Bega Valley Shire Council

WATER SUPPLY AND SEWERAGE

STRATEGIC BUSINESS PLAN

March 2014

Document Control

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Abbreviations

Abbreviation	Description
ADWG	Australian Drinking Water Guidelines
BOD	Biochemical oxygen demand, a measure of 'strength' of organic pollutants in wastewater/ sewage.
CRC	Current Replacement Cost
CSO	Community Service Obligation
CWP	Capital Works Program
DCP	Development Control Plan
DFS	Department of Finance and Services
DLG	Division of Local Government
DMERP	Drought Management and Emergency Response Plan
EEO	Equal Employment Opportunity
EPA	Environment Protection Authority
EIS	Environmental Impact Statement
EP/ ET	Equivalent Population/ Equivalent Tenement
IDEA	Intermittently Decanted Extended Aeration – A sewage treatment process
IPART	Independent Pricing and Regulatory Tribunal
IPR	Integrated Planning and Reporting
IWCM	Integrated Water Cycle Management
LEP	Local Environment Plan
LGA	Local Government Area
LGSA	Local Government and Shires Associations
LOS	Levels of Service
NFR	Non-filterable residue (also refers to as suspended solids), a measure of fine particle pollutants in wastewater
NHMRC/ AWRC	National Health and Medical Research Council / Australian Water Research Council
NOW	NSW Office of Water
NSWPW	NSW Public Works
NWI	National Water Initiative
OEH	Office of Environment and Heritage
SCADA	Supervisory Control and Data Acquisition
SEPP	State Environmental Planning Policy
STP/ WTP	Sewage Treatment Plant / Water Treatment Plant
WDCC	Written Down Current Cost (also known as 'Fair Value')
WELS	Water Efficiency Labelling and Standards
WHS	Work Health and Safety
TAM	Total Asset Management
TCM	Total Catchment Management

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Executive Summary

Bega Valley Shire Council (BVSC) is the local government authority responsible for providing water supply and sewerage services to communities on the Far South Coast of NSW. The Water and Sewerage Services Department is the functional area responsible.

This Strategic Business Plan (SBP) is the principal planning tool for water supply and sewerage service delivery within the Bega Valley Shire. It provides the framework within which we provide services efficiently and sustainably.

Mission for Water Supply and Sewerage

Our corporate mission for water supply and sewerage services is:

To provide sustainable, cost effective water supply and sewerage services that meet present and future community needs and regulatory requirements

Our corporate policies and objectives also place specific requirements on water supply and sewerage service delivery. These are detailed in Section 2 of this Strategic Business Plan.

Operating Environment Review

Section 5 of this SBP reviews the key external and internal factors within which we operate and may operate in the future. Referred to as the operating environment, it explores the aspects of institutional arrangements, government legislation, policy and management guidelines, future uncertainties and service delivery options.

Scheme Outline

Water Supply Services

BVSC provides water supply services using four water supply schemes:

Summary of Water Supply Schemes

Scheme	Water sources	Water storages	Towns and villages served
Tantawanglo-Kiah	Tantawanglo Creek (weir), Towamba River alluvial aquifer (Kiah bore field) and Bega River alluvial aquifer (Bega bore field)	Yellow Pinch Dam and Ben Boyd Dam	Candelo, Wolumla, Merimbula, Tura Beach, Pambula Beach, Pambula, South Pambula, Eden and Boydtown
Bega-Tathra	Bega River alluvial aquifer (Bega bore field)	-	Bega, North Bega, Tarraganda, Kalaru, Aquamarine Estate, Tathra, Tathra River Estate and Mogareeka
Brogo-Bermagui	Brogo River (pump station) and Couria Creek (weir)	Tilba Dam	Quaama, Cobargo, Bermagui, Fairhaven Point, Beauty Point, Wallaga Lake Heights. Wallaga Lake Koori Village and Akolele
Bemboka	Bemboka River (pump station)	-	Bemboka

These schemes deliver water to approximately 24,000 permanent residents and approximately 40,000 people during peak holiday times. There are approximately 13,350 residential properties and 1,270 non-residential properties connected to a BVSC water supply scheme. This includes approximately 400 rural properties connected to water trunk mains.

Wyndham water supply scheme is a private scheme servicing Wyndham village, operated by the Wyndham Water Users Association.

Sewerage Services

BVSC provides sewerage services using ten sewerage schemes:

Summary of Sewerage Schemes

Scheme	Type	Towns and villages served
Bermagui	Conventional gravity and pump station reticulation, plus low pressure pump reticulation, with continuous extended aeration (CEA) STP	Bermagui, Fairhaven, Beauty Point, Wallaga Lake Heights
Bega	Conventional gravity and pump station reticulation with sequencing batch reactor (SBR) STP	Bega
Tathra	Conventional gravity and pump station reticulation with continuous extended aeration (CEA) STP	Tathra
Tura Beach	Conventional gravity and pump station reticulation with continuous extended aeration (CEA) STP	Tura Beach
Merimbula	Conventional gravity and pump station reticulation with intermittently decanting extended aeration (IDEA) STP	Merimbula, Pambula Beach, Pambula, South Pambula
Eden	Conventional gravity and pump station reticulation with intermittently decanting extended aeration (IDEA) STP	Eden
Cobargo	Low pressure pump reticulation and membrane bioreactor (MBR) STP	Cobargo
Kalaru	Low pressure pump reticulation and membrane bioreactor (MBR) STP	Kalaru
Candelo	Low pressure pump reticulation and membrane bioreactor (MBR) STP	Candelo
Wolumla	Low pressure pump reticulation and membrane bioreactor (MBR) STP	Wolumla

These schemes provide reticulated sewerage services to approximately 21,000 permanent residents and approximately 35,000 people during peak holiday times. There are approximately 11,500 residential properties and 900 non-residential properties connected to a BVSC sewerage scheme.

More detailed descriptions, including service area maps of our water supply and sewerage schemes are presented in Section 3 of this Business Plan.

Levels of Service

Levels of Service (LOS) define the standards, or targets, which we aim to meet for the delivery of water supply and sewerage services. It is our intention to strive for continual improvement to achieve these LOS in the most cost effective way.

Summary of Levels of Service – Water Supply

Description	NWI Indicator Number	Unit	Level of Service	
			Current Target	Future Target
ASSETS				
Water main breaks	A8	No./100 km water main	8	6
Minimum water pressure at the property boundary in urban areas		Metres	20	20
Maximum water pressure at the property boundary in urban areas		Metres	90	90
CUSTOMERS				
Total complaints – water and sewerage	C13	No./ 1000 connections	10	5
Average duration of an unplanned water interruption	C15	Minutes	120	120
Incidence of unplanned water interruptions	C17	No./ 1000 connections	35	30
Response times for unplanned water interruptions in urban areas		Minutes	30	30
ENVIRONMENT				
Greenhouse gas emissions	E10	Tonnes CO2-equivalent per 1000 connected properties	130	200
PRICING				
Typical residential bill in urban areas	P6	$/assessment	540	675 (+CPI)
PUBLIC HEALTH				
Number of zones where microbiological compliance was achieved	H2	Urban water supply zone	6/6	6/6
Number of zones where chemical compliance was achieved	H4	Urban water supply zone	4/6	6/6

Summary of Levels of Service – Sewerage

Description	NWI Indicator Number	Unit	Level of Service	
			Current Target	Future Target
WATER RESOURCES				
Recycled water	W27	% of effluent recycled	40	50
ASSETS				
Sewer main breaks and chokes	A14	No./100 km sewer main	30	20
CUSTOMERS				
Total complaints – water and sewerage	C13	No./ 1000 connections	10	5
Average sewerage interruption	C16	Minutes	100	100
Response times - sewer system main breaks and chokes and pump or other breakdown		Minutes	30	30
ENVIRONMENT				
Sewage treated to a tertiary or advanced level	E3	%	40	65
Sewage treatment plant (STP) compliance	E4	% of sewage volume that was compliant	70	75
No. of STP's compliant at all times	E5	No.	4/6	5/6
Total net greenhouse gas emissions	E10	Net tonnes CO2-equivalent per 1000 connected properties	230	250
Sewer overflows reported to the environmental regulator	E13	No./100 km sewer main	0.5	0.5
PRICING				
Typical residential bill	P6	$/assessment	1045	910 (+CPI)

Objectives

The five key result areas to manage well to achieve success in the long-term provision of water supply and sewerage services are:

- Customer service
- Environmental protection and sustainable development
- Asset management
- Work force
- Finance

Objectives and Performance Targets have been set for these key result areas. These are summarised in the Table below, and discussed in detail in Sections 8 through 12.

Objectives and Performance Targets

Key Result Area	Objective	Performance Target (s)
Customer Service		
Levels of Service and Performance Review	Review and continually improve Levels of Service (LOS) and performance	100% compliance with the LOS
Future Service Areas	Areas to be serviced are based on consideration of technical feasibility, financial viability, demand, public health, environmental and land use planning	Service provided to 100% customers within designated service areas meets the adopted Levels of Service (LOS)
Liquid Trade Waste and Sewer Load Management	Effective liquid trade waste and inflow and infiltration management to reduce loads on the sewerage system and minimise the risk of blockages, overflows, odour problems, corrosion, reduced effluent quality and harm to the health and safety of our workers and the public	Comply with Levels of Service (LOS) for the number of sewer main breaks and chokes and sewer overflows reported to the environmental regulator
Water Conservation	Reduced water extraction during low flow (dry) times to enhance environmental flows Water used appropriately with minimal water wastage The efficient supply of water with minimal losses/leakage The sustainable use of recycled water	100% compliance with Water Sharing Plan rules Median annual residential water usage less than 150 KL/ property from year to year Levels of Service (LOS) met for real water losses and water main breaks 50% recycled water use in a median year
Drought Management	Ensure water supply schemes continue to provide water in times of drought	Water supplied for essential domestic purposes 100% of time
Service Pricing	Pricing which distributes costs equitably among customers and minimises cross-subsidies Pricing that is reflective of long-term costs and avoids the need for sharp increases to the typical residential bill Pricing which raises the revenue required for long-term financial sustainability	Compliance with the NOW Water Supply, Sewerage and Liquid Trade Waste Pricing Guidelines
Customer Relations	Provide services in a professional and efficient manner and achieve a high level of customer satisfaction	100% compliance with the adopted Levels of Service (LOS) for customer related indicators

Key Result Area	Objective	Performance Target (s)
Community Involvement	Consult with the community for all projects where there is a legislative requirement to consult, it is clear that there is significant community interest and when Levels of Service (LOS) and pricing will be significantly affected	> 80% satisfied with consultation process as measured by survey
Environmental Protection and Sustainable Development		
Environmental Protection and Sustainable Development	Operate water supply and sewerage services in an ecologically sustainable manner with acceptable environmental impact	100% regulatory compliance and 100% compliance with adopted Levels of Service (LOS) for the environmental indicators
Asset Management		
Asset Management	Meet the required Level of Service (LOS) in the most cost effective manner for present and future customers Provide capital works at optimal life cycle costs to meet social, economic and environmental considerations and current and future LOS	Meet regulatory requirements as defined by the LOS Meet customer expectations as defined by the LOS
Workforce		
Workforce	Have appropriate numbers of skilled staff to enable delivery of water supply and sewerage services that meet Levels of Service (LOS) in a safe working environment	No failure to meet LOS due to inadequate staff numbers or skills
Finance		
Financial Plan	Provide water supply and sewerage services in a financially sustainable manner and in accordance with Levels of Service (LOS)	Water supply and sewerage funds are sustainable in the long term

Principal Issues

The principal issues facing BVSC water and sewerage services are listed below and addressed with actions in the relevant sections of this Plan.

