aims to manage water demand sustainably and effectively in a manner that responds to the expectations of our community and regulators.

Drivers of investment

The LHWSP explored a range of ways to reduce demand and increase supply to ensure that we have enough water to meet the community's needs over time. During development of the LHWSP, our community expressed high levels of support for water conservation including both drinking water and leakage reduction. This had the highest level of support out of all the included actions.

Our Operating Licence includes a requirement that we develop and implement a five-year Water Conservation Plan. The Plan must address leakage, drinking water reduction, and recycled water options across our water supply (from the dam to the customer), be consistent with the NSW Government Water Efficiency Framework and consider the strategic context provided by the LHWSP.

Projects and programs within the plan should, where practical, should be assessed against the Economic Level of Water Conservation (ELWC) and be consistent with any written guidance that the Minister provides to us.

Informed by our community and stakeholders, the LHWSP set ambitious water conservation targets that require investment above the level supported by the ELWC methodology. Given the costs involved, we retested this with our Community Panel to inform our pricing proposal. We describe our community's recommendations about water conservation, and the outcomes and capital and operating expenditure we propose in chapters 1, 2, 4 and 5.

Proposed investment

Investments	Proposed Capex (2025-30)	Proposed opex (2025-30)	Explanation
Water conservation (drinking water reduction only)	-	$5.5 million step change ($12.5 million total)	Examples programs and projects include the find and fix leaks program, water efficiency management plans for industry, and essential plumbing assistance for residential customers. Also includes funding to support our community engagement and education campaigns.
Non-revenue water	$20 million	$2.5 million step change	Includes initiatives to increase district metering to identify leaks and repair them as early as possible, pressure management to reduce leaks caused by high pressure, and active leak detection to identify hidden leaks in the network.

How we will manage risks during the upcoming pricing period

We will continue to engage with our residential and non-residential customers to understand expectations and performance. We will also continue to monitor our network performance to identify and repair leaks as soon as possible.

High quality water services: Clean, safe water

Water Quality

We provide clean, safe drinking water to over 600,000 people within the Lower Hunter. We source our water from the Paterson, Allyn, Chichester, Wangat and Williams River catchments, and the Tomago and Tomaree aquifers. We store, extract, and treat the water at our Dungog, Gresford, Grahamstown, Lemon Tree Passage, Nelson Bay and Anna Bay water treatment plants (WTPs).

Drivers of investment

Safe drinking water is essential to sustain life. Therefore, we must make every effort to ensure that we provide consumers with water that is safe to use.

Our 2022-2027 Operating Licence requires us to maintain and implement a *Drinking Water Quality Management System* that is consistent with the *Australian Drinking Water Guidelines* and implemented to the reasonable satisfaction of NSW Health.

Our historical compliance over the past 10 years for the drinking water quality management has consistently met the national standards which demonstrates a high level of water quality.

However, our primary supply system (the Williams River catchment and Grahamstown and Chichester dams) is experiencing a long-term decline in raw water quality. Catchment modelling indicates that agricultural and urbanised land uses are key contributors to nutrient and sediment loads in the catchment.

Additionally, several current and emerging issues present challenges to our WTPs and therefore our ability to meet customer demand for the supply of safe drinking water. These include:

- Increasing focus on emerging contaminants in the drinking water catchment, including PFAS contamination in parts of the Tomago Sandbeds near RAAF Base Williamtown.
- The occurrence of major algal events which represent a risk to water quality and/or capacity including an unprecedented potentially toxic cyanobacterial bloom (*Dolichospermum*) event in Grahamstown Dam in 2018, and filter blocking algae and potentially toxic cyanobacterial bloom (*Microcystis*) in Chichester Dam in 2019 and 2020.
- Detrimental impacts of large rainfall events on water quality. More extreme dry periods and storm events can also contribute to deterioration in raw water quality, both of which we can expect to see more of with a changing climate.
- Introduction of microbial health-based targets into the drinking water guidelines and quantitative assessment of treatment barriers commensurate with the catchment risks, which is driving investment in additional treatment barriers at WTPs.
- Emerging complex catchment management issues such as recreation and water quality in Seaham Weir Pool and inundation in the urbanised Campvale/Medowie catchment.

We constructed our primary WTPs between 30 to 50 years ago and have assets which are ageing and require replacement. Should either raw water quality events or asset failures occur, the treatment plants may not be able to meet customer demand for clean, safe drinking water for an extended period of time.

Treated drinking water is distributed to consumers via a network of 73 in-service water storage reservoirs, 98 water pumping stations and over 5,000 kilometres of watermains. Chlorine added to the water for disinfection at the WTPs decays over time, requiring boosting throughout the network using a combination of automated re-chlorinators and manual chlorine tablet dosing of reservoirs.

Reservoirs require ongoing inspection and maintenance to ensure they are vermin-proof, roofing is intact, and accumulated sediment is regularly removed. Many of our older reservoirs require investment to meet current standards for reservoir integrity. Augmentations to the capacity of the network can also result in some older reservoirs storing water for lengthy periods with no turnover, causing the water to become stale, unpalatable, and lacking sufficient chlorine residual for disinfection. We can potentially eliminate such reservoirs by upgrading and reconfiguring the network.

Our strong performance is demonstrated by stringent water quality monitoring, high compliance and excellent external peer reviews. Our ongoing goal is to continue to supply clean, safe water to our customers by managing and mitigating drinking water catchment risks, the impacts of weather and a changing climate, and ageing assets.

The major focus areas for 2025-30 are upgrades at our largest water treatment facility, Grahamstown WTP, investing in improvements within the Williams River catchment, improving the integrity of our water network, and water treatment asset renewals.

Proposed investment

Investments	Proposed capex (2025-30)	Proposed opex (2025-30)	Explanation
Grahamstown WTP upgrade	$106 million	-	Address major asset ageing and deterioration including the replacement of filters, chlorination and backwash systems, and upgrading clear water tank capacity to increase our capability to manage algal and other water quality events.
Catchment management	$9 million	$2.9 million step change	Improvement of the Williams River drinking water catchment through delivering the Seaham weir pool riverbank rehabilitation project and implementation of broader catchment management initiatives.
Water treatment upgrades	$3 million	-	Minor upgrades to the smaller regional WTPs.
Water network quality upgrades	$6 million	-	Improvements to the water distribution system to improve disinfection performance and ensure a protected distribution system.
Treatment plant asset renewals	$23 million	-	Undertake progressive minor refurbishments, and asset condition assessments. We will target investment at areas of highest risk.

How we will manage risks during the upcoming pricing period

We understand that safe drinking water is essential for our community, and we have rigorous processes included in our Drinking Water Quality Management System which complies with the Australian Drinking Water Guidelines to the satisfaction of NSW Health. We are undertaking investigations and research into key emerging water quality risks, so we are prepared to implement the most prudent and cost-efficient solutions.

