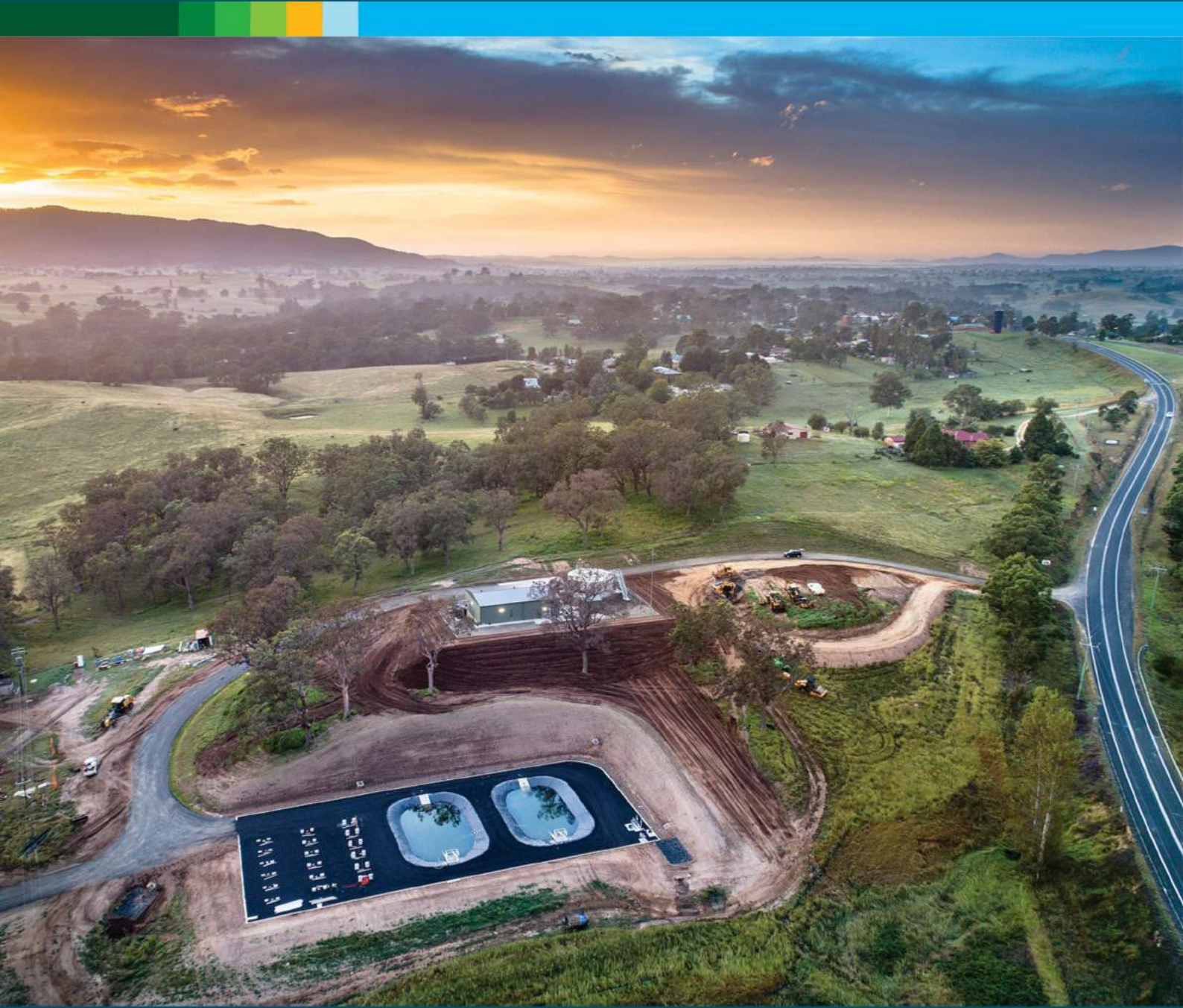


# Water and Sewer Strategy

## 2022-2025



PO Box 492, Bega NSW 2550

**P.** (02) 6499 2222

**F.** (02) 6499 2200

**E.** [council@begavalley.nsw.gov.au](mailto:council@begavalley.nsw.gov.au)

**W.** [begavalley.nsw.gov.au](http://begavalley.nsw.gov.au)

**ABN.** 26 987 935 332

**DX.** 4904 Bega

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# Introduction

This three-year strategy is for our local water utility service and comes from three rounds of community engagement, a close look at our growth and system limits, and an embedded risk process which prioritises our current issues.

This publication is not an exhaustive discussion around the inputs into a strategy – it is risk and outcome focussed to deliver what we heard you want from us. We also try not to duplicate information in other plans or strategies but show how they link together.

As your local water utility, we are responsible for delivery of water and sewer services around the Bega Valley Shire. This document focusses on our medium and long-term strategic intentions and our plans to provide an affordable and high level of service for our customers.

Our shire is large, requiring a lot of infrastructure to provide the services the community needs. We also have a small population and so a small customer base. As an organisation committed to improving our transparency as a utility and service provider, we present an honest and realistic view of what we are able to provide, while drawing on community feedback and our experience to plan for the very best service we can afford.

Read on to learn more about our business, the key issues raised by the community, and our plans.



# Key strategic goals

THIS WATER TREATMENT PLANT AT BROGO, NSW  
IS GOING TO PRODUCE FILTERED WATER FROM EARLY 2023



Customer input played a vital role in the development of this strategy. We asked our customers how they valued and prioritised our services, and the response highlighted two key improvement areas:



The key strategic goals listed below directly respond to feedback from our customers.

**We will target keeping water bills as they are, in line with inflation, and lowering sewer bills by 2030**

We will review how we can improve value for money in our sewer services with a review of how to leverage economies of scale to improve efficiencies. We will share the results of those reviews with our customers. We will review our revenue streams and structures for business customers and developers.



## **We will deliver filtered water to all our serviced towns and villages as soon as possible**

We are already working on delivering higher quality drinking water to all towns and villages supplied by us. We are committing \$47 million to complete three water treatment plants that will benefit almost all customers connected to our water supply.

## **We will defer, value manage, seek alternative funding, or rescope projects to avoid higher bills**

We are using our long-term planning to review where we can leverage economies of scale and what level of redundancies are appropriate for our region. This means consideration of accepting a lower level of service at times rather than spending more to cover every possible situation. We will not let perfection be the enemy of the good. Our community wants progress they can afford.

We will seek additional funding for our projects from the NSW and Commonwealth Governments.

We will investigate how every project can strike a balance between ensuring our infrastructure has sufficient capacity for growth while maintaining efficient operations.

## **We will defer some renewals to focus on treatment upgrade projects**

We are managing our assets with a realistic focus on risk to identify where we can extend the life of assets to buy the time we need to deliver the major projects. We are strategically managing our risk appetite through a risk-based prioritisation process.

## **We will look at recycled water through its own dedicated strategy**

We will address our capacity to produce and use recycled water in a dedicated strategy that feeds back into our long-term strategy. We will continue to work with our community to determine priorities and affordability.





# Our business

THIS WATER SUPPLY WEIR AT BROGO, NSW IS ALSO A FISH LADDER

## Our regulatory requirements

We are a Council owned and operated water utility so we follow the regulatory requirements of a local government authority and a local water utility. We are committed to work with the NSW Government to improve regulation.

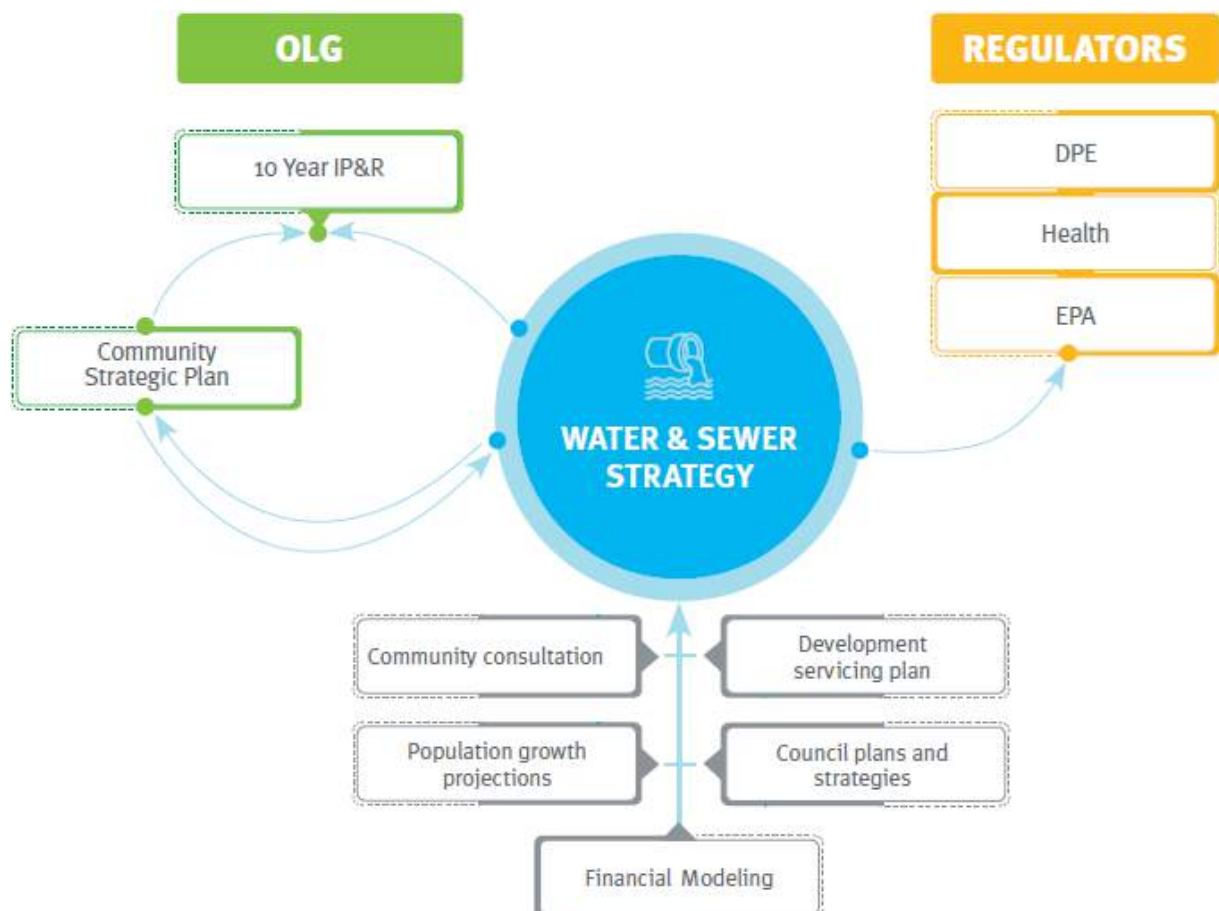


Figure 1 An overview of how our plan meets our regulatory planning requirements

## Our organisation

Our utility business sits within the Asset & Operations directorate of Council. There are four key utility superintendent roles reporting to the Water and Sewer Services Manager, shown in Figure 2. The manager in turn reports to the Assets & Operations Director and then onto the CEO. Within our business unit we have around 70 staff. There are four key areas providing a range of skills and services to help manage an extensive infrastructure base and diverse processes.

Key decisions for our business are made by your elected representatives through workshops, business papers, and transparent governance.

Right now, about a quarter of our positions are contract roles. These roles grow capacity, fill skills gaps, and deliver our projects. Our numbers are higher in our operational and maintenance streams as we perform more of this work in-house. The remaining work is delivered through outsourcing to contractors, with management, technical input and advice provided by internal team members.

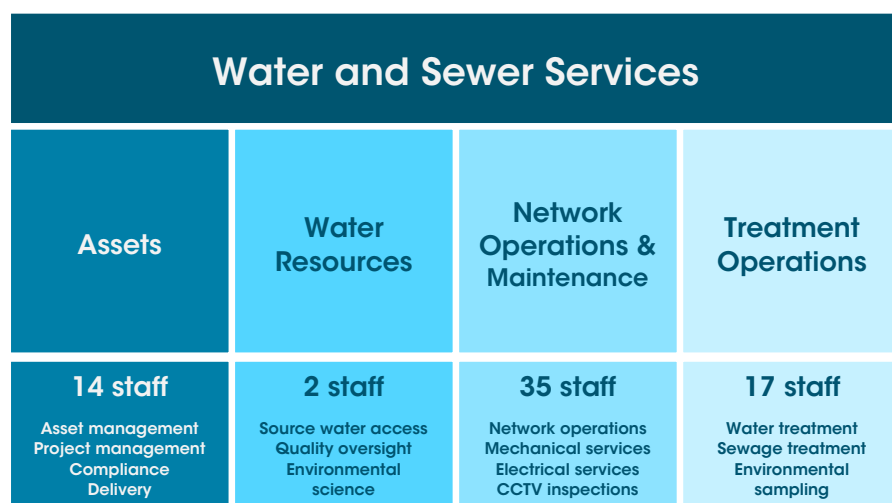


Figure 2 The organisational structure of Water and Sewer Services within Council.

## Funding our operations

Council's [Revenue Policy](#) has more information on how we charge our customers.

Being a business that is owned and operated by Bega Valley Shire Council we benefit from overall larger corporate services like customer service, revenue, financial accounting, IT, procurement, purchasing, governance, and people and culture. We also benefit from being part of a wider community-led organisation. This means we are in a strong position to help when challenged by things seemingly beyond our control.

While owned and operated by Council, our local water utility funds are managed separately from Council's general fund. We call it ringfencing and our financial systems are set up to account for all our financial movements. The water and sewer funds are also ringfenced from each other.

Our customers receive a separate water and sewer bill, so it makes sense to expense our work separately. This is recommended by our regulator and it also helps our customers to see exactly what they are paying for. Our funds pay a contribution back to the general fund to cover common resourcing costs.

Water and sewerage services are each independently funded from water or sewer charges, government grants, and new infrastructure charges.

These charges are modelled to ensure that the income meets the full cost of operating and maintaining the networks. Council's general funds do not subsidise our utility services.



Our residential and non-residential customers pay fixed and variable charges like in Table 1. This table doesn't include developer or other income.

## Water charges

Water is charged as a two-part cost-reflective tariff. Users pay a fixed annual charge to access the water network and a usage charge that reflects their day-to-day usage. About 34% of our income for water use comes from the fixed component with the remainder being from the variable component.

## Sewer charges

Residential sewer charges are a uniform charge. Non-residential sewer charges are based on an annual access charge and a usage charge.

Non-residential sewer is charged with a two-part tariff. We will use the [Liquid Trade Waste Management Guidelines 2021](#) as a starting point for our charges. We will then seek feedback from non-residential customers and if required we will consider amending our charging structure.

Table 1 Revenue share from connection charges

Income from connections	Water revenue share	Sewer revenue share
Access charges	34%	88%
User charges	66%	12%

## Developer charges

Connection fees and developer contributions go towards capital projects and are not used for operational costs. Our developer contributions are calculated in our [Development Servicing Plans](#).