Principal Issues
Meeting the adopted Levels of Service
Managing and funding new capital works
Managing and funding rehabilitation and renewal of ageing assets
Optimising costs of operation and maintenance
Managing increasing customer service expectations
Service provision to new areas
Security of water supply (quantity and quality)
Meeting EPA licence conditions for sewerage systems
Meeting Government endorsed management guideline requirements
Equitable and affordable service pricing
Maintaining adequate number of skilled staff
Capacity development (in alliance with neighbouring Councils) in the area of planning, design and modelling of water and sewerage schemes

Projected Financial Position – Water Supply

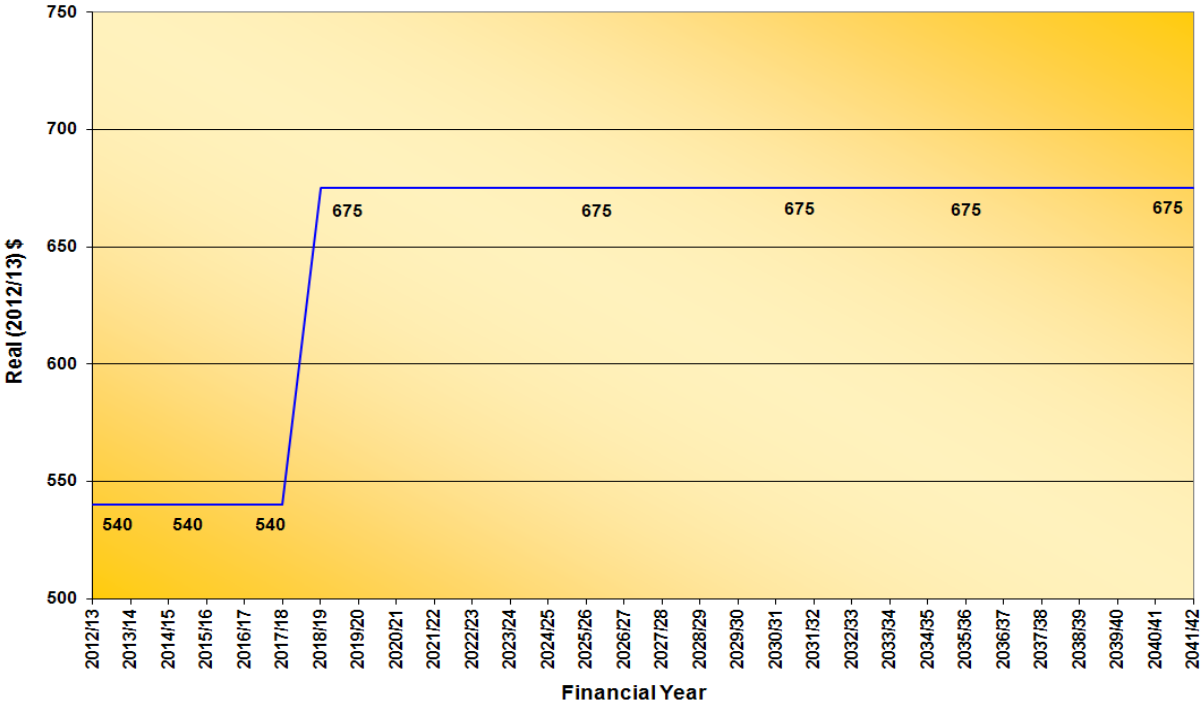
Financial projections have been made considering that no subsidy will be available for the planned major capital works during the forecast period. The following table presents a summary of the forecast financial position of our Water Fund over the next 30 years at five-year intervals. Note all projected values are in 2012/13 dollars.

Summary of Projected Financial Position – Water Supply

2012/13 $ (000)	2012/13	2016/17	2021/22	2026/27	2031/32	2036/37	2041/42
Estimated Total Revenue	11066	11107	14421	14349	14801	14809	14839
Estimated Total Expenditure	9394	9860	10760	14414	14426	15158	14665
Operating Surplus / (Deficit)	1672	1247	3661	-65	375	-350	174
Acquisition of Assets	2985	3620	5066	21807	2770	2515	2515
Principal Loan Payments	103	0	0	774	919	1362	1618
Borrowings Outstanding	6	0	0	28628	20636	21748	11613
Cash and Investments	15313	11083	18150	1889	3703	2701	2008
Total Assets	205688	208264	218367	259435	254490	258366	250314
Total Liabilities	1090	1125	1178	29861	21916	23059	12942

Financial modelling has demonstrated that the typical residential bill (TRB) for water supply services, can be maintained at the current level of $540 p.a.(plus CPI annual increases) for the next 5 years (till 2017/18). Thereafter, the TRB needs to increase by $135 to $ 675 p.a. for the remainder of the 30-year forecast period as shown in the following figure.

Typical Residential Water Bill



Revenue from this level of charging will be sufficient to maintain liquidity with a minimum of $2 million of cash in hand over the period. For the next 12 years, all planned capital works will be internally funded from available cash and investments and no new borrowing will be required. New external borrowing will be required to fund major capital works from 2025/26 onwards. See Section 12 for more financial projection details.

Projected Financial Position – Sewerage

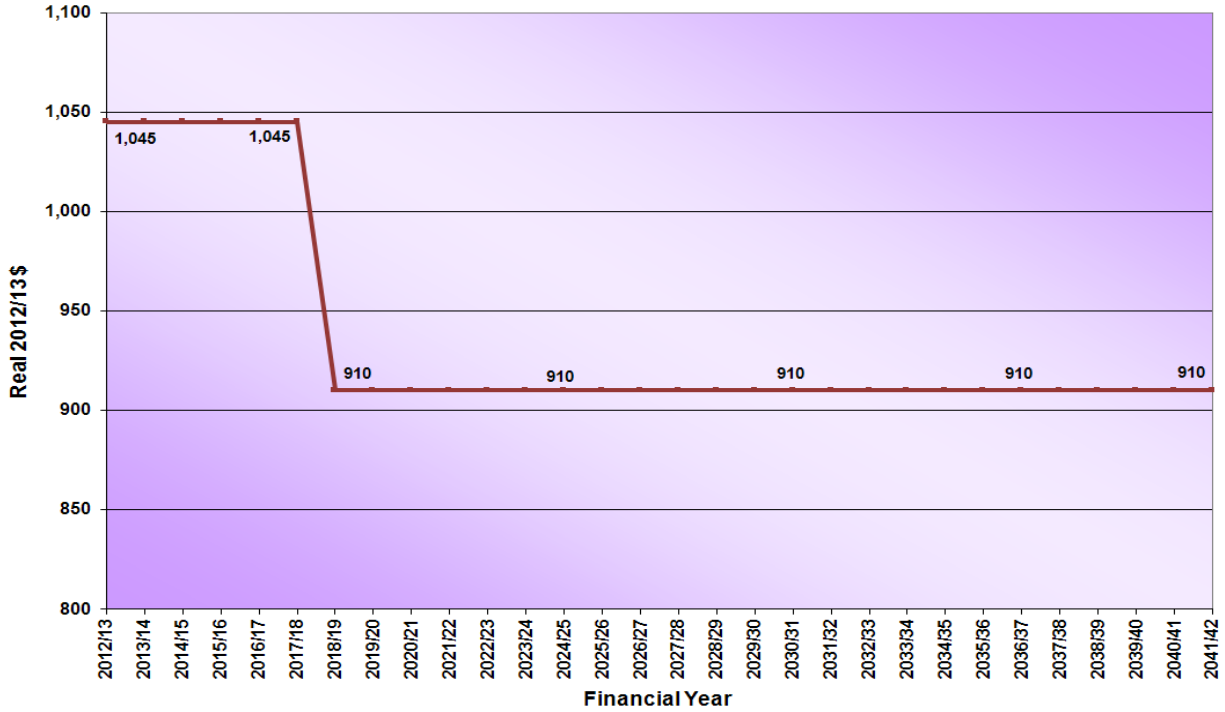
Financial projections have been made considering that no subsidy will be available for the planned major capital works during the forecast period. The following table presents a summary of the forecast financial position of our Sewer Fund over the next 30 years at five-year intervals. Note all projected values are in 2012/13 dollars.

Summary of Projected Financial Position – Sewerage

2012/13 $ (000)	2012/13	2016/17	2021/22	2026/27	2031/32	2036/37	2041/42
Estimated Total Revenue	15704	16321	15053	15642	16084	16220	16288
Estimated Total Expenditure	15162	15217	16110	16116	15965	16263	16501
Operating Surplus / (Deficit)	542	1104	-1057	-474	120	-44	-213
Acquisition of Assets	4751	12079	5876	3400	3399	5000	5000
Principal Loan Payments	790	828	1196	1470	1367	845	395
Borrowings Outstanding	23281	17277	23823	16074	7358	6664	7379
Cash and Investments	11139	4686	4357	2737	3249	2242	2231
Total Assets	197170	198402	205376	197347	191459	191642	192366
Total Liabilities	24167	18198	24791	17089	8421	7754	8487

Financial modelling has demonstrated that the typical residential bill (TRB) for sewerage services, can be maintained at the current level of $1,045 p.a. (plus CPI annual increases) for the next 5 years (till 2017/18). Thereafter, the TRB can be decreased by $135 to $910 p.a. for the remainder of the forecast period as shown in the figure below.

Typical Residential Sewer Bill



Revenue from this level of charging will be sufficient to maintain liquidity with a minimum of $2 million of cash over the period. All planned capital works will be funded through a mix of available cash and investments, annual revenue and external borrowings. New external borrowing will be required to fund major capital works from 2017/18 onwards. The outstanding borrowing will be at a maximum of $23,823K in 2021/22 and $7,379K at the end of the forecast period (2041/42).

See Section 12 for more financial projection details.