Specific activities to manage these identified risks are:

- regular catchment and raw water quality monitoring
- continuous water quality monitoring of our critical control points
- annual water quality compliance audits.

High quality water services: Reliable water services

Providing reliable water services is a fundamental expectation of customers. It requires augmenting our water systems to service growth and maintaining and renewing our water network assets to ensure continuity of supply.

Water Capacity

The water network is pressurised to provide adequate supply to customers when they turn on their taps in all demand periods (including hot, dry peak periods). Customers receive water at different pressures due to a range of factors including property elevation, reservoir height, network friction losses and network configuration.

We are responsible for providing water network capacity, so our customers have adequate supply (measured by adequate pressure) to meet their demand. This capacity allows for growth in regional development and provides the community with water supply for urban firefighting.

Drivers of investment

Our 2022-2027 Operating Licence requires us to meet a defined system performance standard being:

Hunter Water must ensure that, in each financial year, at least 9,817 per 10,000 properties receive drinking water that is not affected by a water pressure failure.

While the region continues to grow, we have demonstrated excellent customer performance in accordance with the Operating Licence standard shown above. Weather conditions influence our performance, with increased demand during hot dry summers, which reduces pressures our customers experience.

As new properties connect to the network, the increased demand can exceed existing capacity, which leads to deteriorating water pressure for existing customers and impacts the available capacity for urban firefighting. Without investment, service performance is at risk.

In addition, we acknowledge that the single Operating Licence target is narrow, and does not consider the composition or extent of the customer pressure failures, for example:

- lower than standard pressure can result in some customers receiving persistently low water pressure that does not meet their expectations
- higher than standard pressure can result in some customers incurring internal equipment failures and Hunter Water incurring higher watermain leaks and breaks.

While we meet our Operating Licence targets, some of our customers often experience lower water pressure. This can include:

- water pressure slightly below 20 metres, on a few occasions, for short periods, when demand is high, and / or
- water pressure much lower than 20 metres, on numerous occasions, for long periods of time, when during is high

A small number of our customers are severely impacted, continuously, during high demand periods, and in extreme cases, throughout the entire year.

Affected customers may continue to receive a sub-standard service on an ongoing basis for several years, or indefinitely. Anecdotally, and supported by complaint evidence, these customers are likely to have a poor experience and low satisfaction.

Water network capacity

We monitor the growth in development across the region, and while some growth precincts are located within areas that have sufficient water network capacity (for example, Thornton-Chisholm, Cliftleigh-Gillieston Heights, Fletcher and Newcastle City), other areas require network upgrades to provide increased water supply to the new developments (for example, Cameron Park, Huntlee, Cessnock and Cooranbong-Wyee).

The proposed water capacity upgrades are required to either directly service these growth precincts, or upgrade our water trunk network, to maintain adequate supply to existing customers while servicing the growth areas. We optimally schedule proposed investments through routine growth assessments and monitoring of our actual system performance to ensure we remain within our Operating Licence requirement. At times additional customers may receive infrequent low pressure, but we remain compliant with the required system performance standard.

Firefighting capacity

Our water network provides access to water for community and fire brigades to extinguish urban residential or commercial fires. As the network has historically been developed with varying standards, there are areas without sufficient capacity to meet current community expectations and firefighting standards. We are progressively upgrading our network to improve the community service in targeted and prioritised locations.

Consistent with the Operating Licence requirements, we have a Memorandum of Understanding with Fire and Rescue NSW which clarifies firefighting regulatory expectations.

Improving pressure for repeatedly or severely affected customers (hotspots)

In Chapter 1, 2, 4 and 5 of our pricing proposal, we explain that a small number of our customers receive persistently poor water supply service (water pressure), as well as the Community Panel's recommendations to improve service for these customers.

Proposed investment

Investments	Proposed capex (2025-30)	Proposed opex (2025-30)	Explanation
Water network capacity program	$29 million	-	Upgrade the water network capacity to service growth in development and provide water to existing and new customers. We optimally schedule the proposed investments through routine growth assessments and monitoring of our actual system performance.
Developer infrastructure	$41 million	-	Investment in new green field development lead-in and lead-out infrastructure including pipelines and pump stations.
Firefighting capacity program	$8 million	-	Upgrade the older areas of the water network to increase firefighting capacity to meet current standards and community expectations.
Customer service performance improvement (hotspots)	$18 million	$0.3 million step change	Upgrade those local areas of the water network where customers receive persistent inadequate water service (pressures), consistent with the community engagement recommendations.

How we will manage risks during the upcoming pricing period

We review our system performance (at least annually and through the summer period) and continue to closely monitor population and connection growth in development locations, to confirm the optimal timing of upgrades.

As our water conservation and our leakage programs continue to reduce water use and network losses, this supply reduction will increase available capacity for growth. Therefore, we will annually review and consider the benefits achieved through water conservation and leakage reduction on our customer demands and system performance.

Water Continuity (reliability)

We aim to ensure continued water supply to meet customer expectations by minimising unplanned supply interruptions resulting from asset failures (pipes, pump stations and reservoirs).

We own and operate over 5,300 km of watermains, 73 reservoirs, more than 50,000 hydrants, approximately 50,000 valves and nearly 100 water pump stations (WPS). The assets have varying age, condition, performance and risk profiles, and require active management to continue meeting our operating, regulatory and business needs.

Drivers of investment

Minimum performance standards are mandated in the Customer Contract and Operating Licence which requires us to meet a defined system performance standard:

Hunter Water must ensure that, in each financial year, at least 9,619 per 10,000 properties receive a drinking water supply service unaffected by an unplanned water interruption.

Major network outages (greater than 10,000 properties) would result in failing our performance standard, but also have significant impact on the health and lives of our customers and community, particularly if they last for extended periods of time.

There are also broader customer and community expectations associated with persistent interruptions, traffic and flooding impacts, impact on vulnerable customers and discharges of chlorinated water to the environment that we need to manage or prevent.

While we implement effective monitoring and condition assessment practices, these pipes and assets are mainly below ground and therefore it is difficult to confirm when they will fail. This uncertainty means asset knowledge is imperfect, and we need to rely on engineering judgement and operational experience to guide when to proactively invest to prevent failures.

To improve our knowledge and decision confidence, we participate in industry research around pipe corrosion, failures and condition assessments and we are investigating new equipment monitoring to help understand the unseen.

To maintain reliable supply to our customers within the Operating Licence requirements, we implement a combination of the most effective and lower cost solutions across maintenance, operational controls, real time system monitoring and asset replacements considering the potential number of our customers impacted and duration of outages should asset failures occur.