We are due to review our Development Servicing Plan which will include asking our developer community to have their say.

The developer charges system is designed to be self-managing. Any significant development which triggers an incremental upgrade of infrastructure is also funded by development across the shire. Developers only need to pay their share for access or upgrades to major water and sewer treatment and transfer facilities. We will ensure that capacity exists where we have agreed to provide it.

We have recently removed the requirement for non-residential developers to pay all developer charges up front, replacing them with a user-pays policy when a determined water usage limit is exceeded. Council's [Revenue Policy](#) and our [policy and procedures](#) have more information.

## Grants

Grants typically partially fund capital projects, but some grants are provided to support customers that are eligible for subsidised services. Over the next five years we plan to spend \$9.5 million in government grants for sewer projects and \$34 million for water projects, noting not all these funds are yet secured.

## Funding the infrastructure

We need a lot of infrastructure per person compared to flatter and larger, more densely populated areas.

For example, Sydney Water services a smaller land area than the Bega Valley, and it serves five million people. Bega Valley customers have far fewer people per major facility. A Bega Valley water customer pays for considerably more infrastructure than a Sydneysider. Economies of scale are difficult to counter and lead to higher costs per customer in Bega Valley. It is something we are

working on through our current water supply strategy and sewer rationalisation strategy. These strategies focus on finding the lowest cost method for achieving our services.

Table 2 Cost comparison per 1000 people

Per 1,000 people	Bega	Sydney	Multiplier
Water pipe	16.6 km	4.4 km	3.7
Sewer pipe	9.9 km	5.04 km	2
Reservoirs	1.2	0.05	26
Sewage treatment plants	0.29	0.003	92

## How we report on performance

### One set of corporate measures for both funds using IP&R

We now measure levels of service through the Integrated Planning and Reporting (IP&R) framework. IP&R is a planning tool that councils use to align community aspirations with a council's capacity to achieve them.

Our operations are guided by an overarching community and Council IP&R document, called the Community Strategic Plan (CSP). From here, service commitments are outlined in a Delivery Program (DP), leading to specific annual project goals in our Operational Plan. See in Table 3 the high-level aspirational statements from our CSP, and the subsequent service commitment from the DP.

Table 3 Our Community Strategic Plan hierarchy leading to our utility business

Area	CSP level
C. Our environment – We embrace sustainable living and value and conserve our natural environment	Theme
Our air and water are pristine, and our natural environment and rural landscapes are protected	Strategic objective
C.1 Deliver and support integrated water management	Strategy
<b>Operate a contemporary local water utility that enables sustainable development, supports social wellbeing, and protects the environment.</b>	<b>Delivery program action</b>

Compared in Figure 3 each Delivery Program action has two sets of reporting requirements. They are Corporate Measures and Operational Plan outcomes.

Corporate measures	Operational plan
<ul style="list-style-type: none"> <li>- do not change each year</li> <li>- reported every six months</li> <li>- not goal based – outcome reported</li> </ul>	<ul style="list-style-type: none"> <li>- outcome targets set for each year</li> <li>- includes project delivery goals and short-term customer goals</li> <li>- could include goals to vary corporate measure outcomes up or down</li> </ul>

Figure 3 Comparing a longer-term corporate measure with an annual operational plan outcome under IP&R



Performance reporting will be [published on our website](#) this will include an *Operational Plan Progress Report* and a *Corporate Measures in Review Report* every six months.

## Developing our corporate measures and disclosures

We are committed to contemporary governance. We are working towards Environmental, Social, and Governance (ESG) principals some of which are related to our **Circular economy** goals on page 46. These principles allow us to measure outcomes that focus on environmental and social impacts. There are various ways of incorporating ESG as metrics and disclosures and the overall principle is increasingly used to measure value and outcomes for stakeholders. We followed a three-step process on top of our wider engagement:

1. we initially based corporate measures on the World Economic Forum's white paper, *Measuring Stakeholder Capitalism, Towards Common Metrics and Consistent Reporting of Sustainable Value Creation – September 2020*.
  - a. the paper attempts to convert the United Nations Sustainable Development Goals into a set of common reporting metrics and disclosures
  - b. we did not adopt the value creation measurements, only the common metrics and disclosures
2. we then workshoped measures and themes to match how the spirit of the white paper applied to our business and what we could reasonably report
3. Councillors workshoped the measures and the [resulting list is available here](#).

## Is this the same thing as 'levels of service'?

Our previous strategic plans relied on a specific set of engineering measures which together we called our 'Levels of Service'. The measures offered an arbitrary and incomplete view of our service that was difficult to report and not linked to stakeholder value outcomes.

Our vision is to expand our outcomes focus from customers to include all stakeholders and wider value creation across the triple bottom line. Our existence should contribute to vibrant communities through creating shared value.

Our engineering levels of service—for example water reserved per dwelling in a service reservoir—are now managed through [our procedures](#) and [our development standards](#). This strategy proposes a new set of customer-centric procedures which have previously been on exhibition and were adopted on 29 June 2022.

## Linking to state and federal reporting

We are required to report to both the NSW Local Water Utility (LWU) performance monitoring report and the national performance report.

The LWU performance monitoring report requires more than 1,000 measures to be reported to the NSW Government across a range of themes with [results available here](#).

The national performance report compares utilities with more than 10,000 connections with data and reports [available here](#).

These reports are made in addition to any other mandatory regulator reports.

## Managing risk

Risk management is a core tool we use to enhance decision making, identify and manage threats, improve outcomes, and drive future thinking. It is embedded into our strategic and operational processes. Risk is how we prioritise tasks.

## How risk led this strategy

The [issues list](#) at the core of this strategy document is the risks associated with our water and sewer services assessed using our corporate processes.

### Corporate risk

Risks are identified, assessed, controlled and subject to periodic review through application of our corporate Risk Management Framework based on the three lines of defence model and ISO 31000:2018. Our corporate enterprise risk management team deliver risk services to our business including insurance, liability, risk assessment, risk registers, risk frameworks, business continuity, audit, and continuous improvement planning. We are committed to contribute to and operate within our corporate risk framework.

### Operational risk

We produce and maintain a range of risk tools through our corporate risk function as well as within our service area typically due to requirements from our regulators. Examples of our corporate risk systems are our business continuity plans, safe work management systems, audit and risk improvement committee meetings and actions, and emergency planning and preparedness. Our service area specific tools include our drinking water system (discussed below), our pollution management plans, and our dam safety systems. We also report incidents to NSW Health and the Environment Protection Authority who can ask for more information on risk controls.

### Capital works and renewals projects

Our Enterprise Risk Management Framework and Strategic Risk Register is used to identify and manage environmental, financial, legal, reputational and health and safety risks associated with capital works and renewals projects.

Risk management work plans define the actions and resources required to manage risk. Hazard and Critical Control Point (HACCP) assessments are undertaken for water treatment plant design. More detail on asset risks is contained in **Our assets** section on page **33**.

### Drinking Water Quality Management System

Our Drinking Water Quality Management System assesses water quality risks through application of the Australian Drinking Water Guidelines framework for management of drinking water quality. Risks to water quality associated with hazards and hazardous events are assessed for our source waters, storages, treatment facilities, reservoirs and pipelines. The level of risk, before and after implementation of preventative measures, are defined for each risk. Water quality monitoring data is collected, analysed and periodically reviewed for each critical control point and from water source to customer, to identify threats and enhance decision making.

### Recycled Water Management System

Our Recycled Water Management System assesses risk through application of the Australian Guidelines for Water Recycling and NSW Government guidance documents. Risks from potential hazards and hazardous events identified are assessed for each recycled water supply and use scheme. The level of risk, preventative measures and responsibilities on both the supply and use side are defined. A residual risk assessment shows the reduction in risk upon implementation of the preventative measures.



# Our workforce strategy



Our corporate Workforce Strategy is part of our corporate Resource Strategy. Both documents were on public exhibition and are available on [Council's website](#). The information in this section adds depth specific to our utility business and the two documents should be read together.

## Where are we now?

### Starting with what we already know

We knew from some decisions Councillors made in the [03 November 2021 Council meeting](#) some of the core projects our community wanted to pursue in our strategy. They voted to pursue Yellow Pinch water treatment plant to supply Merimbula area, Eden area, Wolumla, and Candelo. They also decided to seek grant funding or a scope reduction to the ocean outfall and STP upgrade. Those decisions were based on significant customer and regulator feedback and so these scenarios were not specifically re-optional in this strategy.

### Adding in what we heard

Most of what we were already planning was reinforced by what we heard. The larger projects dominate our long-term financial plan and consequent price-path. We found our plans to be in-line with community needs related to those larger projects. For example, our community wants better quality water as a priority. That means resourcing and delivering water treatment plants.

Most other community wants are not major influencers on our long-term financial plan. The exception to this is recycled water. Recycled water needs more work to understand what our community wants and is willing to pay for. That area of our business will have its own strategy. Recommendations from that strategy will impact this strategy, and this strategy will be updated.

## Gathering all available information to understand our issues

We formed an issues paper that drew from everything we know about our utility business in one large discussion. We will release the final issues paper after the strategy has been adopted.

From the issues paper we have formed an issues list to summarise the findings. We have chosen to roll up issues as much as we can. For example, rather than list each sewage pump station that needs an upgrade we have grouped them all together.

We then:

- completed a risk assessment of each issue and gave each issue a risk score
- rated the issue with roughly how difficult the possible future controls are to action and gave the issue an effort score
- considered how the possible future control was tracking and applied a traffic light status

The result is this [issues list](#). The status of each issue is based on how well we are delivering the projects and activities which control the issue and risk. 1 is on-track and 3 is off-track. Projects are listed in **Capital works program: upgrades and renewals** on page 33.

## Interpreting our issues to inform our strategy

We wanted to understand how to prioritise our issues. One tool we used to help was the risk vs effort matrix in Figure 4. The logic is that the issues with easier and riskier controls should be actioned first. Harder and less risky controls should be last on the list.

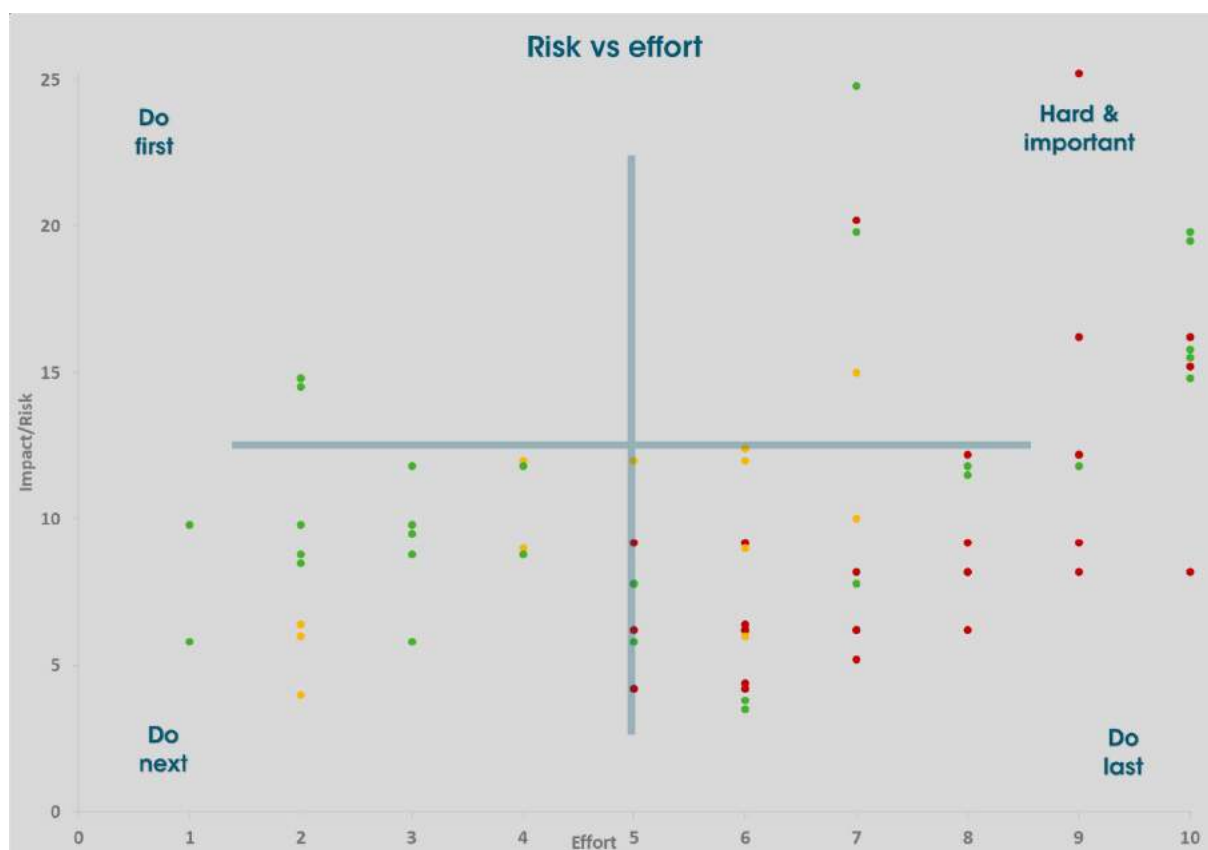


Figure 4 A risk-effort matrix as a tool to help prioritise community money and utility resources. Issues are mapped by effort and risk and traffic lights show if the control for the issue is on track (green), at-risk (amber), or off track (red).

Figure 4 tells us:

- the easy wins in the 'do first' quadrant have all been done by now
- the 'do next' actions are mostly being done



- the hard and important actions are a mixed bag
- the 'do last' quadrant is falling behind

It is good that our resources are mostly operating through a list of priorities in the right order. We will continue to prioritise our resources according to risk and impact. What is concerning is that some of the more difficult and important controls are not being done. Also concerning is that the 'do last' controls will tend to become riskier over time. For example, assets must be renewed eventually, or existing services will fail. Similarly, lower priority projects need to be considered, and community wants, if not addressed, can affect our reputation.

## Themes in our issues

While determining progress in addressing our issues, we have outlined some key themes and groupings in our issues list.

### We are successfully doing what we can do to:

- reduce customer bills
- grow and attract talent
- deliver water filtration
- manage assets, maintenance, and finances together
- renew our sewer reticulation and telemetry assets
- maintain our active mechanical and electrical assets.

### We are not properly resourcing controls to:

- use more clean energy
- record where our assets are buried and what they are
- deliver major sewage treatment plant upgrades
- renew most of our assets both major and minor
- assess and maintain our heavy mechanical and civil assets
- plan for our future system needs to meet growth.

We found we had certainty about our major projects and the issues they addressed. Our strategic scenarios are chosen to help us choose how fast to deliver our projects.