1 Introduction

1.1 Purpose of the Plan

The purpose of the plan is to provide the strategic direction for the delivery of water supply and sewerage services with the main aims of:

- defining Levels of Service
- outlining the key existing issues that affect the delivery of water supply and sewerage services, now and into the future
- identifying the financial and other resources required to operate water supply and sewerage services on a commercial basis
- assisting in the delivery of a long-term capital works program with an affordable price path for services
- demonstrating to customers and stakeholders that water supply and sewerage service delivery is well managed
- providing the information for Council's Resourcing Strategy as required for compliance with the NSW Government Integrated Planning and Reporting Framework and for the Community Strategic Plan

1.2 Integrated Planning and Reporting Framework

A Strategic Business Plan for water supply and sewerage services compliments the NSW State Government Integrated Planning & Reporting (IPR) Framework (Figure 1). It enables the State Government to:

- gain an overview of the current status and future water supply and sewerage needs of non-metropolitan NSW
- gather information to assist in directing policy and programs for financial and technical assistance towards the needs of the utilities

The main elements of the IPR framework are the:

- Community Strategic Plan (CSP)
- Delivery Program
- Resourcing Strategy
- Operational Plan
- Annual Report
- Perpetual monitoring and review

Figure 1 – NSW State Government Integrated Planning and Reporting (IPR) Framework

1.3 Benefits of Strategic Business Plans

Water supply and sewerage service businesses are characterised by large and episodic capital (CAPEX) investments as well as significant day-to-day operational, maintenance and administration (OMA) costs. For this reason, financial projections in Strategic Business Plans need to cover at least the next 20-30 years, with CAPEX and OMA projections for the next four years based on reasonably firm cost estimates.

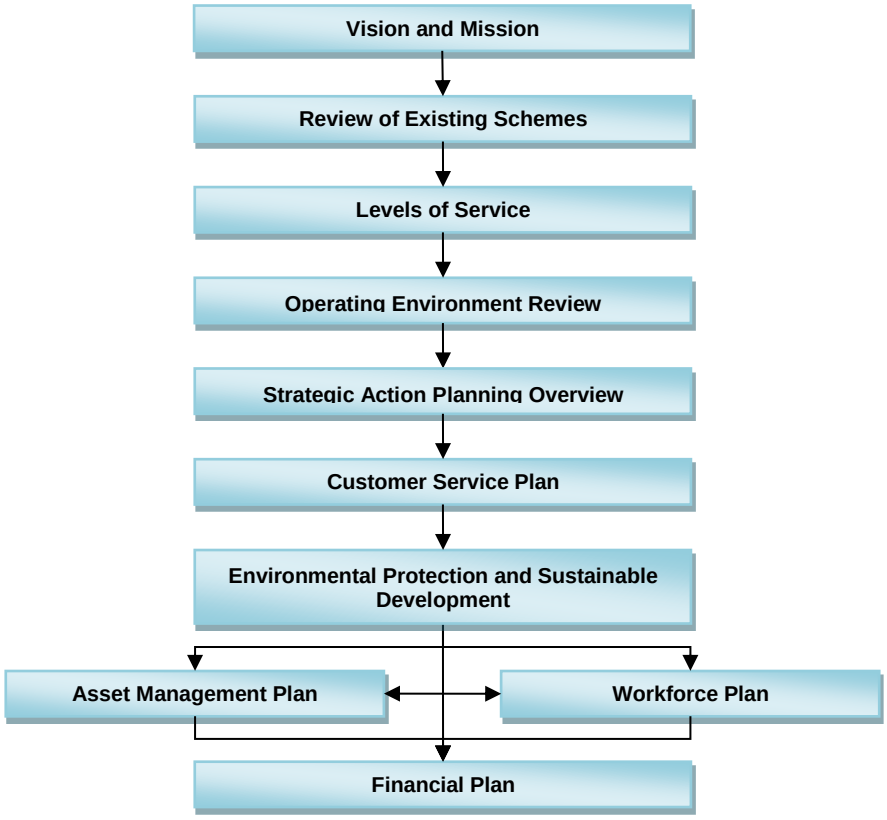
Strategic Business Plans provide many benefits including:

- defined Levels of Service
- improved management performance
- improved financial performance
- avoidance or minimisation of increases to Typical Residential Bills (TRBs)
- increased accountability to customers

1.4 Plan Structure

The structure of this Strategic Business Plan is outlined in Figure 2.

Figure 2 – Structure of the Plan



2 Vision and Mission

Our corporate vision and mission statements provide direction for the delivery of water supply and sewerage services.

2.1 Corporate Vision 2030

Our vision for the LGA is:

> ***The Bega Valley is a community that works together to achieve a balance between quality of life, sustainable development and conservation of the environment***

2.2 Corporate Mission

Our corporate mission is the framework that reflects the ambitions of the community and our role in achieving the outcome of our Vision 2030:

> ***A Liveable Place –*** *To support a place where everyone regardless of age or circumstance can enjoy a safe, involved and affordable community life*
>
> ***An Enterprising Place –*** *To support a creative and innovative business community invigorating growth in employment and economic activity, in partnership with government*
>
> ***A sustainable Place –*** *To ensure the unique environment is protected to maintain biodiversity and water quality and managed for our community, to provide growth and economic opportunity*
>
> ***An Accessible Place –*** *To plan, and provide a comprehensive mix of public and private sector services and facilities in order that residents and visitors have access to the quality health, recreation, education, employment, transport, utility and retail resources they want and need*
>
> ***A Leading Organisation –*** *To shape an organisation that supports the agreed aspirations of the community within the capacity of the community and the capability of the organisation*

We have adopted a number of principles reflecting the way our businesses are run. These are:

- **Civic leadership** is provided by well trained, responsive, innovative and accountable Councillors and staff
- Opportunities are provided for the **community to be involved** in our decision making
- There is commitment to providing consistently high quality **customer service**
- Planning takes place in an **integrated whole of organisation** manner which reflects the **aspirations** of the community and the **capacity** of the organisation
- There is effective management of assets, finances, resources and service delivery
- The organisation is an **employer of choice**, promoting a safe, healthy and innovative working environment
- **Strong partnerships** between all levels of government and their agencies, community groups and businesses are in place

2.3 Mission for Water Supply and Sewerage Services

Our corporate mission for water supply and sewerage services is:

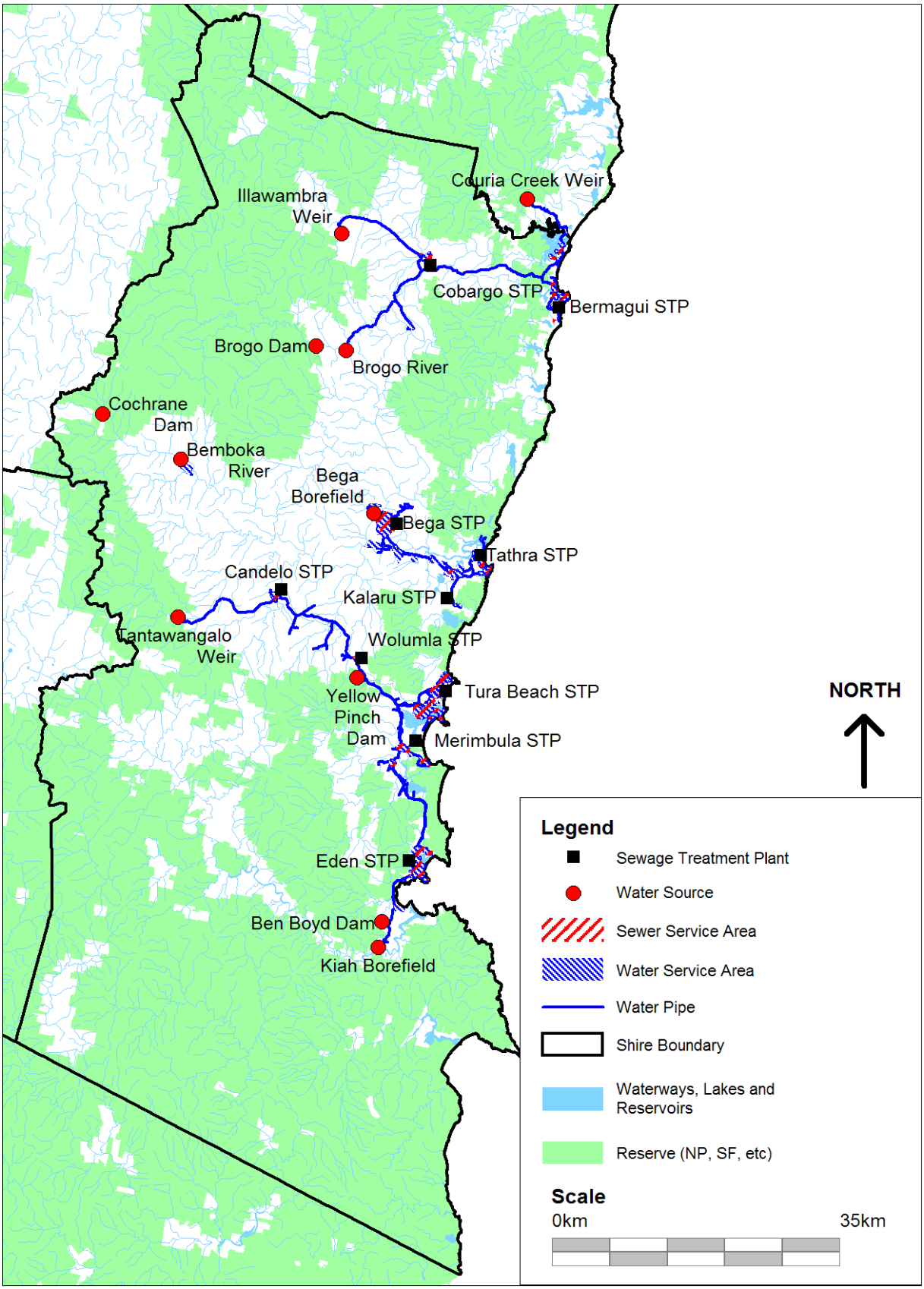
To provide sustainable, cost effective water supply and sewerage services that meet customer needs and regulatory requirements

2.4 Implications of Mission Statements

The implications of our mission statements for water supply and sewerage services are that we will:

- strive for excellence in customer service
- have a strong economic base
- provide sustainable infrastructure and assets
- meet community expectations
- meet regulatory requirements
- maintain suitably skilled and experienced staff
- provide necessary services efficiently
- be dynamic and responsive to change
- be environmentally committed and responsible

Figure 3 – Map of Bega Valley Shire Water Supply and Sewerage Schemes



3 Existing Schemes

3.1 Water Supply Schemes

There are four water supply schemes in the Bega Valley Shire, namely:

- Tantawanglo-Kiah
- Bega-Tathra
- Brogo-Bermagui
- Bemboka

These schemes deliver water to approximately 24,000 permanent residents and approximately 40,000 people during peak holiday times. There are approximately 13,350 residential properties and 1,270 non-residential properties connected to a water supply scheme. This includes approximately 400 rural properties connected to trunk mains in each system.

Rural residential and commercial properties that are not connected to one of these schemes generally source water individually from rain, ground and/or surface water sources.

Wyndham water supply scheme is a private scheme servicing Wyndham village, operated by the Wyndham Water Users Association.

3.1.1 Tantawanglo-Kiah Water Supply Scheme

Water sources

- Tantawanglo Creek
- Towamba River alluvial aquifer (Kiah bore field)
- Bega River alluvial aquifer (Bega bore field) via the new Bega to Yellow Pinch Dam pipeline

Water storages

Dams

Yellow Pinch Dam in the north (capacity of 3000 ML) and Ben Boyd Dam in the south (capacity of 800 mega litres), both off-stream dams with small catchments, are filled with water transferred from their respective sources.