In Appendix C, we show our service performance in the current pricing period. While we have historically performed well to our required performance standards with only the occasional exceedance, our network is vulnerable to:

- Catastrophic failures of our bulk water supply which can interrupt supply for large regions and extended durations.
- Trunk main bursts which can have repeat impact on the same suburbs, impact major traffic corridors, flood residential and commercial properties, and impact vulnerable customers. These bursts can be remote to access resulting in extended isolation and repairs which can result in breaching our performance standards through a single event.
- Reservoir and pump station asset deterioration which can result in potential asset collapse putting our community and workers at risk, or extended water supply interruptions.
- Small suburban watermain failures that can be isolated and repaired through maintenance; and when the frequency of failures increase within clusters it is more cost effective to replace rather than continue to maintain and incur the repeated customer disruption and higher costs – optimising such replacements is an example of making informed capex/opex trade-offs.

Chichester trunk gravity main

The Chichester trunk gravity main (CTGM) is an essential component of our water supply system. We describe this project in Chapter 3 of our pricing proposal.

While the pipeline has received extensive maintenance and repairs over its 100-year life, the pipeline condition has deteriorated to a point where major renewals are required. This has been confirmed through site specific condition assessment and structural analysis.

Should this watermain fail catastrophically, in summer, approximately 45,000 connections would be without water supply for between one to two weeks, dependent on the location of the break, access and availability of materials and construction crews. Due to the severe community consequences and deteriorating asset condition, we have undertaken detailed upgrade assessments which considered rehabilitation and relining; however, we still need to plan on replacing the pipeline due to site and operational limitations.

After evaluating the significant investment required to replace the whole remaining pipeline section, we identified an opportunity to stage the replacement. We will prioritise the most vulnerable section, with the remaining section planned to be replaced between 2030-35. This is consistent with the progressive replacement of the other lead-jointed sections which has occurred over the past 20 years.

Trunkmain program

We have over 500km of water trunkmains that deliver water from our treatment plants to our suburbs. These pipelines vary in age from 100 years to recently constructed, vary in material from historical cast iron to modern steel and plastics, and vary in performance due to the ground conditions, pressure experienced, and corrosion incurred.

While our trunk system operates well for a high proportion of any year, we still experience between 30-40 trunkmain failures per year. While most of these failures are localised or easily repaired, a small number burst and have localised impacts to the community (traffic, flooding and critical customer impacts), or can significantly impact the broader regional supply resulting in major water outages.

We have undertaken a risk review of our network which considers actual performance, asset condition, community and customer consequences and identified those pipelines which are the highest vulnerability requiring replacement. The vulnerability is a combination of catastrophic failures impacting thousands of our customers or repeat failures impacting local communities or incurring excessive maintenance costs.

In addition to asset failures, we have a betterment agreement with local government and Transport for NSW, where we share costs for relocating pipelines out of road pavements to prevent road works impacting our pipelines, and from pipeline leaks impacting the road pavement.

Reservoir and pump station program

We own, operate and maintain 73 reservoirs and high-level tanks and nearly 100 water pump stations. These assets are essential to boost water supply over the hills from Tomago to our network outskirts of Branxton, Cessnock, Wyee, Swansea, and Nelson Bay. The reservoirs are also essential to provide emergency supply when assets fail and there is insufficient time for maintenance to occur.

Our facilities have been constructed throughout the last 100 years and, as with any structural or mechanical equipment, these corrode and deteriorate and require rehabilitation and renewal over time. Reservoir deterioration can result in potential asset collapse, putting our community and workers at risk, and can create extended water supply interruptions.

While we routinely undertake maintenance and refurbishment to maintain these facilities such as remediation works of fences, coating, inlet/outlet valves, access roads, roof and its supporting structures, we also undertake regular condition assessments to determine when further substantial works are required.

As these assets are important for both water supply and water quality, and for our worker safety, we have identified a targeted investments for major replacements required to keep them safe and in service.

Water network asset renewals

We have thousands of pipelines, valves and hydrants of varying ages, condition and locations, which individually are low cost to repair or replace, however due to the large quantity cumulate to a larger quantum of work and investment.

These assets do not collectively have a large impact on the system performance standards nor broader community impacts, but they can impact localised customers if repeat failures occur over a two-to-four-year period. This can result in increased maintenance costs over time if these failure clusters are not replaced.

To manage these customer impacts and financial risks, we replace these assets based on lowest costs, which has resulted in good long-term performance. This is being further improved through smart analytics (genetic algorithms and machine learning) to optimise future performance.

Proposed investment

Investments	Proposed capex (2025-30)	Proposed opex (2025-30)	Explanation
Chichester trunk gravity main replacement	$56 million	-	Replace the pipeline that provides 90 ML/day through the bulk water supply system to up to 60,000 customers. It has deteriorated and can no longer be maintained without the risk of a major failure.
Trunkmain program	$39 million	-	Upgrade the larger pipelines that have corroded or have historically failed causing disruption and impacting continuity of supply to customers.
Reservoir and pump station program	$35 million	-	Replace or rehabilitate corroded or deteriorated reservoirs and pump stations, to ensure our workers remain safe and we can maintain water supply to our customers.
Water network asset renewals	$59 million	-	Undertake progressive minor refurbishments or replacements, and asset condition assessments. We will target investments at areas of highest risk

How we will manage risks during the upcoming pricing period

For the CTGM we will

- continue to have daily and weekly inspections
- undertake maintenance if we identify leaks or issues
- prepare the design for the entire pipeline replacement to ensure we could respond quickly if the pipeline planned to be completed between 2030-35 deteriorates earlier than planned
- update our contingency plans.

For the remaining investment programs, we will monitor asset and system performance through SCADA, operational controls, and asset condition. Should we identify new insights that increase risk or identify new risks, we will adapt the program to ensure we resolve the highest risks as a priority. We will also investigate innovative solutions including predictive analyses, smart monitoring, new pipeline liners and maintenance activities.

Environmentally sustainable

We provide environmentally sustainable wastewater services to our customers by maintaining and upgrading our wastewater systems and plants to provide reliable, safe and compliant services, increase resource recovery, and contribute to improving waterways and liveability outcomes.

Wastewater network capacity (wet weather overflows)

We have a wastewater service obligation that involves safely and reliably transporting sewage from residential and non-residential customers to wastewater treatment plants (WWTP) to protect the environment and human health.

We are responsible for providing wastewater network capacity so that all existing and new customers can discharge into our system without exceeding capacity and creating wastewater overflows to the environment.

The wastewater network, while separate from the stormwater system, is vulnerable to leaks and cracks in the pipes and illegal or unintentional connections from the stormwater system. This can allow rainfall into the wastewater network using the available capacity and resulting in diluted wet weather overflows on or within customer properties, or to the environment.