## Where do we want to be?

### We want to maintain our current response to

- reduce customer bills
  - seek rationalisation of assets and value for money outcomes
  - minimise and avoid growth into financially unsustainable customer services
  - maximise economies of scale through increased connections to our existing assets
  - seek Community Service Obligation payments from the NSW Government
  - strategically delay major projects to avoid customer price increases
  - review the fairness of how we charge non-residential customers.
- grow and attract talent
  - maintain numbers of trainees, apprentices, and cadets
  - build in-house skills towards specialist servicing and Internet of Things infrastructure
  - support contemporary conditions in our corporate resource strategy
- deliver water filtration
  - complete water filtration for all reticulated customers by 2030
- manage assets, maintenance, and finances together
  - lead and support our organisation to embed and strongly align to ISO 55000
- renew our sewer reticulation and SCADA assets



- utilise combinations of internal and external resources to adapt to renewal and maintenance needs and optimize quality and cost
- maintain our energised mechanical and electrical assets
- retain in-house skills to service and repair our critical active assets.

### **We want to build our resource response to**

- use more clean energy
  - deliver to our clean energy plan
  - move from panels to process –identify opportunities to change our processes to consume energy at off peak times
- map our underground assets
  - increase our in-house ability to record the location and nature of assets as they are constructed
- deliver major sewage treatment plant upgrades
  - deliver upgrades to generate value for our customers through the services we provide which enable sustainable development
  - meet the obligations of our environmental regulator without increasing our bills
- maintain our heavy mechanical and civil assets
  - increase our maintenance capability
- plan for our future system needs to meet growth
  - understand our system constraints through hydraulic water and sewer models
  - quantify triggers for additional major assets like an Eden water treatment plant and strategies to defer their need
  - ensure future land use and servicing strategies are integrated and align.

### **We must not lose sight of our lower priorities**

- plan when we will eventually renew the assets, we are not getting to
  - accepting the risk of asset failure
  - implementing bypasses or sensors to detect problems which we can respond to, should assets fail
  - producing a program for realistic delivery, considering deferrals of any major renewals
  - passing minor renewals and reactive heavy maintenance to an increased capacity maintenance team
- plan how to deliver other lower-priority projects
  - delay second-tier projects
  - build secondary projects into larger projects
  - outsource lower value projects and consider losing engineering control
  - manage community expectations with respect to timing.

## **How will we get there?**

We considered three core strategic scenario options:

- Slower
- Preferred
- Faster

In **Other scenarios** on page 21 we compare the preferred scenario against the Slower and Faster options.



## Preferred scenario

Our goal is to deliver on controls identified to manage the risks associated with our major issues from our issues list.

We are willing to defer renewals and non-critical growth upgrades to meet this goal. This will provide a pipeline of work for our increased staff numbers currently delivering major upgrades to move onto renewals over the following five-year period.

Our preferred scenario requires increased engineering and delivery capacity. The strategy to resource these needs is multi-pronged and designed to set up our utility to deliver a peak of projects and be ready to shift to a renewal and maintenance focus.

We are focused on ensuring the right mix between internal skills and external resource use to safeguard that we get the best outcomes not only in the short term when delivering projects, but also in the long term when we are managing the assets we build.

Over the coming planning cycle, we will:

### **Seek to outsource more work to contractors and consultants**

- look to outsource our water meter renewals to manage pressure at the water meter for all customers
- outsource more inspection and renewal services
- seek opportunities to outsource any other part of our strategic actions.

### **Continue to build a stakeholder-centric culture**

- continue to develop an environmental and social governance focus
- consider the value we contribute to create a prosperous community through the delivery of our services, and how we could do that better
- build stronger stakeholder engagement into our projects and plans.

### **Ensure engineering control is retained while delivering our upgrades and renewals**

- not outsource skilled engineers to scope our projects
- not outsource client-side project management
- seek to increase our ability to scope and review projects and problems
- retain our existing asset accounting, budget, and long-term financial planning capacity.

### **Take on more procurement risk**

- look to partner with others through work programs to create greater capacity for other organisations to support us
- build relationships to support our goals.

### **Pause renewing most assets**

- some assets will not be fully replaced – even if failing
- we will always patch or repair infrastructure that impacts more than one customer
- assets will be taken offline or have emergency by-passes installed
- renewal projects will be waiting for our workforce to deliver after major facilities have been upgraded.

### **Increase our maintenance capacity**

- actively maintain our civil assets to delay future replacement where this achieves lowest whole of life assets costs
- take on some short-term bandage renewals to ease risks from not renewing major assets
- consider digital enhancements as a gradual program of improvement rather than a single major project.

## Develop and strengthen industry networks and relationships.

- retain and strengthen our place as a local water utility embedded within our organisation
- continue to advocate within and build capacity to meet our needs through shared services
- represent our whole organisation to the community
- look for opportunities and benefits of strategically collaborating with other utilities
- advocate for utility issues through our industry organisations.

## How will we know we are getting there?

Our long-term goal is to measure and increase the value we create for our community and local stakeholders. So, we measure at the outcome level – not at the action level. Other level of service measures have been moved into [our procedures](#) and [our development standards](#).

### Corporate measures

We will measure outcomes across our whole business in an [aggregate suite of metrics and disclosures](#).

Our service area corporate measures are built around the United Nations Sustainable Development Goals and an Environmental and Social Governance approach (ESG). These fundamental principles represent local community values, aiding us to link our actions with improved liveability in the Bega Valley shire.

Many of these goals also contribute to our circular economy aspirations, in particular our efforts towards integrated water cycle management discussed in **Circular economy** on page 46.

Our corporate measures are set for the term of the elected Council and reported to Councillors every six months. You can see our list of 77 measures [on our website](#).

Once we have accumulated some trends with data, we may add targets to our corporate measures. This could be in the form of desirable trends, specific targets, or both.

### Operational plan

While our CSP and Delivery Plan outline aspirations and a commitment to aligning with community values, our Operational Plan (OP) provides a realistic overview of what we can deliver given the availability of funds and resources.

We nominate Operational Plan measures each year, and report progress to Councillors every six months. Our 2022-2023 financial year goals are listed in Table 4.

Table 4 First-year operational plan actions relating to the delivery program action to operate Council's utility

Operational Plan actions 2022-2023
Program delivery of a strategic scenario for water and sewer services
Operate and maintain water supply and sewage network systems to meet health and environmental regulatory requirements and level of service objectives
Operate and maintain water supply and sewage treatment plants to meet health and environmental regulatory requirements and level of service objectives
Complete a customer-led Recycled Water Strategy
Complete future land requirements study of key strategic facilities
Complete the civil upgrade of Bermagui Sewage Treatment Plant
Complete reference design for the Merimbula Ocean Outfall and Sewage Treatment Plant upgrade
Commence construction of the Bega Water Treatment Plant
Complete 'For Tender' design and specifications for Yellow Pinch Water Treatment Plant

### Operational Plan actions 2022-2023

Complete construction of Brogo Water Treatment Plant

Consider and pursue options for catchment management and rehabilitation for Tilba Dam

Commence options assessment for the Bega Sewage Treatment Plant upgrade

Prepare land for solar installation at one of the top five energy use facilities







# Long-term financial plan

## Preferred scenario

Our proposed long-term financial plans provide a 10-year forecast that meet the ongoing requirements of the Bega Valley. Our modelling also extends to 30-years to plan for long-term viability. We are committed to regularly updating our scenarios as things change and when key decisions are made.

Water and sewerage services are each independently funded from water or sewer charges, government grants, and developer charges.

The long-term financial plan balances these revenue sources with future expenditure requirements that include new infrastructure, upgrades, ongoing renewals of existing infrastructure, and day-to-day operations and maintenance.

## Water fund finances

Our water fund plans to draw down on our cash reserves and spend significantly on major water treatment plants to improve our water quality.

Our adopted financial scenario is shown in Figure 5. We plan to take on loans of about \$10 million to reduce the impact of upfront costs.

These developments raise the possibility of a minor bill increase (\$20) in 2028 which we hope to avoid by lowering our operational cost. Specifically, our solar projects are likely to yield lower long term fixed and marginal costs and we are expecting greater economies of scale although we are unsure how our new water treatment plants will impact our overall production costs. In general, our intent is to maintain a least-cost service for our community.

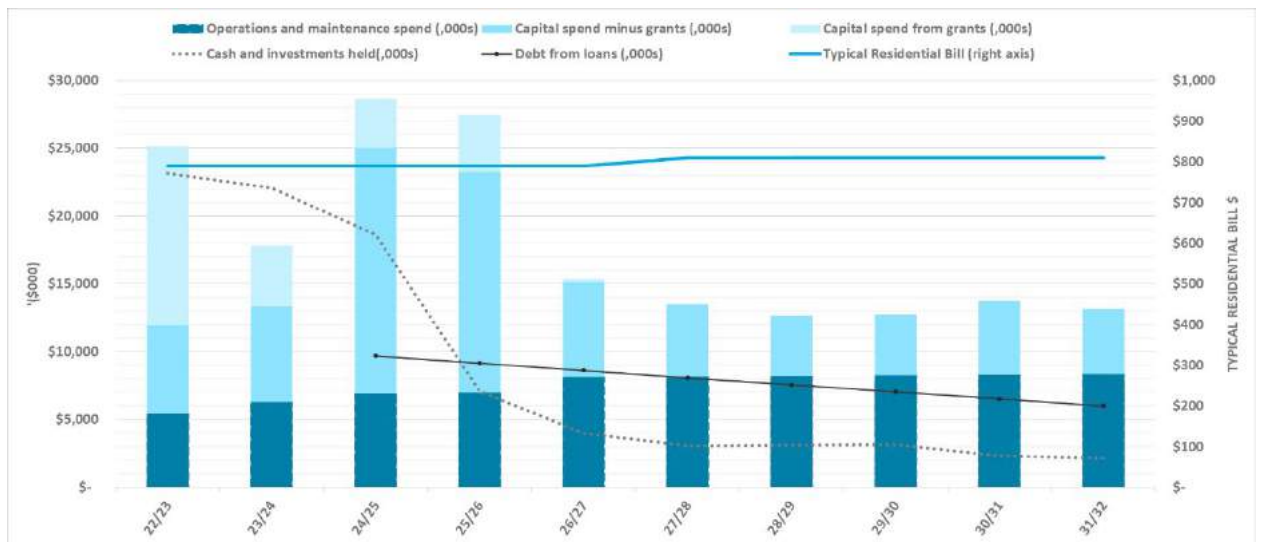


Figure 5 Our adopted long-term financial plan for our water fund

## Sewer fund finances

Our sewer fund plans to draw down on our cash reserves and spend significantly on major sewage treatment plants to improve our environmental protection and enable sustainable growth in our towns.

Our adopted financial scenario is shown in Figure 6. The loan indicated is pre-existing, and we are not planning to take on additional loans. We are planning a one-off ongoing bill decrease in 2029 of approximately \$200/yr.

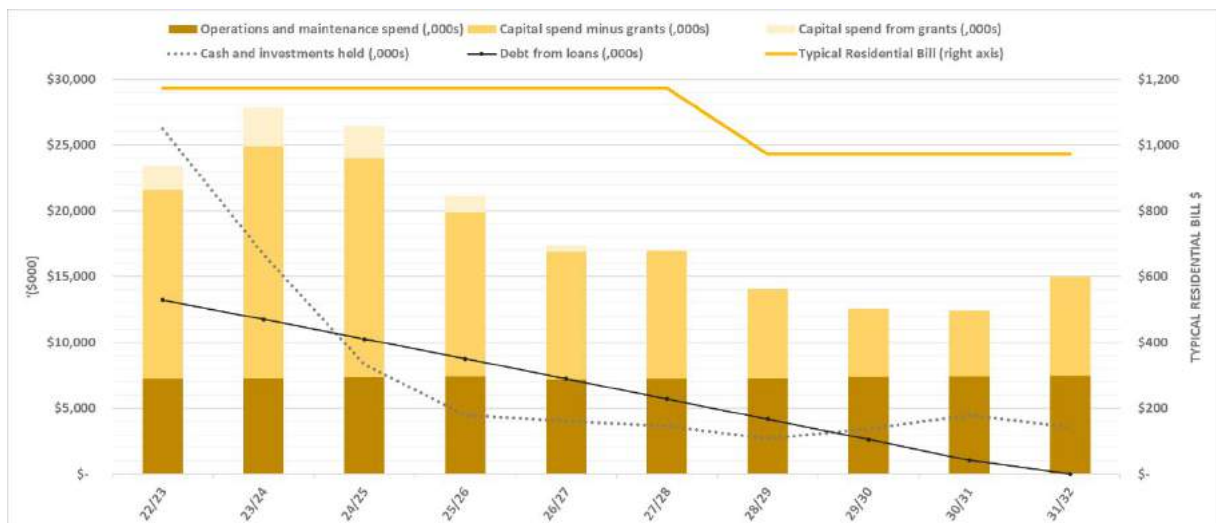


Figure 6 Our adopted long-term financial plan for our sewer fund

## Other scenarios

### Slower scenario

The slower scenario results in higher risk overall with no benefit to typical residential bills.

### What's different compared to the preferred?

This option assumes that although project management resources may be increased, engineering and maintenance resources are not increased. The result is that many of the sewage treatment plant upgrades are delayed until water treatment plants are substantially complete. The water treatment



plants also take longer to deliver. Asset renewals and some second-tier risk control projects are also further delayed.

## Long-term financial plans

Key differences to the preferred water scenario are:

1. current assets (cash and investments) are retained, rather than spent, for slightly longer
2. the minor modelled future price increase is delayed by one year
3. borrowings are delayed by one year.