Aquifers

The alluvium (depositional sands and gravels) associated with the Bega River and Towamba River contains groundwater. This groundwater is called an aquifer because it yields a usable quantity of water. A large volume of water is estimated to be stored in the Bega River alluvial aquifer, approximately 12,000 ML in the arm of the Bega River upstream of the Brogo River confluence. A relatively large volume of water is estimated to be stored in the Towamba River alluvial aquifer, approximately 3 000 ML in the Lower Towamba River at Kiah. Both alluvial aquifers are fully charged when a surface flow is present in the river.

Scheme operation

North:

Water from Tantawanglo Creek is withdrawn from Tantawanglo Creek Weir - a pipe head weir located in the South East Forest National Park, about 30km south-west of Bega. The amount of water extracted depends on the flow in the creek and the licenced daily extraction limits. Daily extraction volumes range from 0 ML/d (during very low drought flows) to a maximum of 5 ML/d (for creek flows that are greater than 10 ML/d). Water from Tantawanglo Creek weir is piped to Yellow Pinch Dam (approximately 35 km).

Water in the pipeline flows by gravity and is boosted by Wolumla booster pump station. The pipeline from Tantawanglo Creek to Yellow Pinch Dam supplies water to Candelo, Wolumla and 176 rural trunk main properties upstream of Yellow Pinch Dam.

Tantawanglo Creek is the main source of water for Yellow Pinch Dam. The Bega River aquifer at Bega is another source of water for Yellow Pinch Dam, via the Bega to Yellow Pinch Dam pipeline. It is used to fill the dam during moderate to high flows in the Bega River at Bega. Another minor source of water for Yellow Pinch Dam is the small catchment area of the dam.

Water stored in Yellow Pinch Dam is used throughout the year and to meet peak holiday supply needs. Yellow Pinch Dam supplies water to Merimbula, Tura Beach, Pambula Beach, Pambula and approximately 70 rural trunk main properties downstream of Yellow Pinch Dam.

Water availability from Tantawanglo Creek becomes limited during drought. Less water is extracted as the flow in the creek lowers. Water stored in Yellow Pinch Dam is pumped upstream during dry times to maintain the supply of water to Candelo, Wolumla and rural trunk main properties upstream of Yellow Pinch Dam (i.e. the flow is reversed).

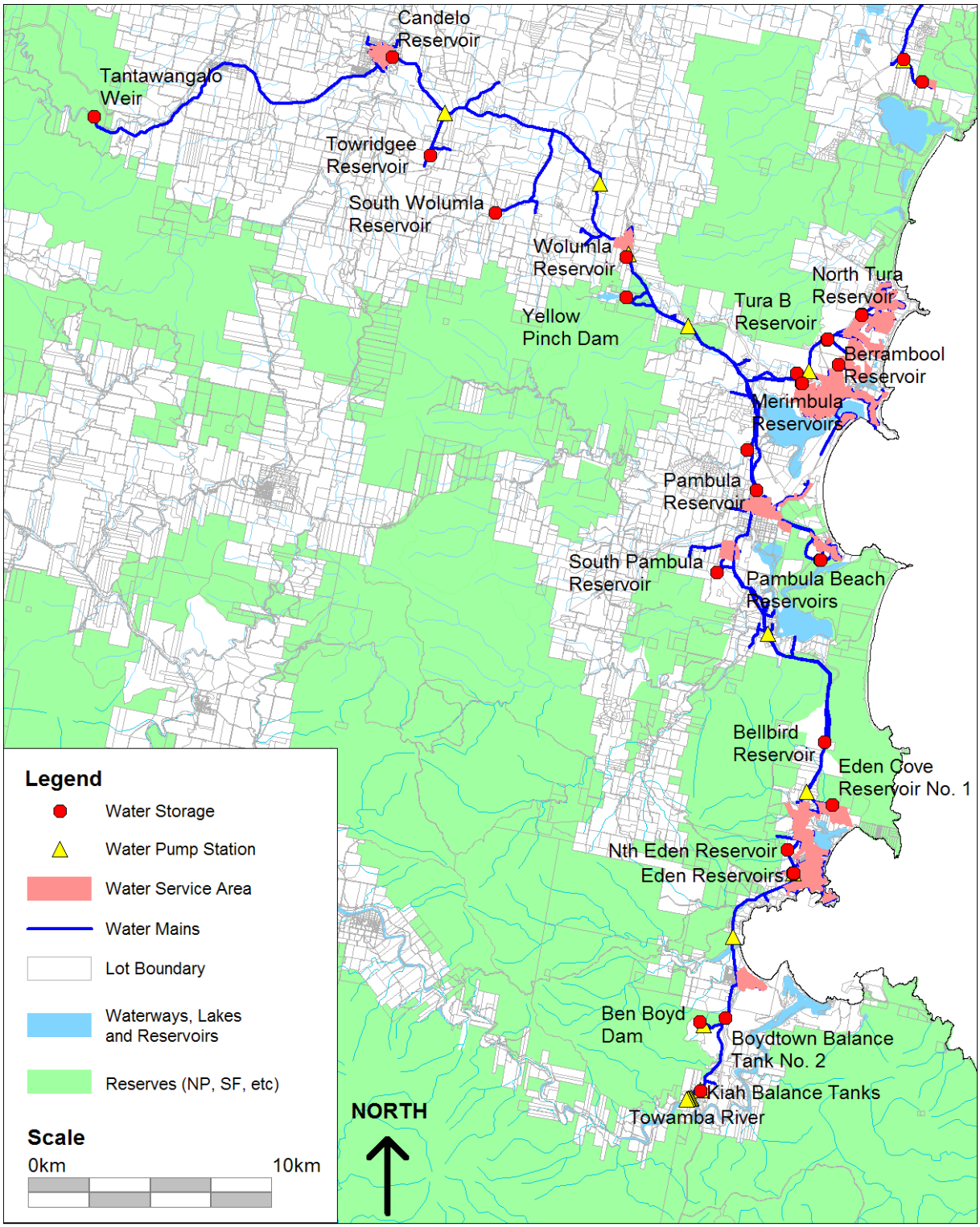
South:

Water from the Kiah bore field is withdrawn from five shallow bores located in the alluvial aquifer of the lower Towamba River. The amount of water extracted depends on the flow in the Towamba River and the licenced daily extraction limits. Daily extraction volumes range from 1 ML/d (during very low drought flows) to a maximum of 5 ML/d (for river flows that are greater than 15 ML/d). The maximum licenced daily extraction limit is 12 ML/d (for river flows greater than 34 ML/d) however supply scheme augmentations are needed to achieve this.

Water from the bores is pumped to Boydtown Balance Tank from where it flows by gravity to Eden Reservoirs (and Ben Boyd Dam when the dam is being filled). Water stored in Ben Boyd Dam is used to supplement supply from the Kiah bore field, to meet high water usage periods and to maintain supply during dry times when water from the Kiah bore field source is limited. The Kiah bore field and/or Ben Boyd Dam supplies water to Boydtown, Eden, South Pambula and approximately 160 rural trunk main properties between Kiah and South Pambula. Water from the south can also supplement water from the north during dry times.

A schematic of the Tantawanglo-Kiah water supply scheme is shown in Figure 4.

Figure 4 – Tantawanglo-Kiah Water Supply Scheme



3.1.2 Bega-Tathra Water Supply Scheme

Water sources

- Bega River alluvial aquifer (Bega bore field)

Water storages

Dams

There are no dam storages for this system.

Aquifers

The alluvium (depositional sands and gravels) associated with the Bega River contains groundwater. This groundwater is called an aquifer because it yields a usable quantity of water. A large volume of water is estimated to store in the Bega River alluvial aquifer, approximately 12,000 ML in the arm of the Bega River upstream of the Brogo River confluence. The aquifer is fully charged when a surface flow is present in the Bega River.

Scheme Operation

Bega bore field is located to the west of Bega, adjacent to the Bega River. It consists of six bores aligned parallel to the river in a north-south direction. The bores are about 40 metres apart and 20 metres deep. Each bore has a submersible pump with a capacity of approximately 45 L/s. The bore pumps are operated sequentially, controlled by water level sensors 200 mm apart in High Street balance tank (old). Bore selection (i.e. which bore pumps start first, second, third etc. when the levels in the balance tank drop to the sensor set points) is based on water quality considerations. There is variability in water quality, particularly the concentration of iron and manganese between the bores.

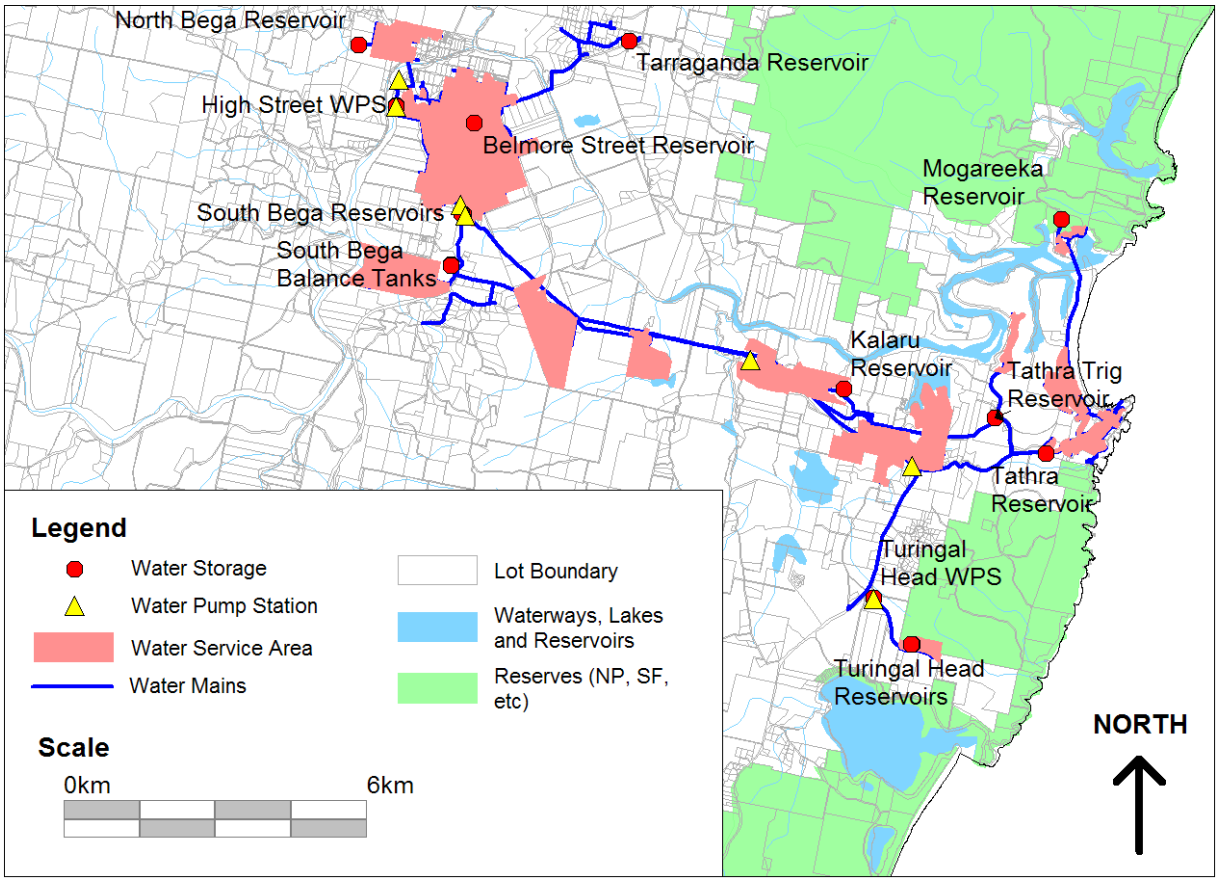
The bore water is chlorinated as it flows into High Street balance tank (new) in Bega to enhance iron and manganese precipitation. Water from High Street balance tank (new) balances with High Street balance tank (old) from where it is pumped to South Bega reservoirs, where it is chlorinated and fluoridated and then reticulated to Bega, North Bega, Tarraganda, Kalaru, Tathra and Mogareeka. Daily extraction volumes range from 3.0 Mld to 7.0 Mld.