Drivers of investment

The wastewater system, which includes wastewater treatment plants and our wastewater network, is covered by Environment Protection Licences (EPLs) administered by the NSW Environment Protection Authority (EPA).

The EPLs require practical measures to be taken to protect the environment and public health, and to minimise the frequency and volume of overflows from the wastewater system. We must also comply with Section 120 of the *Protection of the Environment Operations Act 1997*, which prohibits pollution of waters.

The EPLs include operating conditions applicable for the entire wastewater system which require that:

- licenced activities are carried out in a competent manner
- all plant and equipment are maintained and operated in a proper and efficient condition and manner
- any extension to the reticulation system (e.g. servicing growth) is planned, designed, constructed and installed to prevent, as far as practicable, discharges from the network
- additional directed overflow structures must not be constructed unless they are essential for the proper and efficient operation of the system
- no discharges in dry weather from any sewerage pumping stations or directed overflow structures are permitted
- reporting of incidents causing or threatening material environmental harm.

In addition, we have assessed customer wastewater experiences and identified that a small number of our customers experience persistent wastewater overflows during rain events that can prevent them from flushing toilets, using sinks; or that result in overflows in their yards, under their house, and even inside houses in extreme cases.

Wastewater network upgrades

We monitor both the growth in new connections across the region and the wet weather performance of the wastewater network and either:

- provide new or upgraded capacity to enable new development, or

- assess the wastewater network wet weather performance for the volume of rainwater inflowing or infiltrating our network, the exceedance of capacity and the associated environmental or public health impact should wastewater overflows occur. Then we prioritise network upgrades and investment to deliver the highest community and environmental benefits.

Reducing wet weather overflows for repeatedly or severely affected customers (hotspots)

In Chapter 1, 2, 4 and 5 of our pricing proposal, we discuss the issue of a small number of customers receiving persistent wet weather overflows on their properties, and our Community Panel's recommendations and willingness to pay to improve service for these customers.

Proposed investment

Investments	Proposed capex (2025-30)	Proposed opex (2025-30)	Explanation
Wastewater network upgrades	$28 million	-	Upgrade the wastewater network capacity to service growth in development and ensure the high-risk environments or public health locations are resolved. The proposed investments are optimally scheduled through routine growth assessments and monitoring of our actual network performance, and include our inflow-infiltration monitoring and reduction.
Customer service performance improvement (hotspots)	$ 6 million	$0.4 million step change	Upgrade those local areas of the wastewater network where customers receive persistent wet weather overflows consistent with the community engagement recommendations.

How we will manage risks during the upcoming pricing period

We will closely monitor growth in development precincts; and review our system performance each year through wet weather events to confirm the optimal timing of upgrades. In addition, we will annually review the benefits achieved to system performance through inflow-infiltration reduction.

Wastewater network reliability (dry weather overflows)

We are responsible for maintaining reliability of our wastewater network to minimise dry weather overflows impacting our customers and public health and the environment.

Across our area of operations, there are over 5,000 km of sewer mains, approximately 462 km of rising mains, and over 455 wastewater pump stations (WWPS). These assets have varying ages, conditions, performance and risk profiles and require active management to continue meeting our operating, regulatory/legislative, and business needs.

Drivers of investment

Compliance with EPLs and the *Protection of the Environment Operations Act 1997*, which prohibits pollution of waters, is a key driver of wastewater network investment. We described the key EPL conditions above.

We manage environmental performance of the wastewater network, including rectifying, documenting and reporting overflows and incidents. We describe our wastewater network environmental performance in Attachment B.

While we have historically performed well in reducing environmental incidents, our network is vulnerable to:

- Pump stations with insufficient emergency storage to allow time for maintenance prior to a wastewater overflow occurring, if mechanical, electrical or telemetry failures happen.
- Rising main failures that may occur in sensitive locations or continue for extended periods of time.
- Maintenance hole or pipeline collapse which permanently block wastewater or allow stormwater ingress and continually overflow until they are replaced.
- Small suburban pipeline blockages or chokes that can be isolated and cleared through maintenance. When the frequency of failure increases within pipeline sections, it is typically more cost effective to reline rather than continue to maintain and incur higher costs, or experience repeated customer and environmental dry weather overflow impacts.

Minimum performance standards are mandated in the Customer Contract and Operating Licence which requires us to meet defined system performance standards:

Hunter Water must ensure that, in each financial year:

- *at least 9,800 properties per 10,000 properties receive a sewerage service unaffected by an uncontrolled wastewater overflow; and*
- *at least 9,998 properties per 10,000 properties receive a sewerage service affected by fewer than three uncontrolled wastewater overflows.*

In Attachment B, we show our dry weather overflow performance for the current pricing period. We have historically performed well against our Operating Licence performance standard.

The key cause of overflows in dry weather is suburban pipeline blockages and chokes that stop wastewater flow, which can result in overflows on customer's properties and into the environment. These overflows are largely influenced by weather fluctuations and customer disposal of fats and wipes.

In addition to environmental and Operating Licence requirements, optimising lifecycle costs across maintenance and renewals is a key factor in determining investment in our wastewater network asset renewal program.

Wastewater pump station and rising main program

The wastewater network predominantly operates under gravity with all customer flows draining down to the lowest point in the catchment. This may then require boosting over a hill to either the neighbouring catchment or to a WWTP. This boosting involves a wastewater pump station (WWPS) into a pressure (rising) main that transports the flows to the top of the hill.

Due to our local, and at times challenging, topography (Lake Macquarie, Port Stephens and the Hunter River) we have a distributed network and treatment plants that contain over 450 wastewater pump stations and 462km of rising mains of varying age, size and material. As some of these are large, remote and transport wastewater long distances, we are targeting upgrades to ensure we have emergency storage or pipeline redundancy to provide us sufficient time to undertake maintenance should our pump stations or rising mains fail to prevent long duration wastewater overflows, especially into sensitive receiving waters or public bathing areas.

Wastewater network asset renewals

We have thousands of pipelines, maintenance holes, vents, valves, pumps and switchboards of varying ages, condition and locations, that individually are low cost to repair or replace. However, due to the high quantum, they cumulate to be a large driver of works and investment.

Collectively, these assets do not have a large impact on meeting our system performance standards, however localised extended wastewater overflows can result in environmental incidents and non-compliance or pose a hazard to community and worker safety.

These assets can also result in increased maintenance costs over time if not optimally replaced. We replace them based on lowest lifecycle cost principles, with respect to meeting customer, environmental, and safety requirements.

Reducing wastewater odours for affected customers (hotspots) and the environment

The EPLs regulate that Hunter Water must not cause offensive odour to be discharged from its sites.

In Chapters 1, 2, 4 and 5 of our pricing proposal, we explain that a small number of customers are affected by persistent wastewater odours, and our Community Panel's recommendations to improve service for these customers.