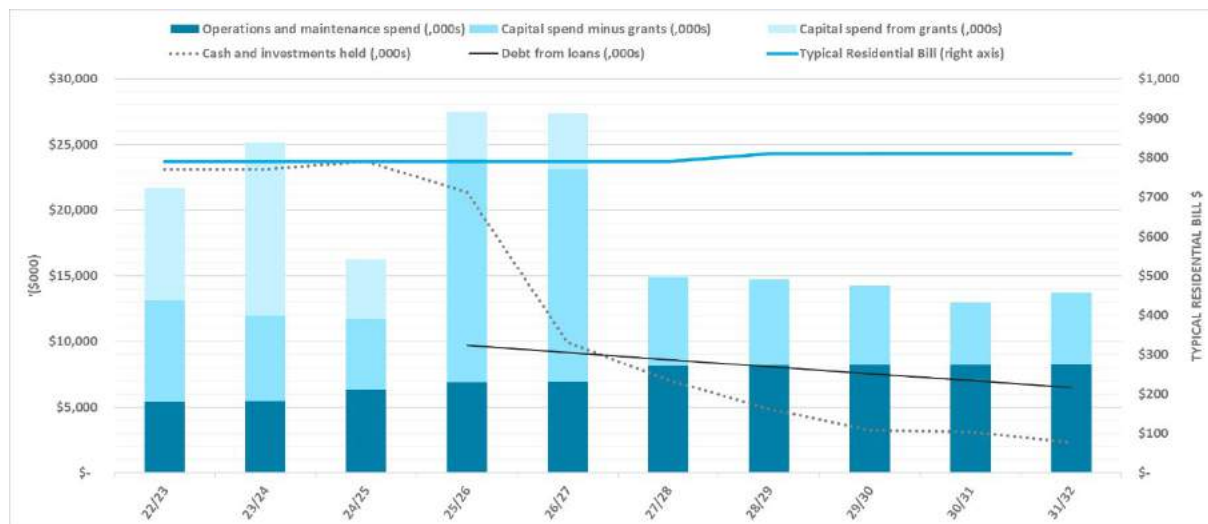


Figure 7 The long-term financial plan for our water fund in the 'Slower' scenario

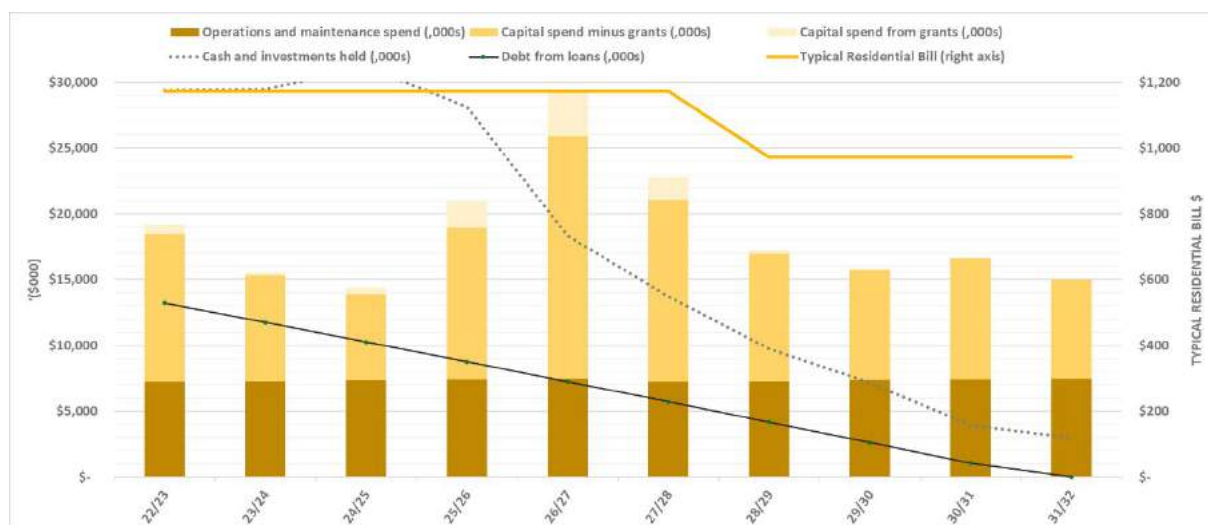


Figure 8 The long-term financial plan for our sewer fund in the 'Slower' scenario

Key differences to the preferred sewer scenario are:

1. a higher current assets (cash and investments) peak in 2024/25 of \$31 M
2. no change in our price path
3. no change in borrowings.

## Workforce strategy impacts

Key outcome areas in our preferred scenario are considered for changes



Table 5 Comparing our preferred scenario workforce strategy with the Slower scenario.

How we get there – preferred scenario	Slower scenario
Seek to outsource more work to contractors and consultants	<b>Change to workforce strategy:</b> No change to the preferred. <b>Risk:</b> No risk comments.
Continue to build a stakeholder-centric culture	<b>Change to workforce strategy:</b> No change to the preferred. <b>Risk:</b> Some increased risk. Our stakeholders want to see timely resolution of key projects.
Ensure engineering control is retained while delivering our upgrades and renewals	<b>Change to workforce strategy:</b> In the slower scenario no additional engineering capacity is built into the workforce strategy. <b>Risk:</b> Some increased risk. The drive to deliver will not go away even if we plan to deliberately delay. If a project is under time-pressure without having resourced engineering control in our workforce strategy, then quality will be impacted which will have a higher long-term cost. Reputational risk is also a factor.
Take on more procurement risk	<b>Change to workforce strategy:</b> No change to the preferred. <b>Risk:</b> No risk comments.
Stop renewing major assets	<b>Change to workforce strategy:</b> In the slower scenario no additional engineering capacity is built into the workforce strategy. <b>Risk:</b> There is increased risk. Choosing to delay renewals further will increase our later project burden and risk failure of assets and services.
Increase our maintenance capacity	<b>Change to workforce strategy:</b> In the slower scenario no additional maintenance capacity is built into the workforce strategy. <b>Risk:</b> There is increased risk. Our aging civil and mechanical assets will need replacing sooner than they would with good maintenance. Because renewals are further delayed, the maintenance burden to service the existing assets may go up by more than the current capacity of the maintenance teams.
Embed ourselves within our organisation	<b>Change to workforce strategy:</b> No change to the preferred. <b>Risk:</b> No risk comments.

#### Other risks:

- our NSW Government funding partners will not extend our funding deeds due to deliberate choices to not actively deliver projects
- the projects do not keep up with regulatory changes which will add more projects and requirements. Newly realised renewal projects will also add to the burden. The risk is that we do not deliver all our known upgrade and renewal projects over the 10-year cycle and do not catch up with requirements
- some business case cost-positive projects may be delayed costing more overall, e.g. solar or sewer rationalisation.

#### Faster scenario

The faster scenario results in slightly reduced asset and service risks and significantly increased workforce risks, with no benefit to typical residential bills.

#### What's different compared to the preferred?

This option assumes that project management resources may be increased, engineering resources are significantly increased including the use of contracted engineering staff, and maintenance resources the same as the preferred.

The result is that many most projects are completed sooner than in the preferred scenario and renewals and second-tier upgrades are addressed more quickly.

## Long-term financial plans

Key differences to the preferred water scenario are:

1. current assets (cash and investments) are diminished quickly
2. increased risk that the minor modelled future price increase is brought forward, with less opportunity to control it and avoid it later
3. additional borrowings of \$2M would be required

Key differences to the preferred sewer scenario are:

1. current assets (cash and investments) are diminished quickly
2. no change in our price path
3. we would require a new loan of \$10M to fund the capital works.

## Workforce strategy impacts

Key outcome areas in our preferred scenario are considered for changes in Table 6.

Table 6 Comparing our preferred scenario workforce strategy with the Slower scenario.

How we get there – preferred scenario	Faster scenario
Seek to outsource more work to contractors and consultants	<b>Change to workforce strategy:</b> More contract staff are needed to manage external contractors and consultants. <b>Risk:</b> No risk comments.
Continue to build a stakeholder-centric culture	<b>Change to workforce strategy:</b> No change. <b>Risk:</b> Reduced risk. Our customers will see projects completed faster and projects driven by customer wants will be addressed sooner.
Ensure engineering control is retained while delivering our upgrades and renewals	<b>Change to workforce strategy:</b> Increased engineering capacity as compared to the preferred scenario possibly with permanent and temporary engineering staff. <b>Risk:</b> Increased risk. Our ability to rapidly attract temporary talent or quickly grow our own capacity is limited. We may lose engineering control even if our intention is to resource engineering significantly.
Take on more procurement risk	<b>Change to workforce strategy:</b> No change. <b>Risk:</b> No risk comments.
Stop renewing major assets	<b>Change to workforce strategy:</b> Increased engineering and delivery capacity as compared to the preferred scenario possibly with permanent and temporary staff. <b>Risk:</b> There is balanced risk. Required renewals will be dealt with in a timely manner, however, our ability to attract the resources may not keep up with our aspirations.
Increase our maintenance capacity	<b>Change to workforce strategy:</b> No change to the preferred. <b>Risk:</b> No risk comments.
Embed ourselves within our organisation	<b>Change to workforce strategy:</b> Increased staff. <b>Risk:</b> Rapidly building large teams for short delivery cycles introduces stresses within an organisation. New positions attract existing talent which needs backfilling. When all the work is done staff need to be shed from the organisation forcibly rather than by attrition.

### Other risks:

- increasing the size of a delivery team does not always linearly increase capacity. Inefficiency must be carefully managed and is harder to avoid the more temporary a team is
- our ability to adapt our program to maintain our typical bills will be diminished

These are expensive assets to build, even with grant funding from the NSW Government. While we are actively seeking additional funding, our current options are based on funding we have obtained or have a high level of confidence in obtaining.

## **Risk of slipping between scenarios – our capacity to deliver**

A significant portion of our works program is required by our regulators. Many of those have grant funding with associated obligations. We looked at the status of our identified program and critically reviewed our resourcing capacity to deliver. For both water and sewer, we have a program that contains all the works we should be doing in order to work towards improving regulatory requirements, asset performance and meeting customer expectations. This is our preferred scenario.

However, we are currently experiencing constraints in delivering budgets, leading to consideration of a different option that weighs up the impacts of not resourcing the baseline program effectively. This helps us to identify works that we may not be able to deliver and how that could impact our business and customers. This is our slower delivery program option.

We are always at risk of falling into our slower option if we let projects take too long, if we do not plan succession for our key engineering and delivery staff, or if we fail to focus on a prioritised program. Our slower option is riskier overall with no cost benefit and is not a desirable scenario for our community.

BEMBOKA WATER TREATMENT PLANT WAS OUR FIRST LARGE FACILITY TO INCLUDE SOLAR PANELS THAT DIRECTLY POWER THE PLANT WITHOUT GOING THROUGH THE GRID.





# Listening to our customers

BUILT IN 2018 THIS RESERVOIR ENABLED  
THE RESIDENTIAL GROWTH BERMAGUI SEES TODAY

## Casting a wide net

Customer involvement has played a key part in drafting this strategy. From the start, our intention has been to cast a wide net, seeking input from a wide cross section of the community.

We completed three rounds of engagement for this strategy with the goal to be early, deep, and broad in our engagement.

ROUND ONE	ROUND TWO	ROUND THREE	ONGOING
Satisfaction and spend perception	Willingness to pay	Feedback on findings Business consultation Developer consultation	Working groups Project engagement

By using telephone, online, social media, face-to-face, mail and printed mediums, we believe we have succeeded in gathering information from a demographic that represents our local community.

## Round one – satisfaction with services

Figure 9 shows how we asked the community to rate their satisfaction with our services, how service interruptions impacted them, and whether they felt our levels of spending on amenities are appropriate.



Figure 9 How we engaged for our round one survey measuring satisfaction and spend perception

We wanted to get an insight of how our individual services are perceived while also seeing how they compared with each other. This approach was deliberate because we needed an overview of how good or bad our services were perceived as well as seeing which of them the community valued the most.

Figure 10 on page 29 shows the level of satisfaction with 12 specific water and sewer services, and how they each compare on a sliding scale.

Results are taken from a telephone survey of randomly generated numbers in the Bega Valley Shire, and an online survey that was promoted through our website and Facebook page. Using these methods of data collection enabled us to attract local participants across a wide and randomly chosen demographic to better represent the community.

### What the satisfaction survey results show

It is encouraging to note an overall high-level of satisfaction in our water and sewer services.

The purpose of this strategy is to explore the ways we can further reconcile community needs and aspirations with ongoing high service standards. This means looking at the survey results from the perspective of how we can improve our services and increase overall community satisfaction levels.

### Quality of water a key focus area

Deeper analysis of the results suggests our customers feel the quality of water received does not match the bill they pay. We used predictive analytics to look for patterns within the survey results. The work reveals that the two key drivers for water are reliability and quality, in that order. Based on

this we can determine that improving the quality of water is the top issue for the community and the key driver in value for money satisfaction.

### **Value for money a serious concern**

Given the two lowest satisfaction levels relate to value for money, we thought it necessary to explore how the community felt about our current spending levels. Water and sewerage services account for around a third of Council's overall expenditure, so it comes as no surprise to see value for money concerns reflected in this survey.

Our aim is to investigate ways we can reduce our costs and the amount charged to our customers, while maintaining an overall high standard of service delivery. As described above, this is a challenge given the topography and low population density of the Shire.



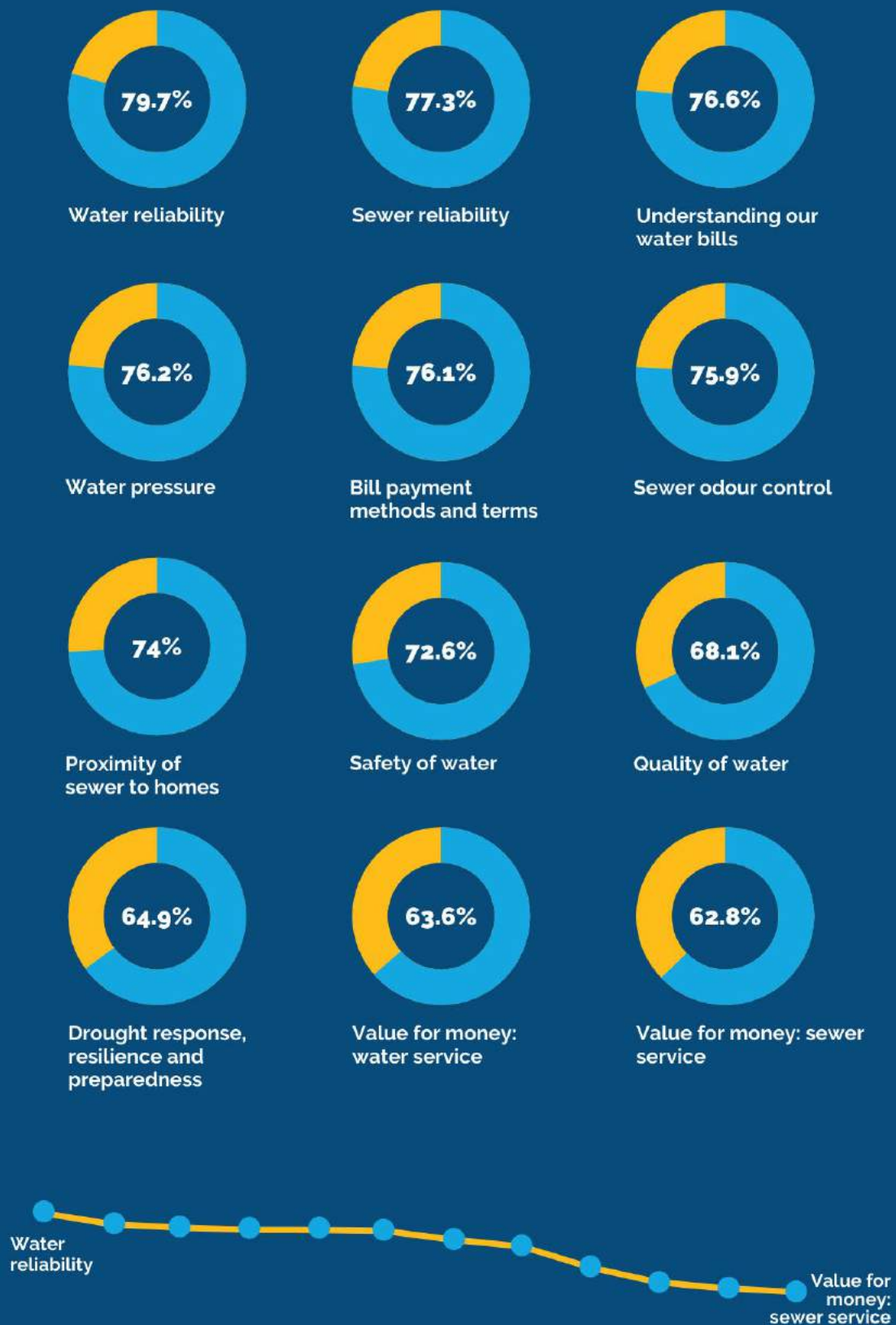


Figure 10 Percentage of satisfied customers about various parts of our business

## Are we spending too little or too much?

We asked the community their views on our current water and sewer utility spending levels. The results from this part of the survey are in Figure 11.