The Bega-Tathra water supply scheme has adequate capacity to serve existing and future demand, as the bores are located in a large alluvial aquifer at the lower end of the largest catchment in the Shire. Upstream water extraction for irrigation and other uses can cause the Bega River to stop flowing at Bega during drought and dry summer periods. During these no flow times, water extracted from the bores and by nearby irrigation pumps, causes a localised drawdown of water level around the bore field. However management measures, including groundwater level monitoring and groundwater level triggers to reduce groundwater extraction, ensure a secure and continued supply of water to the scheme.

The Water-Sharing Plan for the Bega and Brogo Rivers contains prescriptive information about flows and extraction, including extraction from the Bega bore field.

A schematic of the Bega-Tathra water supply scheme is shown in Figure 5.

Figure 5 – Bega-Tathra Water Supply Scheme



3.1.3 Brogo-Bermagui Water Supply Scheme

Water sources

- Brogo River
- Couria Creek
- Illawambra Creek

Brogo River is the main source of water for the Brogo-Bermagui water supply scheme, providing 100 per cent of the water to the scheme since 2009. Couria Creek may occasionally be used to supply the small village areas north of Bermagui and Illawambra Creek can supply Cobargo and some rural properties, although it has not been used to supply water to the system since 2003.

Water storages

Dams

Tilba dam (capacity of 90 mega litres) is a small off-stream dam filled with water from Couria Creek. It was built in the late 1960's at a time when Couria Creek was the only reticulated water supply for Bermagui. Its purpose was to store water for supply during drought and high peak water use times when water available from the Couria Creek source was insufficient. Since the addition of the Brogo River water source in the mid 1980's, water stored in Tilba Dam has rarely been used.

Whilst not a dedicated storage for the Brogo-Bermagui water supply scheme, Brogo Dam, located approximately four kilometres upstream of the Brogo River intake, provides an important storage of water for the scheme, particularly during drought.

Brogo Dam is operated by State Water. It is a 9000 mega litre (ML) capacity on-stream dam with a 400 km^2 catchment area. State Water control water releases from the dam for downstream extraction and use. The majority of water released from Brogo Dam is for irrigation of farmland downstream. At the beginning of each "water year" (July-June), State Water assesses the available water in the dam for allocation. This includes the volume in the dam as of 01 July, less dead storage, plus the "assured" minimum inflow during the next 12 months (based on what was received during the worst drought on record). An allowance is also made for evaporation from the dam and downstream system losses. From the available volume, water is then allocated firstly to town water supply (700 ML), stock and domestic and other high security licence holders (300 ML), riparian rights and the environment. The remaining water is then allocated to all general security licenses (irrigation licences) and is expressed as a percentage of the total entitlement. In a normal year with a full dam, general security will receive about 40% at the start of the year. If the dam receives good inflow during the year this is revised upwards. It cannot be revised downwards during the water year. State Water then manage releases to deliver water to all customers (licence holders, basic rights and the environment) and minimise losses (flow to the estuary) throughout the water year.

If the year is dry, with low inflow into Brogo Dam, the water level in the dam can fall quickly because large volumes of water is released to satisfy requests from general security licence holders downstream. When a general security licence holder has used their announced allocation for the year, they can no longer request water from the dam. Progressively less entitlement downstream is left and much less water is released from the dam (e.g. 3 ML/d). The amount of water left in the dam when the majority of general security entitlements have been met for the year varies, but can be as low as 10% of storage capacity if the year is dry. The time of year that this can occur can also vary. With less water released for irrigation, the water level in the dam falls more slowly, or is steady, depending on inflow.

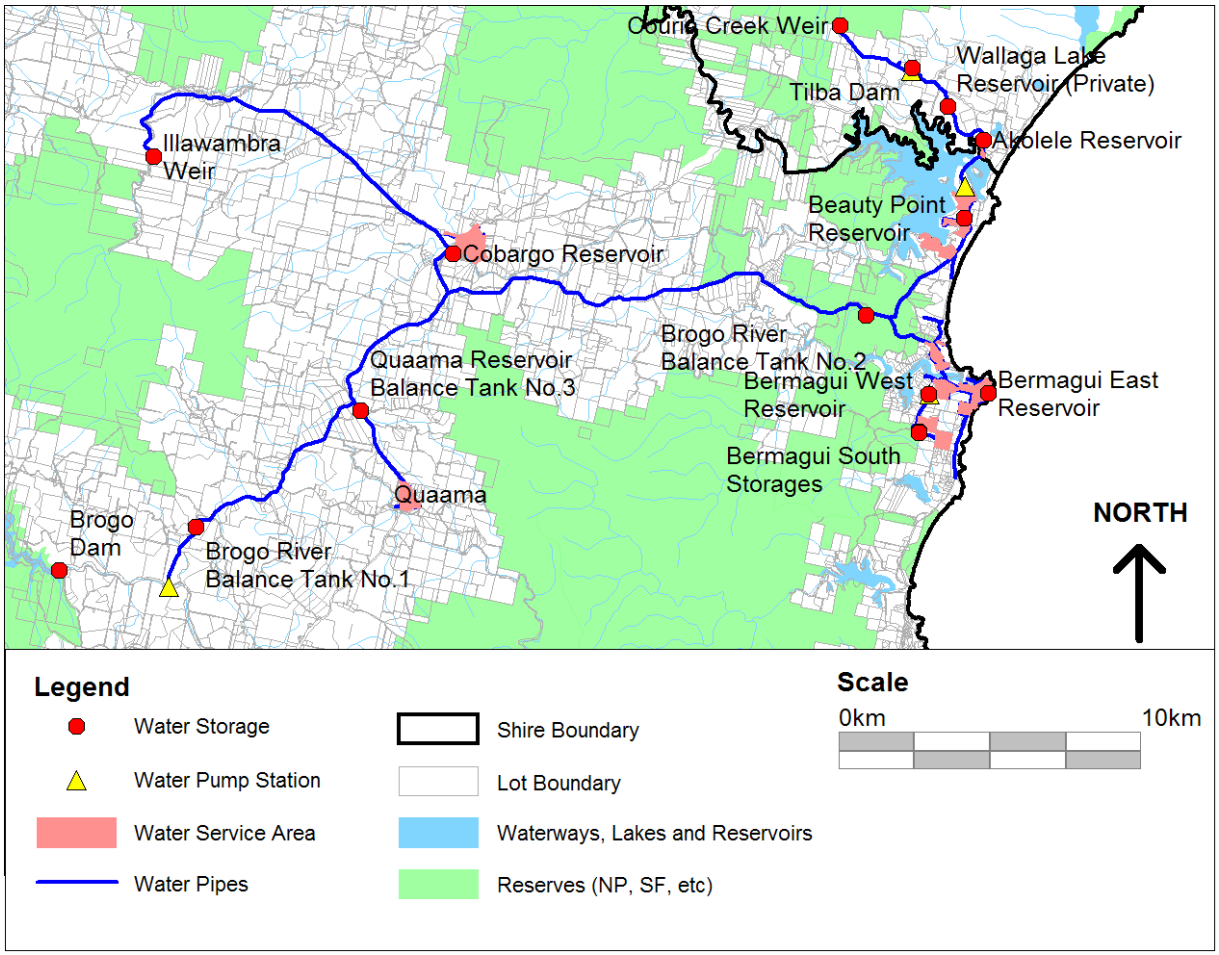
Scheme Operation

Water from the Brogo River is drawn through an infiltration gallery, and then pumped to Brogo balance tank 1 (BBT1). The water is disinfected with chlorine as it flows into BBT1. From BBT1 water flows by gravity to Quaama, Cobargo and Brogo balance tank 2 (BBT2). From BBT2 water flows to Bermagui and Wallaga Lake area.

Water from Couria Creek supplies areas north of Wallaga Lake and can flow by gravity to Bermagui if available and needed. It is also flows into (and out of) Tilba dam. Illawambra Creek can supply Cobargo by gravity, although the impact of the Wandella Water Sharing Plan and recent droughts has meant it is easier operationally and more reliable to supply Cobargo from the Brogo River source.

A schematic of the Brogo-Bermagui water supply scheme is shown in Figure 6.

Figure 6 – Brogo-Bermagui Water Supply Scheme



3.1.4 Bemboka Water Supply Scheme

Water source

- Bemboka River

Water storage

Dams

There are no dam storages for this scheme.