Proposed investment

Investments	Proposed capex (2025-30)	Proposed opex (2025-30)	Explanation
Wastewater pump station and rising main program	$30 million	-	Upgrade vulnerable wastewater pump stations and rising mains to improve resilience or network configuration to provide adequate time to allow maintenance when assets fail.
Wastewater network asset renewals	$85 million	-	Undertake progressive minor refurbishments or replacements, and asset condition assessments of pipelines, maintenance holes, vents, valves, pumps, telemetry, switchboards and wells that have failed. Investment will be targeted at areas of highest risk.
Customer service performance improvement (hotspots)	$7 million	$0.1 million step change	Upgrade those pump stations where customers receive persistent inadequate wastewater odours consistent with the community engagement recommendations.

How we will manage risks during the upcoming pricing period

For these investment programs we will monitor asset and system performance through SCADA, operational controls and asset condition. Should we identify new insights that increase risk or identify new risks, we will adapt the program to ensure we resolve the highest risks as a priority. We will also investigate innovative solutions including predictive analyses, smart monitoring, new pipeline liners and maintenance activities.

Wastewater treatment

We have a wastewater service obligation that involves safely and reliably treating sewage from our residential and non-residential customers at WWTPs to protect the environment and human health. We own 19 WWTPs, comprised of various biological treatment configurations, with associated inlet works, sludge management, odour control, disinfection, and effluent discharge infrastructure.

Drivers of investment

We must comply with EPLs and the *Protection of the Environment Operations Act 1997*, which prohibits pollution of waters. For the WWTPs, the EPLs include limit conditions relating to the discharge of treated effluent to the environment, including the location of discharge points, pollutant concentration and load limits, and volume limits. The EPLs also include conditions requiring that:

- licensed activities are carried out in a competent manner
- all plant and equipment are maintained and operated in a proper and efficient condition and manner.

We generally perform well against our WWTP EPLs and adequately manage our regulatory risk. We describe our treatment plant compliance in Attachment B. The more significant non-compliances include identified risks that have mitigation plans in place, such as:

- selenium limit exceedance at Burwood Beach WWTP due to ocean sludge discharge
- Morpeth WWTP load limit exceedances.

In addition to current performance, we also monitor growth in development across the region to understand if there is sufficient wastewater treatment capacity to adequately treat the increased wastewater in accordance with the EPL limit conditions for each treatment plant. The environmental regulations also require that we maintain our treatment performance, which requires operation, maintenance and replacement of various and specific equipment including tanks, screens, UV, blowers, chemicals, pumps, valves, switchboards, telemetry, to remain within the EPL limit conditions.

Proposed investment

Investments	Proposed capex (2025-30)	Proposed opex (2025-30)	Explanation
Burwood Beach WWTP stage three upgrade	$70 million	-	Upgrade our largest WWTP to be compliant for selenium, cater from growth and resolve worker safety risks relating to the existing screen house.
Morpeth WWTP stage four upgrade	$35 million	-	Deferral and then upgrade of the treatment plant to ensure compliance with the load limit conditions and cater for growth in the Thornton, Chisholm and East Maitland region.
Regional treatment upgrades	$14 million	-	Undertake smaller treatment plant optimisations to provide capacity for growth and meet EPL compliance requirements.
Major asset renewals	$28 million	-	Undertake progressive major refurbishments or replacements of critical equipment including diffusers and tanks, telemetry-PLCs, major assets that have deteriorated, are at end of life, or have failed. We will target investment at areas of highest risk.

Wastewater treatment asset renewals	$34 million	-	Undertake progressive minor refurbishments, replacements, or asset condition assessments of blowers, valves, pumps, telemetry, switchboards and wells that have failed. We will target investment at areas of highest risk.

How we will manage risks during the upcoming pricing period

We will monitor growth and treatment performance within the load limits, concentration limits, operating conditions along with asset condition. Should we identify new insights that increase risk or identify new risks, we will adapt the program to ensure we resolve the highest risks as a priority. We are continuing to implement improved monitoring and controls, including learning through data analytics, which is proving successful in extending asset performance and delaying required capital upgrades.

Biosolids management

Biosolids are a nutrient-rich by-product of wastewater treatment. Wastewater sludge is separated from effluent in the wastewater treatment process and further treated to produce a beneficial reuse product called biosolids. The separation, treatment and reuse of biosolids reduces the discharge of pollutants to waterways and makes use of valuable resources, contributing to a circular economy.

We currently dispose of wastewater sludge through the ocean outfall at our Burwood Beach wastewater treatment plant. We beneficially reuse biosolids from our other wastewater treatment plants through land application at receptive reuse sites, which is a cost-effective way to recover resources from the wastewater treatment process.

Drivers of investment

Land application of biosolids in Australia is regulated to protect human and environmental health. In NSW, biosolids must be managed in accordance with the NSW Biosolids Guidelines, which include requirements for managing pathogens, stability, odour and contaminants (currently focused on heavy metals and pesticides). These guidelines are currently being reviewed by the EPA.

The discharge of sludge to ocean at Burwood Beach WWTP is regulated through an EPL.

Our biosolids land application varies year to year and will progressively increase as the region grows and new properties are connected. The volume of biosolids is influenced by total connections, however it is also influenced by treatment technologies which varies across our 19 wastewater treatment plants.

While our current biosolids management is compliant and cost effective, the combination of population growth, increased scientific and community understanding of contaminants, changing regulation and increasing costs to access receptive biosolids reuse sites, means that biosolids management will inevitably require investment to ensure we meet current and future public health and environmental regulations as well as community expectations.

Burwood Beach WWTP sludge upgrade

Disposal of sludge through the Burwood Beach ocean-outfall is contributing to occasional non-compliance with environmental regulation and will present an increasing risk to public health over time. Burwood Beach WWTP is the only remaining site in Australia to continue the practice of sludge disposal to the ocean, and the EPA is requiring us to cease within a 10-year period.

We have developed a Burwood Beach WWTP sludge upgrade program that will ensure compliance with the environmental requirements within the specified lead times.

Centralised biosolids upgrade

We have assessed future performance of our existing decentralised approach to biosolids management, considering population growth, contaminants, regulation, access to reuse sites as well as emerging treatment technologies. We have identified that a centralised approach to biosolids treatment is the best long-term solution to meet current and future requirements. We are undertaking investigations and planning for a centralised biosolids treatment facility over the next few years, with an upgrade planned for the 2030-35 pricing period.

Proposed investment

Investments	Proposed capex (2025-30)	Proposed opex (2025-30)	Explanation
Burwood Beach WWTP sludge upgrade	$60 million	-	This sludge treatment upgrade is a major project (+$180 million) that will start in the 2025-30 period with most of the investment carrying over into the next pricing period.
Centralised biosolids upgrade	$2 million	-	Start design for the centralised biosolids upgrade.