*Results from July 2021 survey showing customer feedback on Bega Valley Shire Council utility spending levels*

Figure 11 Community perceptions on levels of spending related to our business

Of the nearly 1,500 comments we received, a significant portion responded with 'I don't know' or something similar. This tells us we need to improve our customer awareness and education of what our business does. In addition, we need to continue having conversations with the community to track trends and issues and understand our customers more.

## Round two – willingness to pay

Following on from the initial survey, we undertook additional engagement with the community to further explore the community’s priorities for investment and levels of service. This was undertaken through an interactive activity asking individuals to ‘pick their ideal bill’.

Much of our engagement largely centred on areas of our business that are more discretionary, where we have control over the service or could provide a higher level than the regulatory minimum.

Results from the Round 2 survey are still coming in, but initial results indicate the following:

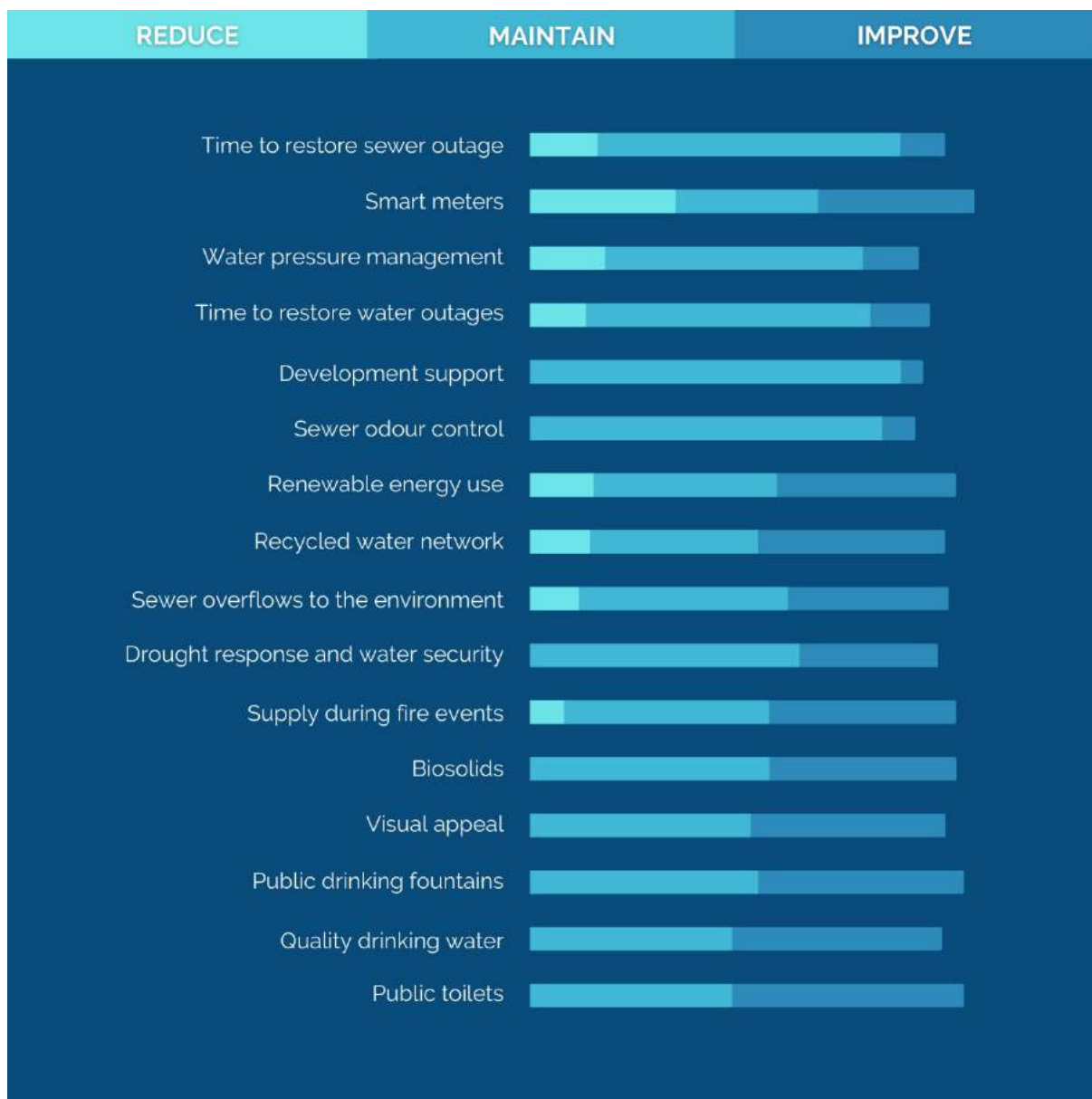


Figure 12 The results from our willingness to pay survey. Not all questions had a ‘reduce’ option, so it is not necessarily in order of willingness to pay. Each service must be considered more carefully through further engagement or planning.

### What the second-round results show so far

In the preliminary results from the adjustable bill activity, it largely indicates that increases in some service levels may be supported by the community. For example, some people support the Water and Sewer business contributing to the maintenance of public toilets. As a result of this we may investigate how best to support this service.



We can also determine that based on the data from both rounds of engagement that any outage impacts to the customer are being minimised in general but perhaps not to the point where we could reduce our response times.

In terms of quality drinking water, the response is relatively even. The three new water treatment plants will improve the quality of the water to regulatory requirements as a minimum. We could further treat the water (the improve option) at an additional cost. The results indicate that waiting to see how the public expectations are met by the new plants would be suitable before increasing services beyond those already planned.

## Round three – engaging on this strategy

In our third engagement round we will be reviewing the community's feedback on this strategy during our public exhibition period. We will also hold an in-person community session to take questions and have some open dialogue on what people think about the strategy. This feedback will be collated and addressed in our recommendation to Council to adopt the final strategy.

## Engaging in the future

We have learnt a lot from opening engagement with the community and we want to continue discussions with our customers. We are reviewing the best ways to continue improving in this area. We want to:

- enhance our understanding of customer needs
- share what we are trying to do to meet needs
- challenge ourselves with what our customers think we could be doing better or differently
- improve customer awareness of our services
- engage on specific issues and services

We are open to your feedback all the time. As well as general feedback there are upcoming opportunities for you to engage with us like:

- our Recycled Water Strategy
- a survey for our business customers
- hearing views from developers when we review our Development Servicing Plan
- exploring earlier engagement opportunities on projects and studies

We are continuing to identify more opportunities and we welcome any feedback on how you would like us to communicate water and sewer service information.

# Our assets



BEMBOKA WATER TREATMENT  
PLANT WAS FINISHED IN 2019

## How we fit into Council's wider Resourcing Strategy

This section of our strategy should be read in the context of Council's [Strategic Asset Management Plan](#) (SAMP) and [Asset Management Policy](#). Our community's overall ability to afford rates and charges from all of Council's services is considered in the Resourcing Strategy. However, The SAMP specifically excludes Water and Sewer assets data. Instead, these elements are considered in this document and the preferred scenario is included in Council's overall Long-Term Financial Plan.

This document is still strongly linked to the Council Resourcing Strategy and its constituent components, including the SAMP. We are committed to operate within the same asset system following the same internal processes. Both the SAMP and this strategy work toward substantial alignment with the ISO 55000 Asset Management System framework on page 6 of the Council SAMP.

## Planned spend

### Capital works program: upgrades and renewals

This section does not deal with the timing of project delivery. That is part of our preferred scenario described in **How will we get there?** on page 16 and our **Long-term financial plan** on page 20.

The capital works portion of the financial plan is based on the snapshot of projects shown in Table 7. Our financial scenarios are significantly controlled by how quickly we do or do not deliver these controls. Most major spends are not optional spends and although we can plan to some extent how and when we spend, we usually cannot choose to never spend. These projects directly respond to our identified issues, including renewal requirements. They are funded because they control the risk that each issue describes.

The traffic light status demonstrates the current expected progress over the next few years, which our workforce strategy responds to. A status of 1 shows we are on-track, and 3 means we are off-track. This feeds up to a traffic light status on the issues list, where projects are our risk controls. The list below represents most of our major projects and programs.

Table 7 Our major projects respond to the risks our issues list describes

Area	Description	Status
Utility business	Clean Energy Plan - solar	3
	Water and Sewer Strategy	1
	Recycled Water Strategy	1
	Asset Management system implementation	1
	Spatial information management	3
Treatment - sewer	Bega STP Capacity Duplication (EPA PRP)	2
	Bermagui STP Biosolids (EPA PRP)	1
	Bermagui STP Process (EPA PRP)	2
	Bermagui Process Round 2 and Outfall (EPA PRP)	3
	Merimbula STP Upgrade (EPA PRP & SSI)	3
	Merimbula Ocean Outfall (EPA PRP & SSI)	2
	Tathra STP Upgrade (EPA PRP)	3
	Tura STP (EPA PRP)	3
	Sewer options assessment	1
Treatment - water	Brogo WTP	1
	Yellow Pinch WTP	1
	Bega WTP	1
	Fluoridation	1
	Kiah / Candelo WTP options assessment	1
Growth	North Bega Sewerage Stage 2	3
	South Bega Sewerage	1
	Trunk main customer access	2
	Industrial development support	3
Water security	Brogo Weir	3
	Tilba Dam/Couria creek backup	2
Asset management	Bore renewals	3
	Maintenance hole maintenance and renewals	3
	Reservoir maintenance and renewals	3
	Sewer pipes renewals	1
	Water pipe renewals	2
	STP renewals	3
	STP maintenance	2
	Decommission old sites/assets	3
	Smart cities network trial	3
	Hydraulic modelling	3



Area	Description	Status
	SCADA replacement	1

### Delaying renewals

Asset renewal budgets have been developed based on the condition of the assets and historical renewal expenditures. A renewal is anticipated to extend or restart the useful life of the asset. Renewal works are projects that include undertaking significant repairs or replacement of assets that cannot be economically repaired. Examples of renewals would be relining of pipes, replacement of motors and repairs to reservoir roofs. Renewals typically do not change the service level of an existing asset such as allowing for higher flow rates by installing a larger pipe.

This strategy and the workforce strategy that supports it, relies on delaying some renewal projects while our resources concentrate on the major water and sewage treatment plants. This introduces additional risk into our systems. Overall risk has been assessed and prioritised in our issues list. Risk is also considered on an individual basis for each renewal project. The prioritised projects represent a higher risk of failure to deliver than the renewals identified for deferral.

### Water reservoirs

For example, we have three water reservoirs that we know are in poor condition, and at risk of failure. If they fail, then the area they serve will no longer have a local store of water. Local stores of water protect reticulated water service areas from any issues with treatment or trunk main transfers of water. They give time to our operators to work on and fix problems without our customers ever knowing about them. We can then turn transfer pipes around to supply from a different source, or take dams offline, or fix disinfection issues.

If we delay the replacement of those tanks we are risking that they catastrophically fail in the next few years, before we get to them. If that occurs we would need to directly connect those customers to the trunk infrastructure. We are putting connections in place for those three water tanks so that the switch can happen quickly if needed. The customer would experience a lower service with less reliable pressure, more water interruptions, and greater vulnerability to weather and other events impacting quality.

### Borefields

We have assessed the condition of our bores in Bega and Kiah and found that they need to be replaced. If the bores start to fail before we can replace or renew them then the screens in the bores may collapse and make the bore inoperable. The result would be a lessened ability to select the bore with the best water quality characteristics. It is very unlikely that all the bores will fail at once. No bores have failed to date. Some bores may be replaced as part of our water treatment plant project in Bega.

### Sewage pumpstations

We have several pumpstations with only a single pump. Single pump pumpstations are riskier than multi pump pumpstations because if the pump fails then an operator must get to the station quickly and replace the pump before the station overflows to the environment.

We also know of pumpstations which are in a condition where they may fail for other reasons.

By delaying sewage pumpstation renewals we are increasing our risk of an environmentally damaging sewage spill.

### Decommissioning assets

Often when assets are no longer required they are left in place. This is often a 'just in case' strategy and over time the asset becomes less useful until it is a risk. We own contaminated land and dangerous structures which we need to remediate and remove. We are also holding land in a degraded state unnecessarily. By delaying this work we are increasing our impact on the environment and increasing our risk of a structural failure and some public liability associated with it.

### Sewage treatment plants

Although we intend to maintain our assets better there are treatment reconfigurations and minor improvements which would improve the quality of effluent we produce and lower our risks to our safety and environmental damage.

### Other projects

Although not renewals, we have other projects which we do not intend to address until we have delivered on our major upgrades.

For example, the planned install of generator connection points and switchgear at our network water pumpstations will also be delayed. This means our risk profile during power failure will not be addressed until we get to this project.

Similarly, some growth projects like North Bega sewer will remain on-hold, impacting residents and businesses in North Bega.

### Operations and maintenance

Operation and maintenance costs include electricity, treatment chemicals, labour, fleet, consumables related to the upkeep of equipment, and all the other factors that go into the daily production and distribution of safe water and the management and disposal of sewerage. The projected operation and maintenance (O&M) costs for sewer and water were developed using historical costs and the anticipated additional costs required to operate the new infrastructure that is being constructed during the forecast timeframe.

Costs will increase as the population grows and new infrastructure is brought on board, but economies of scale will kick in and income will increase. Historically, the water network O&M costs were around \$5.4M but with the addition of the new water treatment plants they will increase to \$8.2M annually in 2028. We have been saving money to put towards water treatment plants. As they are constructed this budget will move to the operation and maintenance of the facilities instead. Our goal is to operate and maintain the plants without needing to increase our water charges. The sewer network O&M costs are not anticipated to increase and will remain around \$7.5M annually.

### Summary of expected spend

Over the next five years, Table 8 shows our total capital spend is dominated by major upgrades to our treatment facilities.