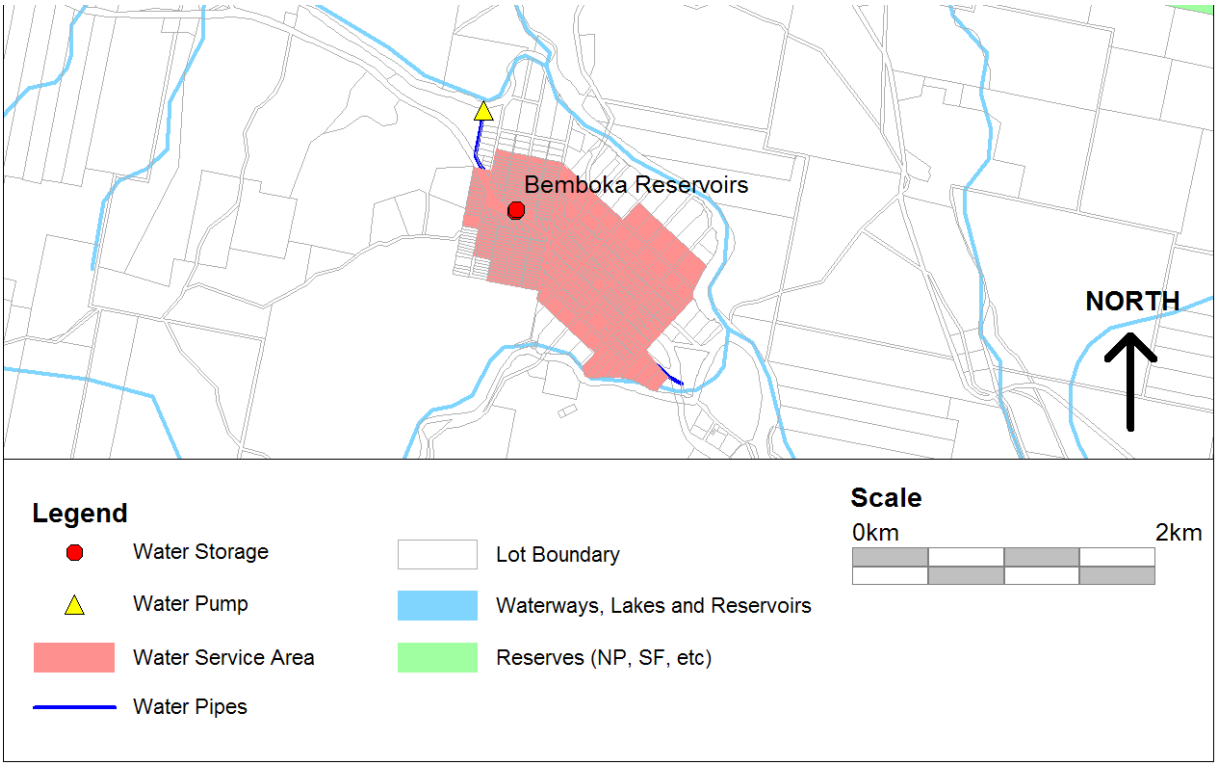
Whilst not a dedicated storage for the Bemboka water supply scheme, Cochrane Dam, located approximately ten kilometres upstream of the Bemboka River intake, provides an important storage of water for the scheme, particularly during drought. Cochrane Dam is a 2,700 ML capacity on-stream dam operated by Eraring Energy for hydroelectric power generation and releases from Cochrane Dam influence the flow in the Bemboka River. NOW requires Eraring Energy to store 500 ML in the dam as “drought reserve” in September each year (800 ML in declared drought years) to ensure water can be released, flow downstream and provide a connecting flow of water to Kanoona, located approximately 50 km downstream of the dam. When drought reserve water is released from the dam, water extraction from the river is limited to Bemboka village, stock and domestic use, riparian rights and dairy wash down (i.e. no extraction for irrigation of farmland). The drought reserve and associated water release regime during drought to provide a flow of water to Kanoona, serves Bemboka village well.

Scheme Operation

Water is pumped from the Bemboka River to the village reservoir. The water passes through a pre-filtration system and is dosed with liquid chlorine prior to the reservoir. Daily extraction volumes range from 0.05 to 0.5 Ml/d

A schematic of the Bemboka water supply scheme is shown in Figure 7.

Figure 7 – Bemboka Water Supply Scheme



3.1.5 Water Supply Assets Summary

We have an Asset Register showing the locations and attributes of all major water assets. We continuously update the asset register.

In 2012, we completed a valuation of our water assets, as required by the Department of Local Government. The estimated value of our major water assets is shown in Table 3-1.

We have yet to undertake a detailed condition audit of all underground assets and hence the timing for medium and long term asset replacement is based on the nominal lives of the assets (asset age), performance and consequence of failure, as well as information on asset condition obtained from operation and maintenance staff. Cost projections for the capital replacement modelling purposes are based on this information.

The estimated value of our major water assets are shown in Table 3-1.

Table 3-1: Scheme Assets Summary – Water Supply

Asset	Quantity	Current Replacement Cost ($) June 2012	Fair Value ($) June 2012
Bores (No.)	13	975,000	386,250
Weirs (No.)	3	971,000	385,032
Storage dams (No.)	3	41,832,000	29,782,777
Reservoirs (No.)	63	3,686,732	44,696,263
Water pumping stations (No.)	36	20,284,606	5,648,118
Chlorination and Fluoridation Facilities (No.)	18	2,965,690	988,315
Water mains (km)	610	127,773,926	86,224,896
Hydrants and Valves (No.)	6,812	6,812,000	3,606,680
Water meters (No.)	12,188	3,665,304	1,847,690
Water Service Connections (No.)	12,188	10,853,447	8,234,800
Mobile Plant and Equipment		37,046	6,227
TOTAL	**-**	**279,856,749**	**181,807,047**

3.1.6 Capital Works Program for Water Supply

Table 3-2 is a summary of the major water supply capital works planned and the justification for why they have been planned, over the next 15 years.

Table 3-2: Major Capital Works Summary – Water Supply

Proposed Capital Work	Year	Justification
Nutley Creek Reservoir and Quaama duplicate main	2013 - 2016	Service level improvement and servicing growth
Tarraganda Reservoir upgrade	2013 - 2014	Asset renewal and capacity enhancement for servicing growth
Bemboka WTP (0.4 ML/day)	2014 - 2017	Improved Levels of Service
Upgrade of transfer main for proposed Yellow Pinch Dam WTP	2015 - 2021	Improved Levels of Service and capacity enhancement for servicing growth
Refurbishment of Boyd Town Reservoir Pumping Station	2017 - 2019	Asset renewal
Bega-Tathra WTP (10 ML/day)	2020 - 2026	Improved Levels of Service and for servicing growth
Yellow Pinch Dam WTP (17 ML/day)	2020 - 2026	Improved Levels of Service and for servicing growth
Bermagui WTP (4 ML/day)	2022 - 2026	Improved Levels of Service and for servicing growth
Renewal of electrical mechanical components of system assets	2012 onwards	Renewal of ageing assets

3.2 Sewerage Schemes

There are ten sewerage schemes in the in the Bega Valley Shire, namely:

- Bega
- Bermagui
- Eden
- Merimbula/Pambula
- Tathra
- Tura Beach
- Candelo
- Cobargo
- Kalaru
- Wolumla

These schemes provide reticulated sewerage services to approximately 21 000 permanent residents and approximately 35,000 people during peak holiday times. There are approximately 11,500 residential properties and 900 non-residential properties connected to a Council sewerage scheme.

Rural residential and commercial properties that are not connected to one of these schemes utilise individual property on-site sewage treatment and effluent.

Schematics of each scheme are shown in Figure 8 to Figure 15.