How we will manage risks during the upcoming pricing period

We will monitor growth and treatment performance within the existing regulations, along with monitoring market conditions and new technologies.

To optimise existing performance, we will investigate operational and transport opportunities to further manage existing risks.

We continue to actively liaise with the EPA, as an important stakeholder and regulator, including for the review of their NSW Biosolids Guidelines. Should new insights emerge that increase risk, and / or the updated Guidelines accelerate risk, we will adapt the program to ensure we resolve the highest risks as a priority. This may require significant investment to be brought forward into the current (or early in the next) pricing period.

Community and worker safety

Dam safety

We own and operate four declared dams – Chichester Dam, Grahamstown Dam, Winding Creek Detention Basin 3 and Winding Creek Detention Basin 5.

Drivers of investment

Dams in NSW are regulated by Dams Safety NSW which was established under the *Dams Safety Act 2015*. The regulatory framework comprises the *Act*, the *Dams Safety Regulation 2019* and methodologies, providing a clear set of minimum standards.

Dam safety legislation requires dam owners to ensure that dam failure risks to life, property, the environment and public welfare are managed throughout the lifecycle of the dam. Risks associated with dams are required to be reduced so far as is reasonably practicable (SFAIRP).

Chichester and Grahamstown dams

We have a long history of completing safety reviews for our dams, resulting in multiple safety upgrades over time.

The *Dams Safety Regulation 2019* requires dam owners, as part of the dam safety management program, to establish a risk management framework and undertake quantitative risk assessments every five years to assess the societal and individual risk rating for a dam.

A safety review and quantitative risk assessment for both Chichester and Grahamstown Dams have recently been finalised. The assessments have identified that risks associated with both dams are considered 'intolerable' and need to be reduced in the short-term. These risks have been peer reviewed and have been communicated to the NSW Dam Safety Committee.

We have developed the proposed upgrades in consultation with technical experts and discussions with other dam owners. We are investing in 2025-30 to undertake more detailed design and field work to resolve site specific issues and to validate the scale and complexity of the upgrades.

Proposed investment

Investments	Proposed capex (2025-30)	Proposed opex (2025-30)	Explanation
Chichester Dam	$15 million	-	Undertake design and preliminary investigations associated with a structural upgrade to bring risks within dam safety guidelines. Most of the investment (construction works) will be in the 2030-35 pricing period.
Grahamstown Dam	$20 million	-	Undertake design and preliminary investigations associated with a structural upgrade to bring risks within dam safety guidelines. Most of the investment (construction works) will be in the 2030-35 pricing period.
Dam safety asset provision	$4 million	-	Undertake progressive minor refurbishments, and asset condition assessments. Investment will be targeted at areas of highest risk.

How we will manage risks during the upcoming pricing period

To manage the risks until upgrade works are completed, we are undertaking maintenance and operational controls including; reducing the normal maximum operational level (or 'top water level') of Grahamstown Dam, increased monitoring, and updating and communicating our Dam Safety Emergency Plans in close collaboration with state emergency response groups, such as the NSW State Emergency Service, and local emergency management committees.

Asset safety

We have a large, complex and varied asset base that is essential to deliver our services. These assets are of varied ages and condition and require ongoing condition assessment, maintenance and renewal to ensure they remain safe to staff, contractors and the community. In addition to the physical degradation of assets over time, the safety risk associated with assets is also impacted through new or updated legislation, and technology developments leading to safer options.

Drivers of investment

We need to manage our assets so that they are safe for our workers to operate and maintain and reduce the impact of asset failures on the community.

To achieve asset safety compliance, we are required to comply with the WHS Act (2011) and Regulation (2017), codes of practice/industry standards, and the international standard ISO450001 for OH&S and OS550001 for asset management.

Asset safety risks are identified through a range of processes including asset class planning, condition assessment programs, staff and contractor identification, safety incidents or near misses, and legislation or regulation changes.

Key risks that have been identified include:

- **Asbestos** – We currently have buildings, structures, buried network pipes, and switchboards that have asbestos. These have been historically managed through good work practices however with the assets ageing, increased worker and community safety risks are being identified.
- **Confined space** – We have several pump station wells, chambers, reservoirs and maintenance holes that our workers need to occasionally access to undertake maintenance. Due to tightening of safety guidelines and changes in work practices, increased risks are being identified.
- **Pipe flooding** – If major water pipelines burst, the high water pressure and volume can result in the flooding of residential and commercial properties, which can impact community safety.
- **Worker safety** – There are numerous statutory safety requirements associated with our assets which we manage to ensure our workers safety, including potential fall from heights, machine guarding, lifting equipment, high voltage and vehicle access.

We have assessed these assets through condition and statuary assessments, as well as practice controls, considering the risks within the lens of the hierarchy of controls. By balancing effectiveness of our controls with the cost of replacement and customer affordability, we have identified suitable investment for the upcoming pricing period.

Proposed investment

Investments	Proposed capex (2025-30)	Proposed opex (2025-30)	Explanation
Asbestos program	$11 million	-	Asbestos in switchboards and network water pipes will be removed gradually over a few pricing periods.
Confined space program	$11 million	-	Targeted confined space risks will be removed
Pipe flooding	$12 million	-	Prioritised water pipes will be relined or replaced, or operational controls implemented to limit the consequences.
Worker safety program	$28 million	-	Replace assets to meet current safety standards.
Belmont WWTP hydrogen sulphide (H2S) upgrade	$21 million	-	Upgrade the Belmont WWTP inlet works to manage unsafe levels of hydrogen sulphide and ensure workers can operate the plant in a safe manner.

How we will manage risks during the upcoming pricing period

We will continue to implement our ‘Safety Lifesavers’ work practices which define a set of minimum lifesaving behaviours for high-risk activities, supported by manuals, procedures and work practices. We will continue to undertake regular condition and statutory assessments, as well as asset and operational inspections.

Stormwater integrity and amenity

About one quarter of our customers are within the catchments of our stormwater channels and are considered ‘stormwater customers’. We have around 90km of stormwater channels. Concrete stormwater assets, if maintained, can have lives of 80 to 120 years.