*Table 8 Major water and sewer projects represent two-thirds of our planned five-year capital spend.*

Key sewer projects	Capital budget next five years (\$M)
Merimbula STP & Ocean Outfall	\$23
Bega STP Capacity Upgrade	\$11
Bermagui STP and outfall upgrade	\$9
Tura STP upgrade	\$5
<b>Total percent of capital budget</b>	<b>69%</b>

Key water projects	Capital budget next five years (\$M)
Yellow Pinch Water Treatment Plant	\$30
Brogo Water Treatment Plant	\$6.7
Bega Water Treatment Plant	\$10.2
<b>Total percent of capital budget</b>	<b>66%</b>

The 10-year forecast for water and sewer spends are shown in Figure 13 and Figure 14.

These graphs include the capital and operational spend required to maintain the existing systems as well as new works. Grants are also shown.

This information feeds the Long-Term Financial Plan as well as the annual budget process.

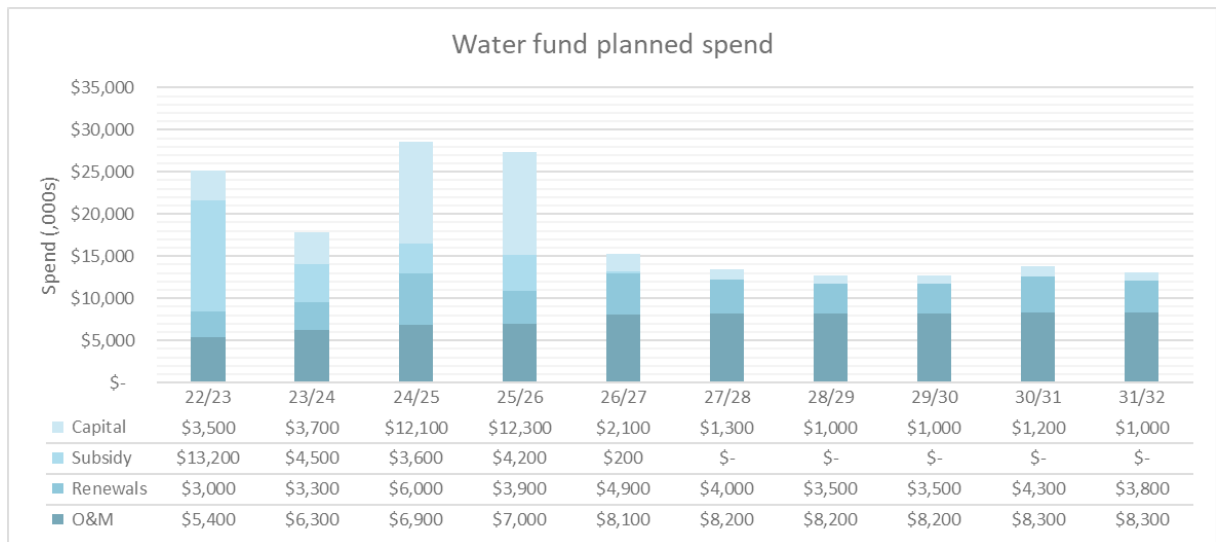


Figure 13 Water fund planned spend for next ten years

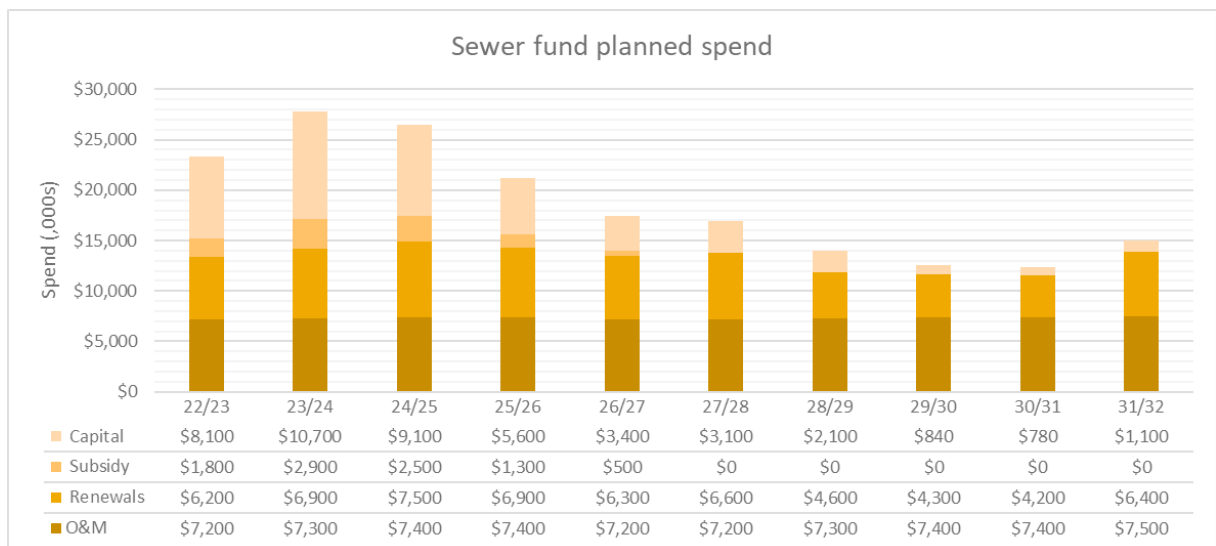


Figure 14 Sewer fund planned spend for next ten years



## Understanding our asset information

Servicing such a large area requires a significant amount of infrastructure. A summary of our key infrastructure is shown below. You can find out more about our infrastructure and where it is on [our website](#). These are just a few assets, we also own and operate 6,900 maintenance holes, 975 sewer pods on private land, 9 water fill stations, 4,750 hydrants, 2,500 stop valves, and lots of other infrastructure types that support our service delivery.



Figure 15 Summary of key water and sewer assets

### Asset condition

We classify our assets into conditions ranging from 1 – 5.

1. the asset is 'as new' with only normal maintenance required
2. the asset isn't brand new but is performing at 100% with only normal maintenance required
3. some extra maintenance is needed, or the condition can be measured as deteriorating through inspection
4. significant maintenance is needed, the asset is generally ready for renewal
5. the asset has effectively failed and is operating on a temporary basis until it can be replaced.

Our condition scoring is based on the *IPWEA Water Supply and Sewerage Practice Note 7 – Condition Assessment and Asset Performance Guidelines 2013*.

### Asset criticality

Criticality quantifies what the consequence of an asset failing is. In water and sewer services criticality is often dictated by the number of customers an asset serves without an easily accessible redundancy. Criticality may also be driven by other risk factors, like environmental impact or safety to the public.

We score criticality from 1 – 5 with 5 being the most critical.

Our asset criticality is only partially defined and is a key improvement area over the next planning cycle as our asset system matures. Our criticality will be linked with our corporate risk system more closely with consequence descriptors which help define relative criticality.

## Asset risk

Condition multiplied by criticality is how we measure our overall risk and priority for renewals. For example, we are working on reducing our criticality by creating backup supplies for our water networks. This allows us to reduce our overall risk and our overall spend by avoiding curtailing useful remaining life in our water pipes.

The risk matrix intentionally matches the format of the asset condition and criticality ratings we record in our asset register. i.e. both are a five-by-five matrix where a risk score equals likelihood multiplied by consequence. We are committed to aligning risk and asset management as each area matures within our organisation.

Our asset risk is reviewed in detail in our Issues Paper. However, for the purpose of our strategy we have consolidated individual asset risks in our Issues List so that we could have a better overall view of our key issues. For example, we have identified individual retention issues, these were then grouped as sewer pump stations and then captured in this strategy under the issue of asset renewals being deferred.

## Sewer fund assets

Table 9 Our sewer fund assets and their replacement costs, value in 2021-2022, and condition. % figures are rounded to the nearest whole number.

Asset class	% of fund assets	Current replacement cost	Written down value	Condition				
				1	2	3	4	5
Sewer Pipe	34%	\$ 87,034,000	\$ 41,384,000	28%	21%	36%	15%	0%
Sewage Treatment Plant	30%	\$ 76,097,000	\$ 47,725,000	40%	42%	7%	10%	0%
Sewer Pump Station	20%	\$ 50,729,000	\$ 28,244,000	20%	32%	44%	4%	0%
Sewer Maintenance Hole	11%	\$ 27,046,000	\$ 13,003,000	81%	11%	7%	0%	1%
Pressure Sewer On-Property	5%	\$ 13,289,000	\$ 4,439,000	27%	24%	0%	49%	0%
Mobile Plant	1%	\$ 1,502,000	\$ 133,000	28%	72%	0%	0%	0%
Vent	0%	\$ 831,000	\$ 556,000	35%	65%	0%	0%	0%
Pressure Sewer Fitting	0%	\$ 550,000	\$ 273,000	0%	0%	100%	0%	0%
<b>Totals</b>	<b>100%</b>	<b>\$ 257,078,000</b>	<b>\$ 135,757,000</b>	<b>36%</b>	<b>29%</b>	<b>24%</b>	<b>11%</b>	<b>0%</b>

## Water fund assets

Table 10 Our water fund assets and their replacement costs, value in 2021-2022, and condition. % figures are rounded to the nearest whole number.

Asset Class	% of fund assets	Current replacement cost	Written down value	Condition				
				1	2	3	4	5
Water Treatment	1%	\$ 4,007,000	\$ 3,751,000	100%	0%	0%	0%	0%
Water Pipe	43%	\$125,340,000	\$ 71,816,000	25%	51%	23%	1%	0%
Water Services	3%	\$ 9,504,000	\$ 6,732,000	25%	51%	23%	1%	0%
Fixtures Valves	4%	\$ 10,338,000	\$ 5,073,000	21%	42%	12%	25%	0%



Asset Class	% of fund assets	Current replacement cost	Written down value	Condition				
				1	2	3	4	5
Water Meters	1%	\$ 4,013,000	\$ 2,062,000	5%	64%	18%	13%	0%
Reservoirs	23%	\$ 66,955,000	\$ 36,727,000	10%	63%	16%	11%	0%
Dams Weirs	19%	\$ 54,166,000	\$ 35,252,000	0%	94%	2%	4%	0%
Disinfection	0%	\$ 1,317,000	\$ 538,000	18%	37%	13%	31%	0%
WPS	4%	\$ 12,938,000	\$ 7,683,000	42%	29%	12%	17%	0%
Radio Telemetry	0%	\$ 252,000	\$ 111,000	0%	31%	69%	0%	0%
Mobile Plant	0%	\$ 149,000	\$ 103,000	74%	10%	10%	5%	0%
<b>Totals</b>	<b>100%</b>	<b>\$288,979,000</b>	<b>\$169,848,000</b>	<b>18%</b>	<b>60%</b>	<b>16%</b>	<b>6%</b>	<b>0%</b>

## Asset lifecycle management

We are implementing an asset management system which will merge our maintenance asset register, our engineering asset register, and our finance team's capital value register. We are moving towards integrating our work using the Assetic platform.

This will significantly improve how we manage acquisitions, disposals, impairment, and renewal programming.

An independent assessment of our assets' condition and value is currently undertaken every five years by an external auditor, however we undertake annual internal reviews to ensure accuracy of data on our assets.

## We target redundant services

Assets are designed and maintained to run until they fail wherever possible. Our utility systems are set up to have redundancy or spare capacity to enable repairs without affecting our customers as far as practicable.

This is achieved by various means and depends on the system. Below are examples of how we apply this principle.

### Water system

- multiple sources of water where possible
- reservoirs have sufficient capacity to supply network for two days
- reticulation networks have cross connections to minimise the number of customers affected by pipe failures
- multiple pumps where water needs to be pumped
- automated valves are used to control flow and pressure throughout the system
- SCADA system to notify operations staff of failures 24/7
- 24/7 customer call centre to allow residents to contact us about failures
- generator connection points at key water treatment and pumping facilities

### Sewer system

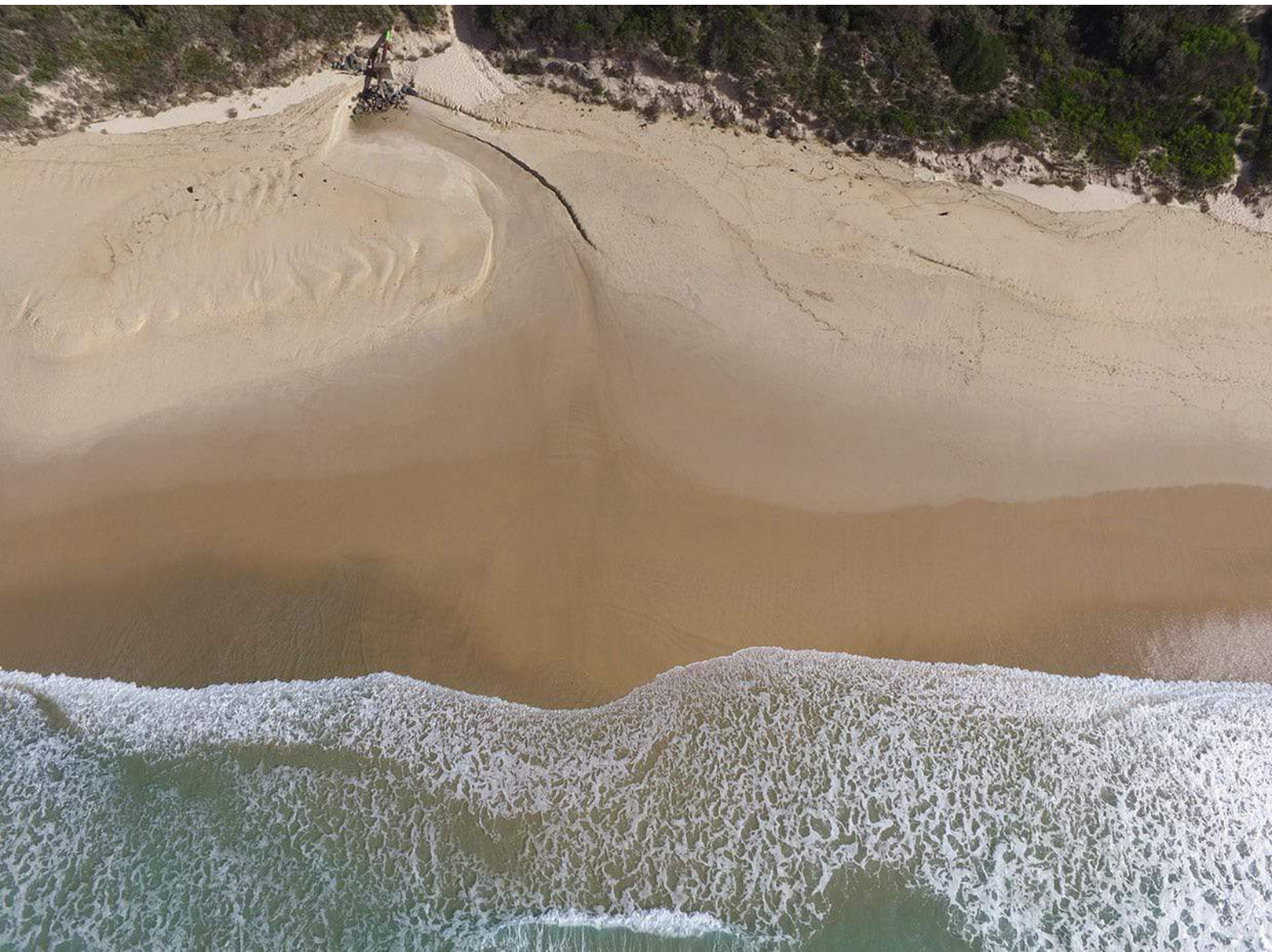
- multiple pumps at most pump stations
- emergency storage of 8 hours at each of our high criticality pumping stations
- emergency storage of 4 hours at other pumping stations



- treatment plants have wet weather storage
- dual processes at treatment plants where practical
- SCADA system to notify operations staff of failures 24/7
- 24/7 customer call centre to all residents to contact us of failures
- generator connection points at pump stations to enable operation during power outages

### **Useful life**

The useful life of an asset is the projected time that the asset will remain in service and meet the demands of the network. The useful life of an asset is indicative and does not necessarily determine when an asset needs to be replaced or upgraded. It is useful in projecting areas of the network that need to be considered for renewals and upgrades. Our asset engineers annually review expected lives for different material types. For example, we vary the expected life of water pipes across 37 different materials ranging from 40 years to 110 years.