Figure 8 – Bega Sewerage Scheme

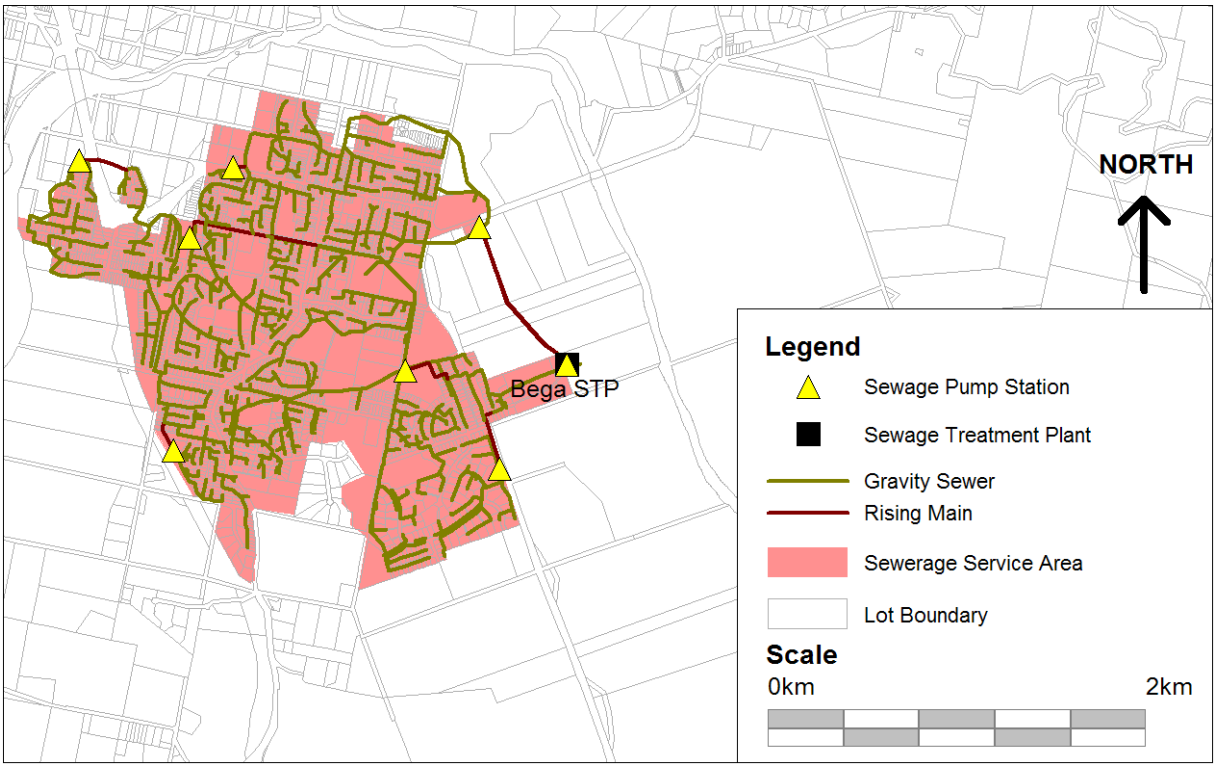


Figure 9 – Bermagui Sewerage Scheme

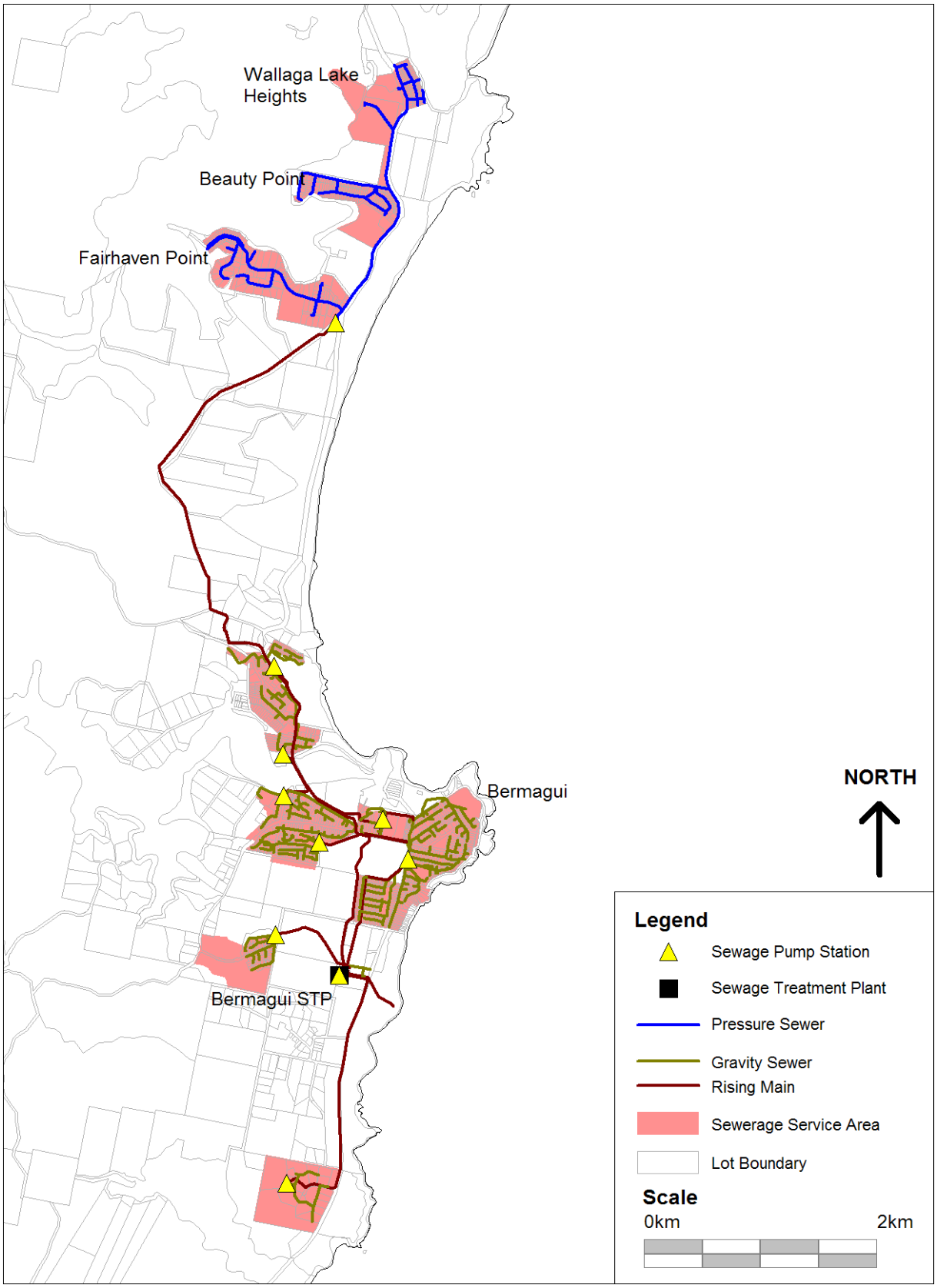


Figure 10 – Eden Sewerage Scheme

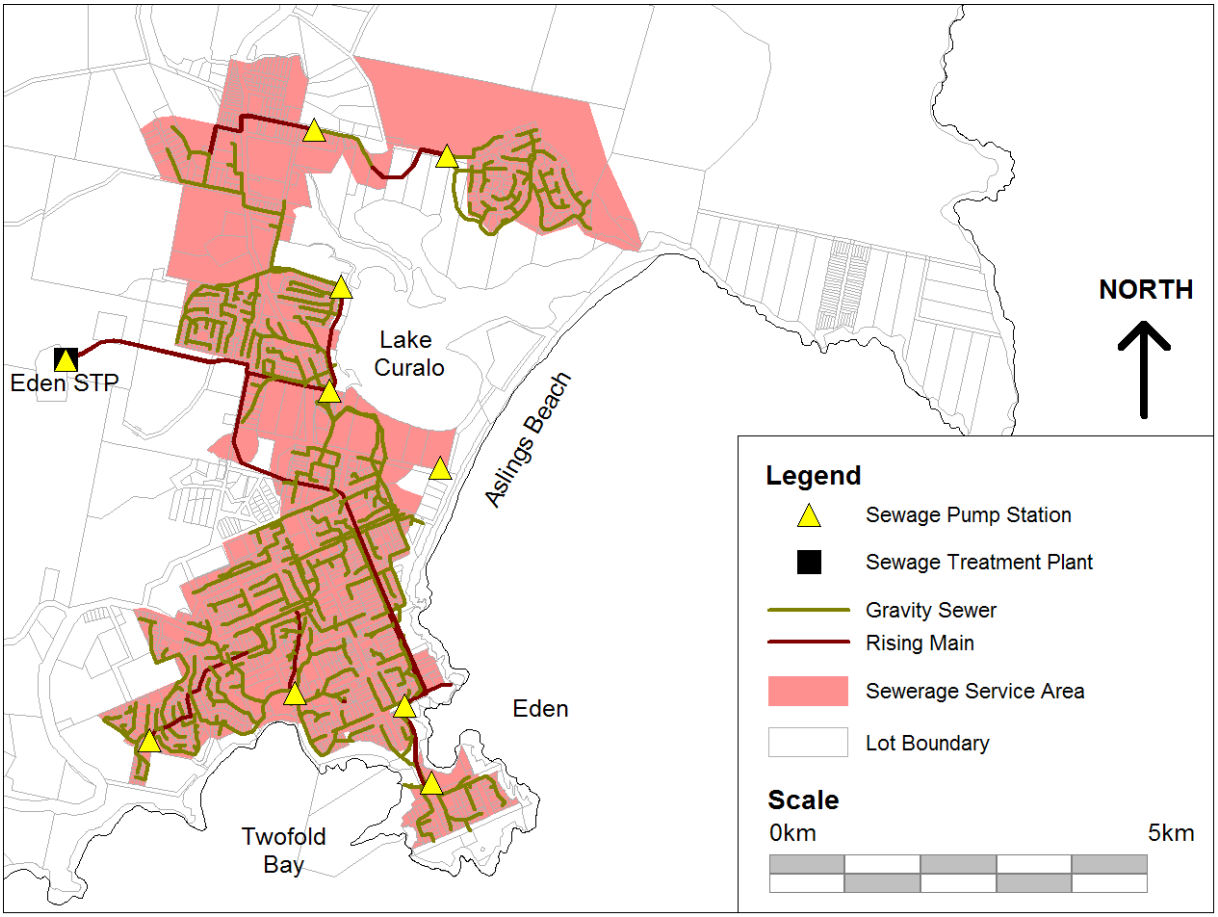


Figure 11 – Merimbula/Pambula Sewerage Scheme

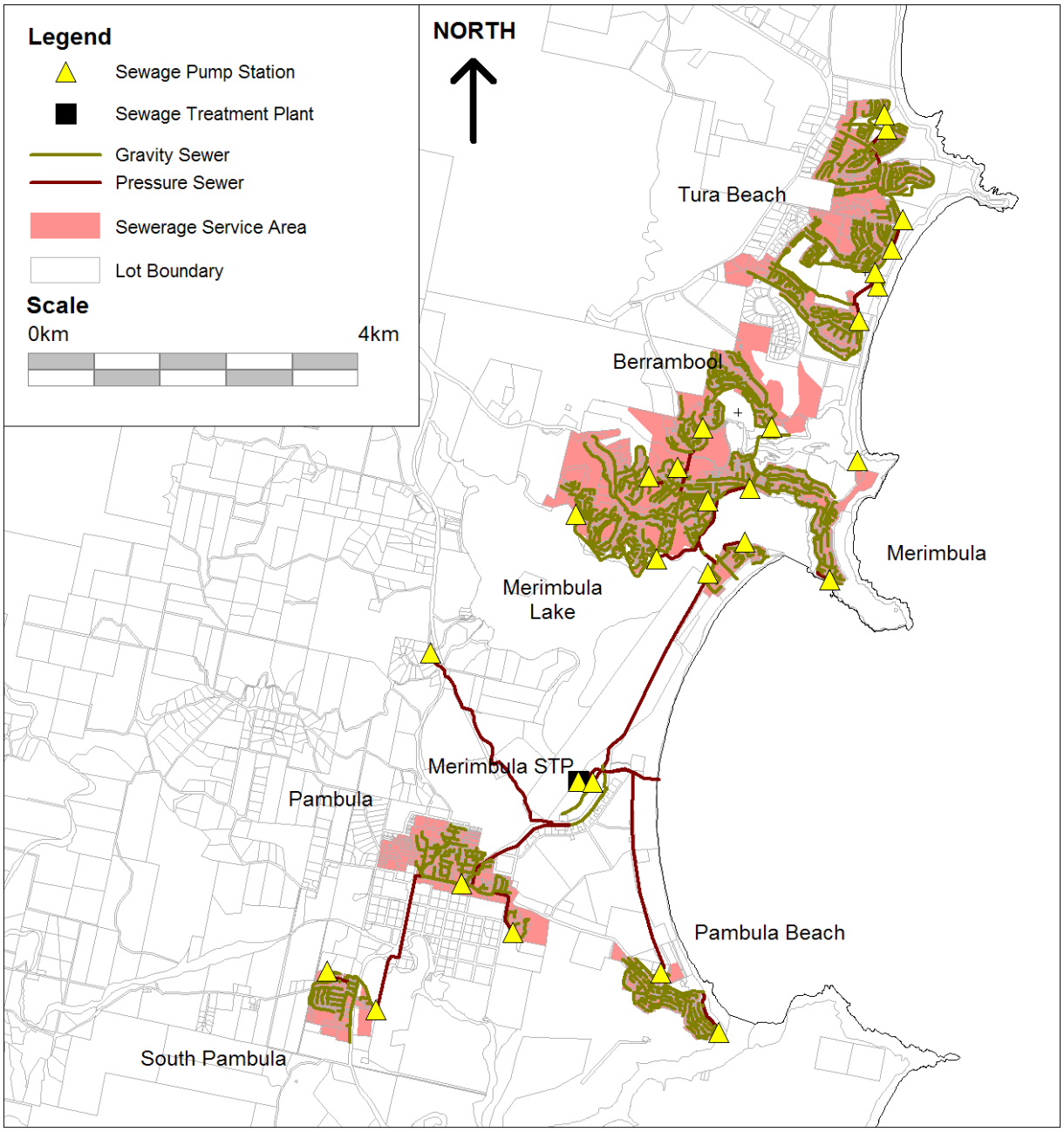


Figure 12 – Tathra Sewerage Scheme