Drivers of investment

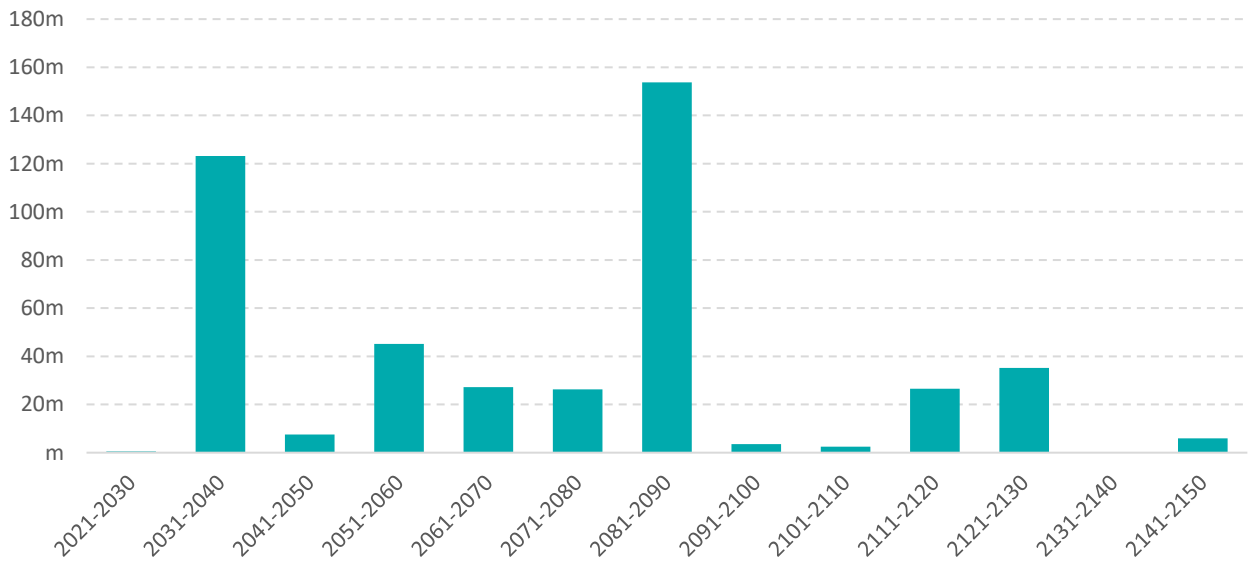
We need to manage our stormwater assets in a way that protects the safety of our community and ensures the existing stormwater conveyance is maintained to minimise community flooding. There are two main ways that our assets can pose a safety risk to the community: structural integrity and unsafe access.

While there is no specific stormwater safety legislation, all our operations including stormwater services are required to comply with the Work Health & Safety Act and Regulation. In addition, broader state safety incidents have initiated Coroners reports which have established safety practices and precedent.

Structural integrity

Approximately three quarters of our stormwater assets were constructed before 1940 and are approaching the end of their nominal useful life in the next 20 to 40 years. The theoretical gross replacement cost based on their nominal asset life is shown below. It highlights a substantial portion of stormwater assets theoretically requiring renewal over the next 15 years.

While this theoretical profile does not predict investment in the upcoming pricing period, actual physical asset condition assessments indicate that a small portion of the culverts have deteriorated earlier than predicted, while a larger portion of the open channels remain in good condition and will have a longer life before requiring replacement.



A key asset vulnerability is that structural failure of the underground assets, such as culverts or pipes, can result in major safety consequences if they collapse under roads or in footpaths. In 2015, a large culvert in Mayfield collapsed in the footpath of a minor side street. This was the first major collapse however physical testing and condition assessment of stormwater assets have further indicated that several underground stormwater assets are nearing 'end of life', and without intervention, risk collapse.

There are specific and known asset issues at Lambton, Mayfield and Broadmeadow that are higher risk and a priority to address.

Unsafe access

Most of our stormwater assets are in residential areas and unfenced, creating community safety risks relating to deliberate or accidental access. We have experienced a number of near misses where the community has accidently fallen, or driven, into the channels. Statewide incidents have resulted in Coroner inquiry guiding how the community risks can be prevented.

Amenity

In the current pricing period we delivered works, supported by community willingness to pay, to improve the amenity of stormwater channels. Such works provide an amenity and liveability benefit to residents and visitors to the surrounding area but can be costly to deliver.

As part of our customer and community engagement, we engaged about continuing investments in this area. Due to current cost-of-living challenges, this was ranked low on our customers priority list. Consequently, we do not plan to undertake any specific stormwater amenity projects in the upcoming pricing period.

Proposed investment

Investments	Proposed capex (2025-30)	Proposed opex (2025-30)	Explanation
Stormwater integrity program	$32 million	-	Address major structural integrity risks with culverts that pose a high consequence risk to the community that can't be readily monitored or controlled. Defer renewal of most open channels. It's a case of when, not if, these assets will require renewal. The proposed expenditure level represents a restrained and pragmatic allowance that demonstrates we are not renewing assets on their theoretical life – instead, inspecting and monitoring, sweating assets as long as possible, in situations where the risk can be managed.
Stormwater asset provision	$3 million	-	Undertake progressive fencing works, minor refurbishments, and asset condition assessments. We will target investment at the areas of highest risk.

How we will manage risks during the upcoming pricing period

For the investment programs we will monitor asset performance through asset conditions and rain event monitoring. Should we identify new insights that increase risk or identify new risks, we will adapt the program to ensure we resolve the highest risks as a priority. We will also investigate temporary solutions and consult with local government and road authorities to identify optimum scheduling and upgrade solutions.

Business Enabling

Our water, wastewater and stormwater services are becoming ever more reliant on better business capability including digital systems and technology.

We rely on our workplaces (property and offices) and equipment (fleet and operational tools) to meet service expectations.

Digital technology

Our digital systems and technology underpin providing services for our customers, from supporting and improving customer experience, monitoring and managing our networks and asset performance, meeting safety, compliance and statutory obligations, and engaging and supporting our contractors.

To ensure business continuity, we need to maintain and upgrade our digital infrastructure (storage, compute, network and communications), end-user devices (e.g. laptops and monitors), and a variety of applications ranging from a payroll system to a geographic information system (GIS), to complex water network hydraulic modelling software.

We also need to invest more in cybersecurity. Globally and nationally, cyber-attacks are becoming increasingly common and of higher consequence. They pose risks to business continuity and critical infrastructure, but also to customers data that they expect us to keep safe.

While there is greater investment required to manage cybersecurity risks, digital solutions are increasingly cloud-hosted (and expensed) rather than hosted on-premises (and capitalised). The choice to shift to the cloud is not always ours, with many vendors no longer developing, or continuing to support, on-premises solutions. With this increasing market shift towards software-as-a-service solutions, we are also seeing rising total costs, including growing recurrent operating expenditure to maintain software licences and support for digital applications, in addition to the services for cyber security and protection (privacy) of data.

Drivers of investment

Our digital technology is an essential enabler for our regulatory compliance. Hunter Water is required to comply with the Security of Critical Infrastructure Act 2018, the Privacy Act and the protection of sensitive customer data and the Data Breach Notification Act and notification of material cyber breaches.