# Our region and future



BIOSOLIDS FROM OUR STPs  
HAVE BEEN IMPROVING FARMLAND  
NEAR BROGO, NSW SINCE 2020

Our region and environment have a significant impact on our business. Things that we can't control such as the weather can have a big effect on our ability to provide a consistent quality and service. Our business must find a balance between how much our systems and operations teams can cope with and what that costs our customers.

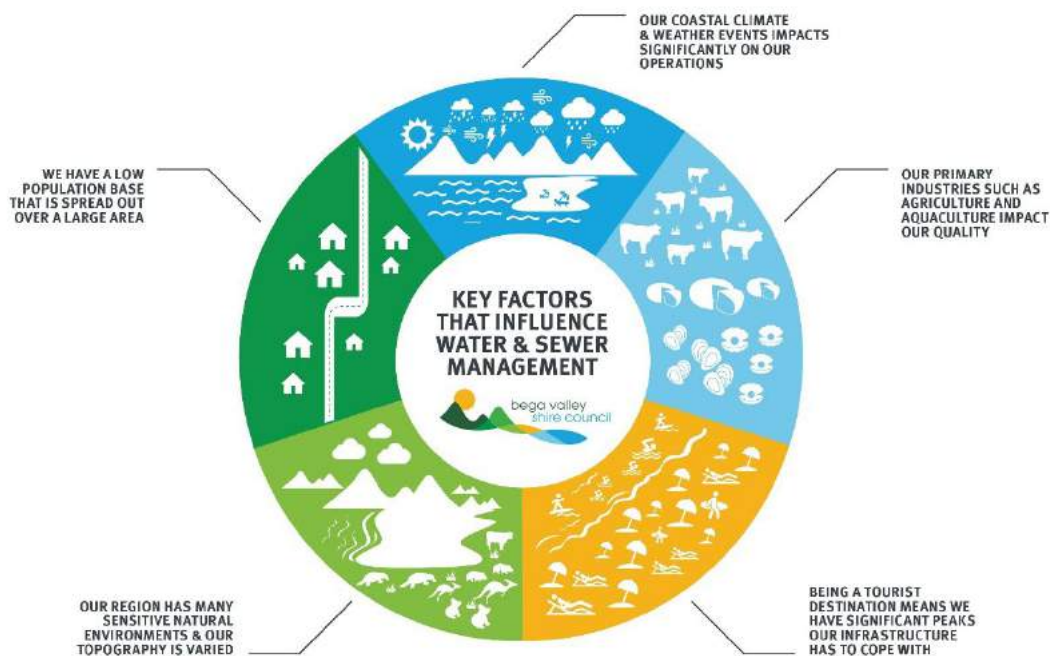


Figure 16 Factors affecting how we manage our services

## How we might grow

We estimate population growth in our serviced areas over the next 30 years. Each time a census is released we estimate it again, but it is difficult to forecast accurately. We also think about Council's wider strategic planning and the wider drivers of the day.

Population growth predictions are notoriously difficult to keep current. We are mostly concerned with the next few years rather than the next 30 and keeping everyone in service is a priority. The last three years have presented a volatile environment for making predictions, beginning with the 2018 Tathra-Reedy Swamp bushfires and other major local, national and global events.

The current model is based on the 2016 census data and was completed by a consultant in 2018. The model shows growth is expected to be gradual in the long term. We will re-work this model over the planning cycle for the next strategic plan.

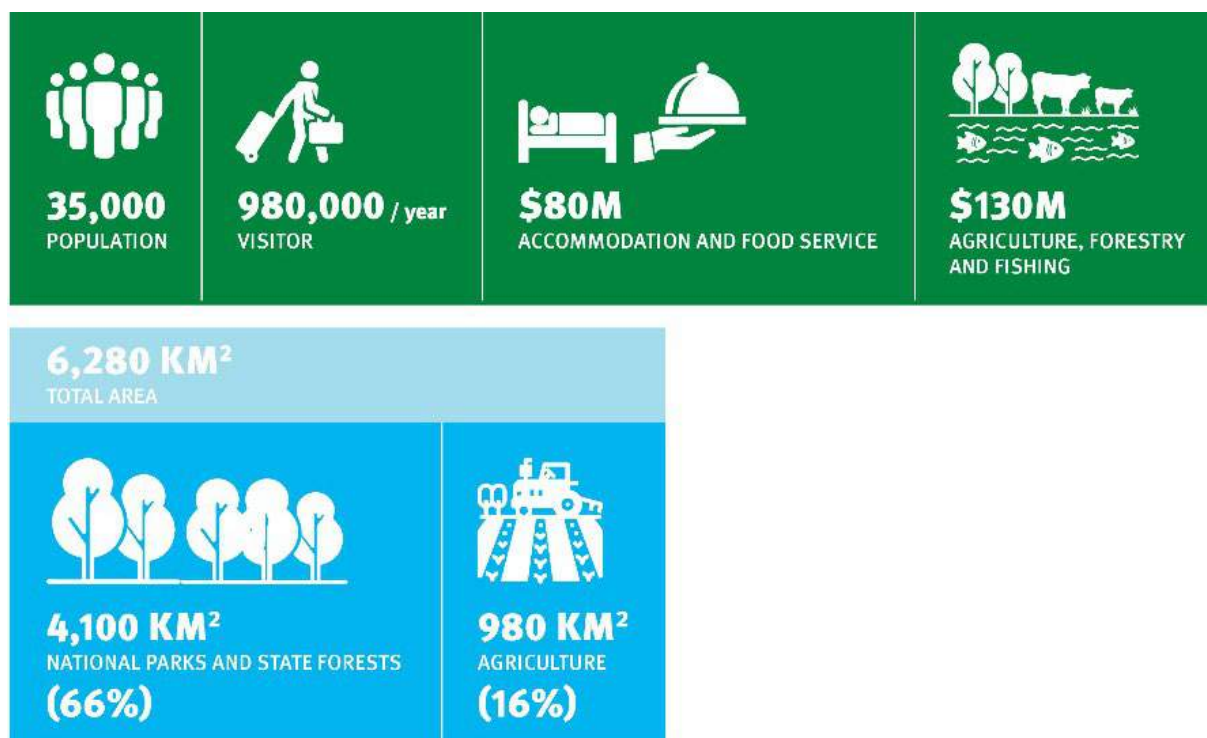


Figure 17 Key regional information

## Our population

Table 11 shows the current and predicted population supplied with water and sewerage services.

Table 11 Current and predicted future serviced population

Population		Year 2022	Year 2052	Annual growth rate
Water supply	Average permanent residents	25,000	31,000	0.72%
	Average permanent residents & visitors	28,000	34,000	0.65%
	Peak summer population	46,000	55,000	0.60%
Sewerage	Average permanent residents	21,000	26,000	0.71%
	Average permanent residents & visitors	23,000	28,000	0.66%
	Peak summer population	38,000	45,000	0.57%



Peak summer population is higher due to visitors and usually occurs in early January. It is more pronounced in the coastal towns with high tourist traffic, such as Bermagui, Tathra, Merimbula, Pambula Beach, and Eden. Some of these areas also experience a reduction in permanent population because of an increase in houses used for tourist accommodation.

This population is the population we serve with water and sewer. Equivalent Persons are a key planning driver we use to plan growth. This allows us to account for non-residential growth in terms of number of people. We know that in the long term the non-residential and residential growth are linked through overall permanent residence and economic activity.

## Population water demand

Water demand varies throughout the year based on population, and from year-to-year due to the impact of rainfall. Table 12 shows the current and predicted average, peak, and dry year water demands for each water supply system. To find out more about each system look at [our website](#).

Table 12 Current and predicted water demand by supply system

Water Supply System	Year 2022				Year 2052			
	Water demand				Water demand			
	ML/d		ML/y		ML/d		ML/y	
	Average Day	Peak Day	Average Year	Dry Year	Average Day	Peak Day	Average Year	Dry Year
Bega-Tathra	2.8	8.5	1,035	1,115	3.3	10	1,230	1,365
Bemboka	0.09	0.33	35	47	0.1	0.35	38	50
Brogo-Couria	0.90	2.3	370	418	1.2	3	453	530
Tantawangalo-Kiah	5.3	15	1,930	2,090	6.3	18	2,320	2,600
Total	9	26	3,370	3,670	11	31	4,040	4,540

We are currently reviewing water security in the Bega Valley Shire with a focus on all-event resilience. Our experience during recent drought events reinforced that our water supply is relatively secure compared to most of NSW when in drought. A strategic approach is required to ensure agility in every circumstance, as was the case during the Black Summer bushfires of 2019/20.

We take an active role in planning for water sharing, in our community of water users, our regional strategy and planning for future risks like reduced streamflow, aquifer saltwater intrusion and climate change. We actively monitor our water supplies and regularly review future risks to ensure mitigation actions are identified early in our strategic and drought management action plans. This is considered in more detail in our issues paper.

## Population sewer flows and loads

Sewer flows are influenced by population and rainfall. Table 13 shows current and predicted average dry weather flow and peak wet weather instantaneous flow, for each sewerage system. More information on our sewerage systems is on [our website](#).



Table 13 Current and predicted future sewer flows by system

Sewerage System	Year 2022			Year 2052		
	Sewer flow			Sewer Flow		
	kL/d		L/s	kL/d		L/s
	Winter Average Dry Weather	Summer Average Dry Weather	Peak Wet Weather instantaneous from storm allowance	Winter Average Dry Weather	Summer Average Dry Weather	Peak Wet Weather instantaneous from storm allowance
Bega	970	1050	150	1200	1300	190
Bermagui	460	900	80	640	1400	125
Candelo	60	60	11	70	70	12
Cobargo	70	75	16	80	85	17
Eden	650	1100	115	800	1400	140
Kalaru	40	65	8	60	95	14
Merimbula	1650	2900	210	2050	3550	265
Tathra	300	650	60	320	750	65
Tura Beach	520	640	85	650	820	110
Wolumla	60	60	13	100	100	20
Total	4780	7500		5970	9570	

## What if we grow faster?

It can be difficult to know the longer-term impacts of recent significant events and how growth patterns may change from current forecasts through the realisation of strategies such as the [Rural Residential Strategy \(2020\)](#), [Residential Land Strategy 2040](#) and the [Draft Affordable Housing Strategy \(2021\)](#). The impact of these strategies and other factors on growth patterns will require our forecasts to be revised as the growth becomes apparent in the market.

We are considering all possibilities in our water supply and sewer rationalisation strategic studies to ensure continual operation of our systems should growth occur at a rate faster than currently forecasted. This will ensure our infrastructure is suitable and future proofed adequately.

## Circular economy

Water is one of the most important shared resources that our planet has. Water is well known for being a cyclic resource that enables human activities. Less obviously, water also promotes biodiversity and ecosystem resilience, carries nutrients, is a source of energy, and moderates high and low temperature extremes.

United Nations Sustainable Development Goals (SDGs) and circular economy goals go hand in hand:

*“...in terms of climate change, environmental and land degradation, water stress, biodiversity loss and human health. The new model of circular economy... may be the only sustainable economic model for the future”*

[sustainabledevelopment.un.org](https://sustainabledevelopment.un.org)



Our planet is experiencing a significant reduction in biodiversity, phosphorus and nitrogen stocks have been depleted, fossil fuel inputs have altered our carbon cycle and impacted climate and weather, we are facing deeper droughts and worsening weather events, lower catchment runoff and water security, our landfill space is filling up, and what we put in our waterways and oceans is altering the life on our planet.

Our focus on the UN SDGs in [our corporate measures](#) is our response to incorporate the goals into our outcomes measurement and therefore the decision making on what we do. We need to be aware of all our impacts, not just our water and sanitation impacts.

Through the environmental themes in [our corporate measures](#) we measure our impact on:

- climate change
- freshwater availability
- water pollution & nutrient cycle
- solid waste
- resource circularity.

And we plan to consider how to include other key metrics that we were not able to include this time, in the next strategy, or through our activities between now and then. For example if we should measure:

- nature lost to land we use for our operations
  - how degraded it is
  - what opportunity for improvement there is
  - land we have returned to support local biodiversity
- what greenhouse gas emissions we enable through what we purchase and contract (scope 3 GHG)
- air pollution from our operations.

Despite how interlinked our business is with many of the SDG outcomes, we are a water utility and have a special focus Goal 6 – *Ensure availability and sustainable management of water and sanitation for all*. We respond to that through our efforts towards integrated water cycle management.

### Integrated water cycle management

Integrated water cycle management (IWCM) is about how we provide appropriate, affordable, cost-effective, and sustainable water and sewerage services that meet community needs and protect public health and the environment, now and into the future.

Often IWCM boils down to how well we work together. The productivity commission defined the concept of integrated water systems as:

*“It encompasses all urban water, regardless of its source, and the provision of the full range of water services and water infrastructure, regardless of scale or ownership.”*

As well as requiring every water user to plan together, the *National Water Reform Report 2020* flagged that:

*“City-scale water system planning, local-scale water system planning and land-use planning are typically undertaken separately” – Productivity Commission, National Water Reform Report 2020*

### **How well do we plan together and talk within local government?**

Within our utility we successfully integrate council scale and local scale water system planning. This is largely because we are responsible for a large area of land and do not significantly share catchments with other water utilities or planning bodies. We achieve this through a dedicated utility development engineer who considers our source and trunk capacity when approving local scale plans from developers, and a water resources coordinator placed at a senior level of our business to negotiate and interact with our community’s key water stakeholders and state regional planning teams.

The source of reticulated water for towns and villages in our shire comes from six locations. Two are natural and unregulated surface river sources, two are river sources that are at times regulated by upstream dam releases, and two are groundwater sources. We monitor each source for flow, water levels, volume extracted and water quality. We research and assess catchments, historical trends and current issues and forecast what the future may bring in a climate changed world. This includes our system secure yield analysis work.

We operate and maintain bulk flow and property water metering across our water supply systems. The data collected is important for licence compliance, water security modelling, drought planning and reporting to regulators. Analysis of data informs our plans for system augmentations, to meet future average, peak day and dry year water demands. It enables water demand, system losses and patterns of water supply to be evaluated and strategies to ensure the correct sizing of infrastructure.

We could integrate land-use planning more by including stronger planning controls to limit growth to areas we can service without upgrades. Other integrations include Development Application requirements for precinct-level responses to considerations like stormwater harvesting and other Water Sensitive Urban Design principals. However, this is highly complex and is a risk to development if areas are controlled unreasonably. Instead, our development engineer represents our utility on Council’s development advisory panel, ensuring that water and sewer is considered early in the development process and at the same table as the other key development and planning areas. This also gives our utility business awareness of upcoming growth so that we can plan to service it.

### **How well do we work beyond local government?**

We engage with local water users, state government regulators, state corporate dam operators and private dam operators, on river flows, water sharing plans, licencing, and water strategic planning. Research findings and data is shared, and collaboration is supported and fostered, to improve our collective understanding of local water resources. Examples on our commitment to engagement and sharing of knowledge include our active participation in and support of:

- a detailed hydrogeological study of the lower Bega-Brogo River alluvial sands
  - we are sharing the results of the study with irrigators and the NSW Government to inform the next Water Sharing Plan
- groundwater modelling of alluvial groundwater level in drought and saline intrusion with rising sea levels and climate change impacts on river flow
- member of River Operations Stakeholder Consultation Committee (ROSCCo) for Bega-Brogo regulated river

- member of Cochrane Dam drought reserve release coordination group
- contribution towards the NSW Food Authority & UNSW - Detailed Hydrological Study - Merimbula Lake and Pambula Lake assessment of sewage overflow impacts on oyster harvest areas in NSW estuaries
- participation in regional water strategy development and water sharing plan review processes
- representation on the NSW Water Directorate Executive Committee
- participation and financial support towards
- member of the Canberra Region Joint Organisation Water Utility Working Group
- provide water services cross-boundary to Eurobodalla Shire Council residents

## Our role in our regional water cycle

Our source water is generally of a high quality. Land use, climatic events and rainfall runoff diminishes water quality at times. Figure 18 shows Brogo raw water quality compared to treated water targets with the new Brogo Water Treatment Plant (WTP), due for completion in 2023. WTP upgrades will ensure drinking water quality consistently meets the Australian Drinking Water Guideline (ADWG) limits.

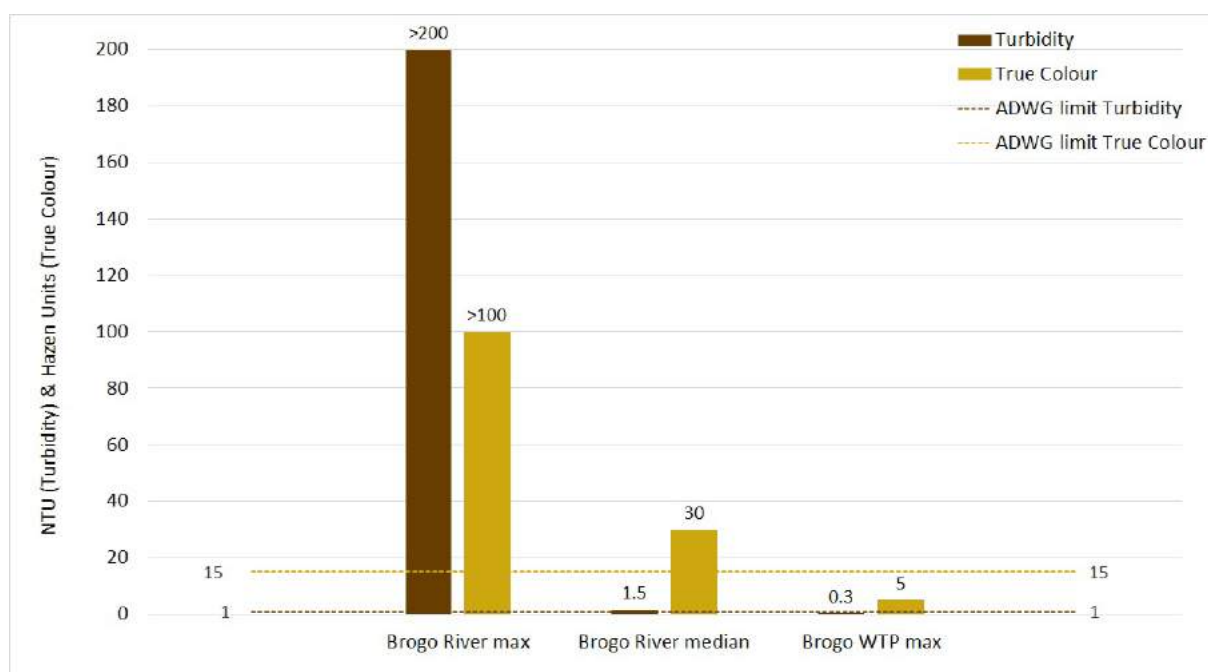


Figure 18 Brogo river raw quality comparison to planned new water treatment plant quality

Most indoor water use is discharged from internal property drainage to a sewer network. The sewage discharged contains organic and inorganic matter, microorganisms, emulsions, pharmaceuticals, gases, and other constituents, from washing, dishwashing, laundering, food preparation and other water uses. Liquid trade waste approvals with businesses help to control substances discharged in sewage to within acceptable limits.

Our sewage networks transport the sewage to treatment plants (STPs) that biochemically treat the volume of sewage collected and produce recycled water of various qualities which are then reused or disposed. Table 14 shows raw sewage quality compared to recycled water quality produced at Eden STP.



Table 14 A typical example of the recycled water quality produced from our sewage treatment plants.

Eden STP		Water quality (median values)	
		Raw sewage	Recycled water
Suspended Solids	mg/L	220	2
Biological Oxygen Demand	mg/L	240	2
Total Nitrogen	mg/L	55	5
Ammonia	mg/L	45	0.2
Total Phosphorous	mg/L	10	7
Faecal Coliforms	cfu/100mL	>10,000,000	1

Recycled water from our STPs is provided to country clubs, golf clubs, private farms, and showground trusts, for irrigation to meet watering needs. The agreements we have with recycled water users and the responsibility they have as users, has enabled recycled water use of up to 40% in dry years, on behalf of the community. We often achieve the highest percentage of recycling by any NSW coastal community. The volume unable to be used is discharged to the environment in accordance with our licence conditions that are set by the Environmental Protection Agency (EPA).

We produce and reuse biosolids that are currently distributed to farmlands near Brogo. This keeps this biological by-product out of our waste facilities and helps to improve farmland in our regions. We have two properties that can accept this product with a total of 700 hectares available for beneficial reuse. So far this financial year, we have removed a total of 2,510 wet tonnes of biosolids and applied this to farmlands. We are actively seeking additional opportunities and have welcomed feedback from the community on their support for an expansion of this service during our second round of community engagement.

### What we are not focussing on now

We are not making assumptions that stormwater harvesting, catchment management, recycled water, non-asset solutions, or any other contemporary or alternative water management practice is intrinsically better than any traditional water supply approach. We will compare all options for individual requirements for both water and sewerage services, like the water supply cost comparison in Figure 19

For example, local government is the owner of stormwater infrastructure, and often there is a perception that stormwater harvesting, and fit-for-purpose supply is an obvious opportunity.

Instead, we are committed to least-cost services, which requires water needs to be quantified and individually assessed for the best solution. All options must be considered. For water the least cost option is normally the best environmental option as well, typically requiring less pumping, less chemical use, less electricity, and less embodied energy, water, and materials.

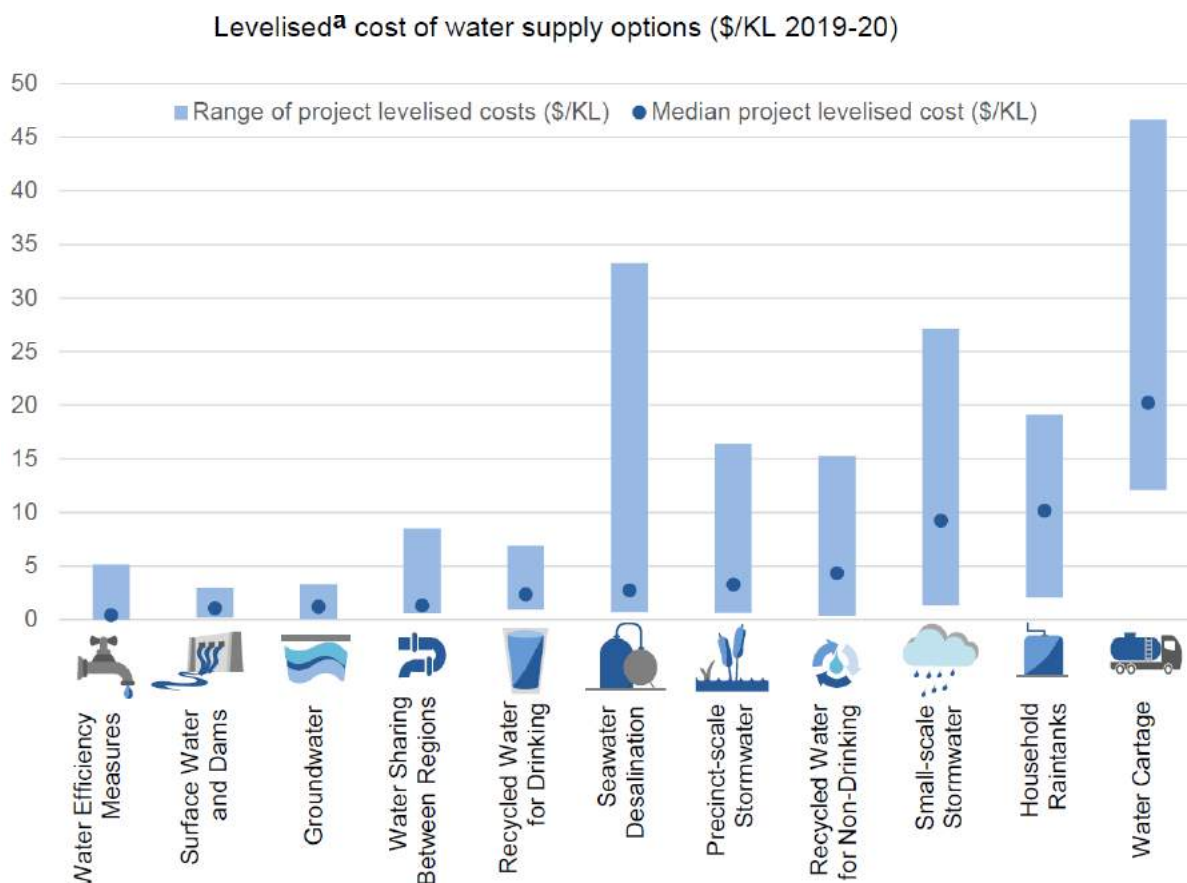


Figure 19 Source – Water Services Association of Australia submission to the Productivity Commission National Water reform report 2020 showing the typical cost of several common water supply options.

## Our future strategic IWCM and circular economy actions

### Upcycling biosolids

We are collaborating with our waste section to make our biosolids product a publicly available product, either through the Fogo composting system or through drying bed direct sale to landscaping supply businesses in the area. This was an action we have committed work towards after the community feedback on this strategy.

### Water efficiency measures and smarter systems

As implied in Figure 19 we recognise the role that water leakage plays in reducing our overall water extraction from the environment. We are working on a bulk water meter upgrade program to improve our water accounting, and an acoustic leak sensing and repair program for our water business. We will work within the NSW Government actions under the state water strategy to implement this work.

We are investigating how smart metering and Internet of Things (IoT) sensors can improve our data and the opportunities that might exist for enhanced water management. IoT sensors are relatively cheap and often low-power remote sensors that are able to communicate with a computer remotely. They connect to a network, which could be a mobile signal, wi-fi, wired, or 'smart cities' low power wide area (LPWA) networks like LoRaWAN or similar. We already own and operate a highly secure telemetry network called SCADA. But SCADA is a very expensive way to gather information because it has to be secure from attack. Using less-secure IoT sensors for low-risk information gathering, and not for controlling our assets, may be an opportunity to improve how we work. IoT sensors are just existing sensors which can also communicate so things like pressure, temperature, proximity, gas, level, and vibration are examples of uses.

Community feedback on smart meters is mixed, water conservation rates as a high priority but willingness to pay results indicate that support for smart meters vary widely. We will continue to consider smart sensors and IoT in general without focussing specifically on smart meters.

#### **Holistic water quality management**

We now know that the level of capital investment required to enable full redundancy in our water network is too high a burden on our community for the life of the long-term financial plan. We instead will focus on lower cost risk mitigation strategies to achieve acceptable water quality and robust event and drought security. One of the key tools for this is catchment management around our water sources.

#### **Recognising urban water users as protected water users**

We will advocate for urban water licences to be able to take water to match demand, rather than be licenced to a theoretical amount. This is the reality of the licence anyway – in an extreme drought the water sharing plan would likely be suspended in favour of the urban supply. This reality should be recognised in the water sharing plan.

#### **Diverse portfolio of water supply sources and transfer sources**

We continually review and strive to improve our integrated management of the water cycle for towns and villages. Our Water Supply Strategy and Recycled Water Strategy are examples of strategic work planned in this area. The water strategy will examine options for water supply under different scenarios for source water availability, dam storage levels and treated water quality and supply. Water treatment plant supply zones will need to be flexible for different scenarios to ensure water security in drought. Our recycled water strategy will explore recycled water supply and use opportunities and assess value for money options.

#### **Our commitment to water sensitive urban design**

We support the concepts of water sensitive urban design (WSUD). Our upgrades and developments will include WSUD principals by slowing runoff, increasing infiltration, reducing use of channelised stormwater networks, use of raingardens, biofilters and similar. We also can use water to help reduce the urban heat island effect and work towards water sensitive communities.

Although we cannot fund stormwater and community water schemes under our current strategy and price path, we will look for opportunities to apply these principals in our own operations to exhibit and advocate for their general uptake in our region. For example, possibilities for green treatment at our sewage treatment plants with the use of accessible multi-purpose treatment facilities that promote biodiversity and public amenity and reduce nutrient pollution.









Zingel Place, Bega

**M.** PO Box 492 Bega **P.** 02 6499 2222 **F.** 02 6499 2200 **ABN.** 26 987 935 332 **DX.** 4904 Bega



[council@begavalley.nsw.gov.au](mailto:council@begavalley.nsw.gov.au)



[begavalleyshirecouncil](https://www.facebook.com/begavalleyshirecouncil)



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