Proposed investment

Investments	Proposed capex (2025-30)	Proposed opex (2025-30)	Explanation
Cyber security	$6 million	$5.9 million step change	Protecting data and business operations from threats to improve the security posture of the organisation across IT and OT environments.
Applications	$8 million	$2.4 million step change	Applications that ensure the business can maintain operations. This includes field services, enterprise resource planning (ERP), core engineering programs, GIS, corporate applications, and billing systems.
Digital infrastructure	$19 million	$3.8 million step change	Infrastructure that allows the network, communication, storage, and computing to operate. Includes data centre, wide area network, unified communications, and cloud connectivity.

Digital provisions	$9 million	-	Maintaining end-user devices and operating systems. Includes laptops, tablets, field devices, and supporting provisions for all programs across networking, applications, storage, and computing capabilities

How we will manage risks during the upcoming pricing period

We will continue to invest in cybersecurity, focusing on the maintenance and renewal of core platforms and infrastructure whilst commencing a phased approach to progressively improving the resilience of infrastructure and application services and where possible exploiting the technical and financial benefits of cloud services.

Workplaces and equipment

Our workplaces and equipment are essential to provide water, wastewater and stormwater services to our customers. This means ensuring:

- safe and compliant offices and depots for our workers
- operational and maintenance workers have vehicles including cars, trucks, backhoes, trailers and other specialist equipment to undertake essential repairs or inspections
- we manage our land and property consistent with regulations or stakeholder expectations.

Drivers of investment

Our operations are required to be compliant with the Heritage Act 1977, Security of Critical Infrastructure Act 2018 and Work Health & Safety Act and Regulation.

Proposed investment

Investments	Proposed capex (2025-30)	Proposed opex (2025-30)	Explanation
Heritage	$2 million	-	Protecting, rehabilitating and maintaining heritage listed facilities
Workplace, facilities and bushfire prevention	$5 million	-	Maintain functionality and safety at our 458 freehold assets, leased sites and 118 buildings.
Fleet	$2 million	*	Replacement of trailers and mobile plant consistent with the optimum life cycle plan.
Customer meters	$10 million	-	Replacement of residential and commercial revenue meters.

* Note: We have also identified a real input operating expenditure price trend related to fleet

How we will manage risks during the upcoming pricing period

We will continue to invest in, monitor, repair and rehabilitate our workplaces and equipment, with a focus of the investment on worker and community safety.

Value for money, and affordability

While we are already an efficient business, there are always opportunities to improve. Driving efficiency is crucial to keep bills as low as possible, minimise lifecycle costs, and deliver services and prices that are in customers' long-term interests.

Energy reduction

Electricity is a critical input utility used across all of Hunter Water's operations and accounts for more than 98 per cent of our energy use. The amount of electricity consumed is largely driven by operational demand with variability occurring because of factors such as customer growth, seasonality and weather events. The efficiency of Hunter Water's assets and processes also influences this consumption.

Onsite renewable generation and energy optimisation are opportunities to reduce both energy consumption and cost, and to reduce the reliance on grid supplied electricity. This involves the installation of solar panels or wind turbines on our treatment plant or pump station land or buildings, which reduce our electricity consumption from the grid and purchase costs.

Energy optimisation projects involve assessing our operational assets and identifying efficiencies which reduce our electricity consumption or opportunities to shift our electricity consumption to lower cost periods. All proposed investments will be prioritised and implemented based on highest benefit-cost (return on investment).

Modern utility

Digital transformation is one of the keys to driving and enabling the long-term efficiency improvements necessary to keep our customer bills low. With legacy, increasingly unsupported, and disparate systems, and limited automation, we have a technological debt and long path ahead in our transformation.

To keep bills as low as possible for customers, we have prioritised and propose to progress our digital ambition at a slower pace than originally planned. We will focus on data insights and smart systems where there is currently greater clarity and certainty of the benefits.

Data insights

Investing in our data platform enables the ability to empower data-driven decisions. We have taken significant steps in maturing our data and analytics capabilities, addressing key gaps that were limiting to the organisation.

Data insights work will include improving organisation-wide data practices and the delivery of timely, reliable and consistent insights through common platforms. The data platform will provide staff a single source of truth for operational data and provide insights into the impact on customers. In turn it will support autonomous operation of systems and empower employees to make faster and more accurate decisions.

Smart systems

Smart systems are a subset of investments that aim to leverage emerging technologies and data systems. These technologies and systems are becoming more cost-effective through the development of IoT sensors, cloud data platforms, skills specialisation in data science and the release of mature open source and commercial machine learning and artificial intelligence (AI) analytics platforms.

We have a long history of applying leading edge technologies. Across the last four-years a dedicated team has been formed to implement a smart systems program. This program was initiated to enable a focus on emerging technology solutions and gain efficiencies in the management and procurement of data, data systems and IoT devices.

Proposed investment

Investments	Proposed Capex (2025-30)	Proposed opex (2025-30)	Explanation
Energy Reduction	$22 million	($4.7 million) *	Incorporates initiatives which cost effectively reduce our consumption and purchase of electricity.
Modern Utility	$7 million	$3.4 million step change	Incorporates initiatives to efficiently improve our processes and decision making and to progress our digital ambition.

* Note: this reduction in expenditure is reflected in the operating expenditure efficiency trend

How we will manage risks during the upcoming pricing period

To continue our momentum towards our digital ambition, we will defer cost recovery from our customers for any other digital investments until we can demonstrate incremental value through delivery and develop a bankable business case. We will progress some works and deliver the investments when warranted during the period. This means we don't ask our customers to bear all costs upfront, but we also don't miss opportunities to make improvements and innovate in the best long-term interests of our customers. This approach may require us to reprioritise and / or spend beyond our expenditure allowances in the upcoming pricing period if faster transformation is warranted.

Great customer service

While our customers are generally satisfied with the interactions they have with us, we must continue to invest to maintain our core systems, improve privacy controls and safeguard customer data, and make incremental digital improvements to keep pace with basic customer expectations about how they can interact with us ('meet the market'). Without investment, our customer service performance will deteriorate.

For example, our customers expect to be able to manage or view their account information via our website and use applications or portals to provide and receive information from us. They also expect we recognise them as people, who may or may not have interacted with us previously, rather than starting a fresh relationship at every contact.

Digital platforms and services continue to shift towards cloud-hosted rather than on-premises (capital) solutions. This means investing to provide and maintain these basic functions increasingly requires non-recurrent operating expenditure to implement fixes, updates, and new solutions, and recurrent operating expenditure to licence and support these solutions over time.

Proposed investment

Investments	Proposed Capex (2025-30)	Proposed opex (2025-30)	Explanation
Customer Experience	$3 million	$6.9 million step change	Incorporates initiatives maintain our core customer engagement experiences while improving privacy controls and safeguard customer data.