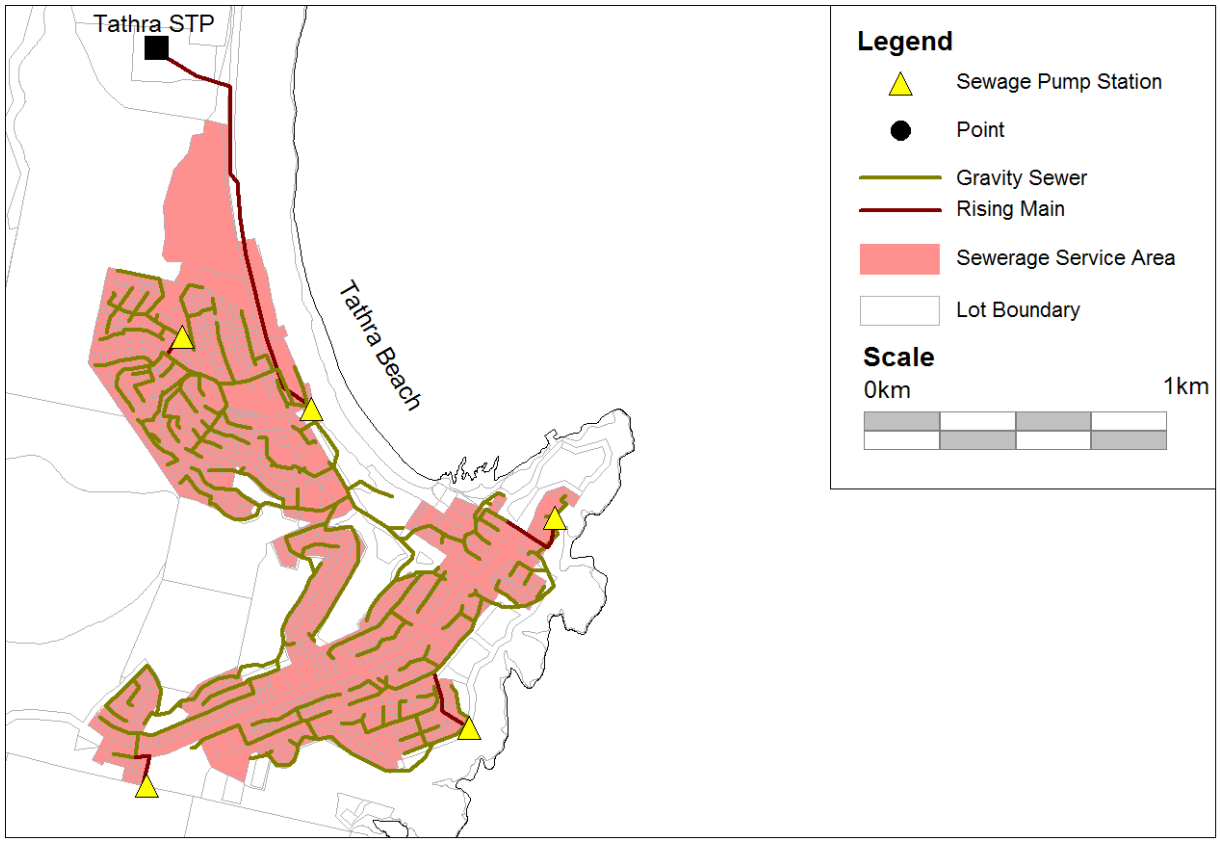


Figure 13 – Tura Beach Sewerage Scheme

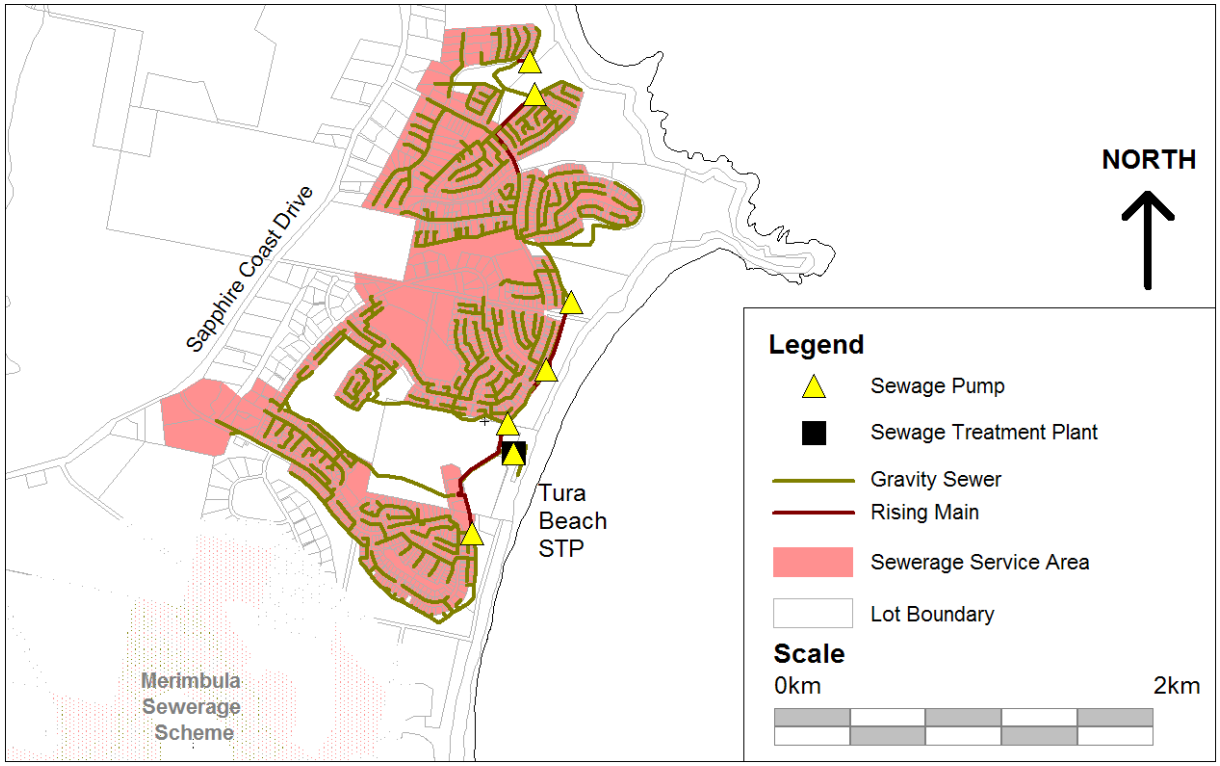


Figure 14 – Candelo Pressure Sewerage Scheme

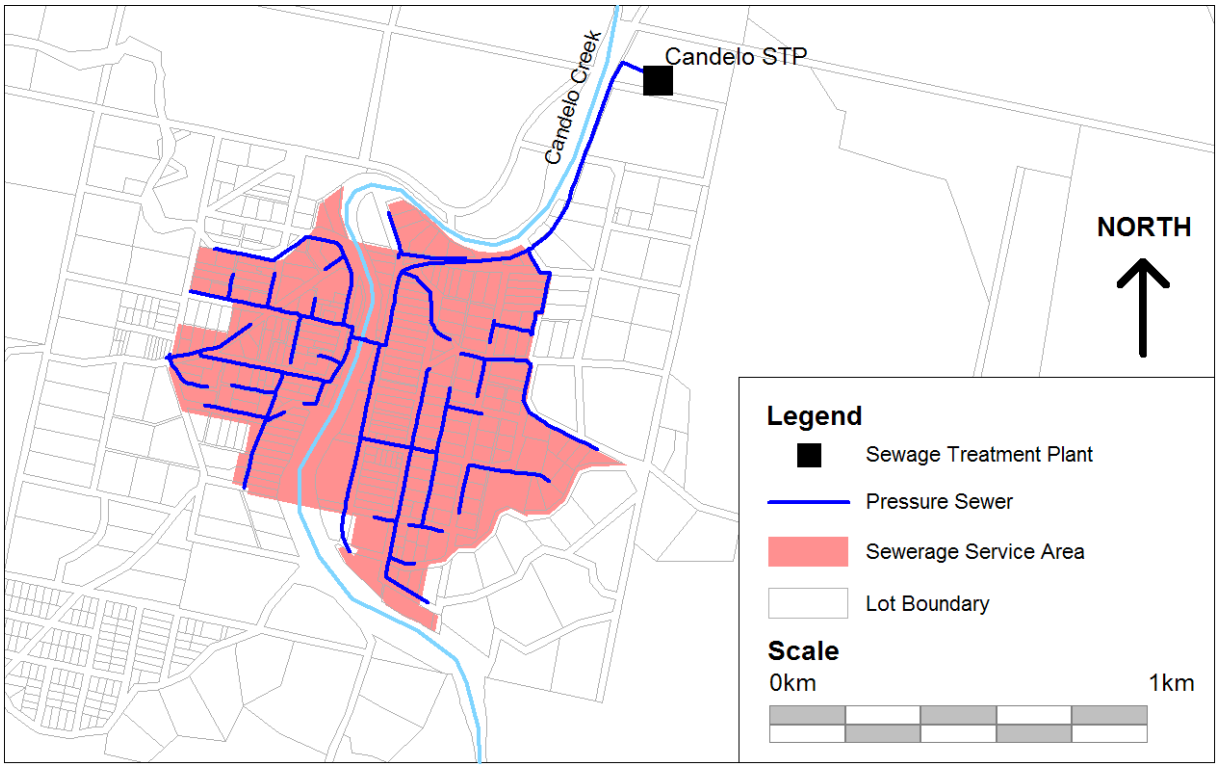


Figure 15 – Cobargo Pressure Sewerage Scheme

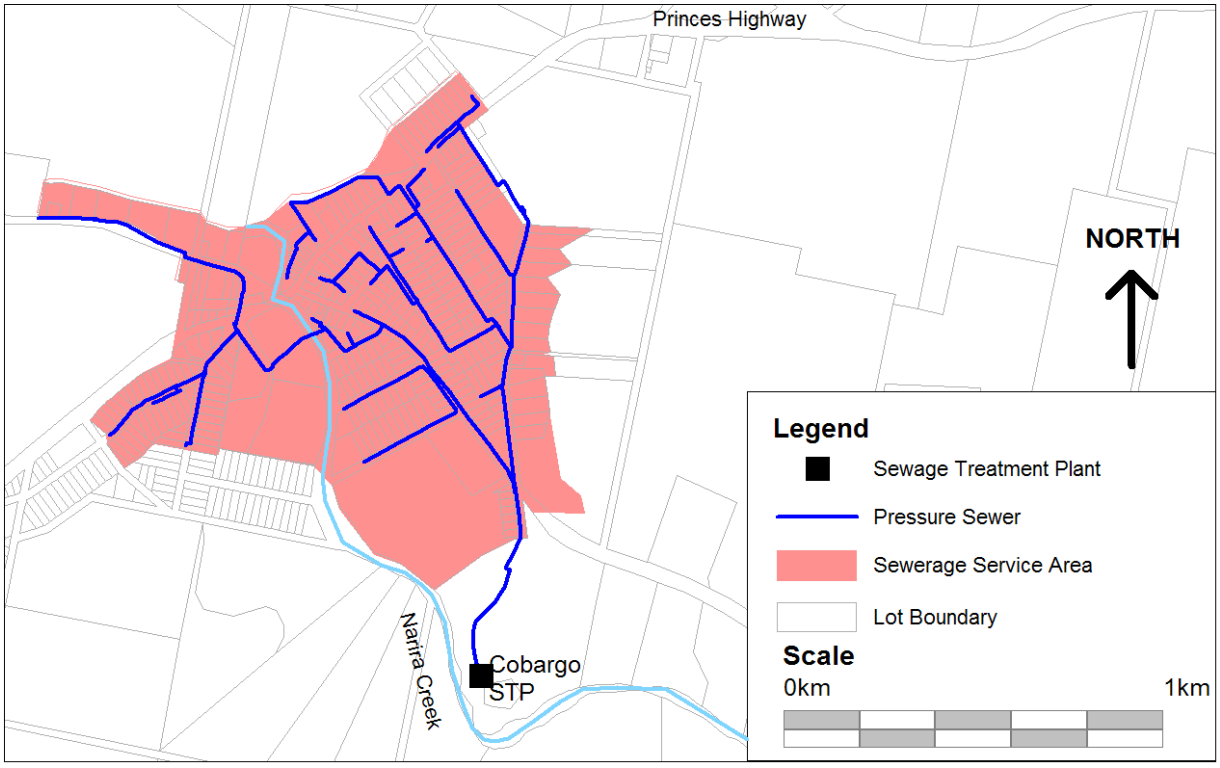


Figure 16 – Kalaru Pressure Sewerage Scheme

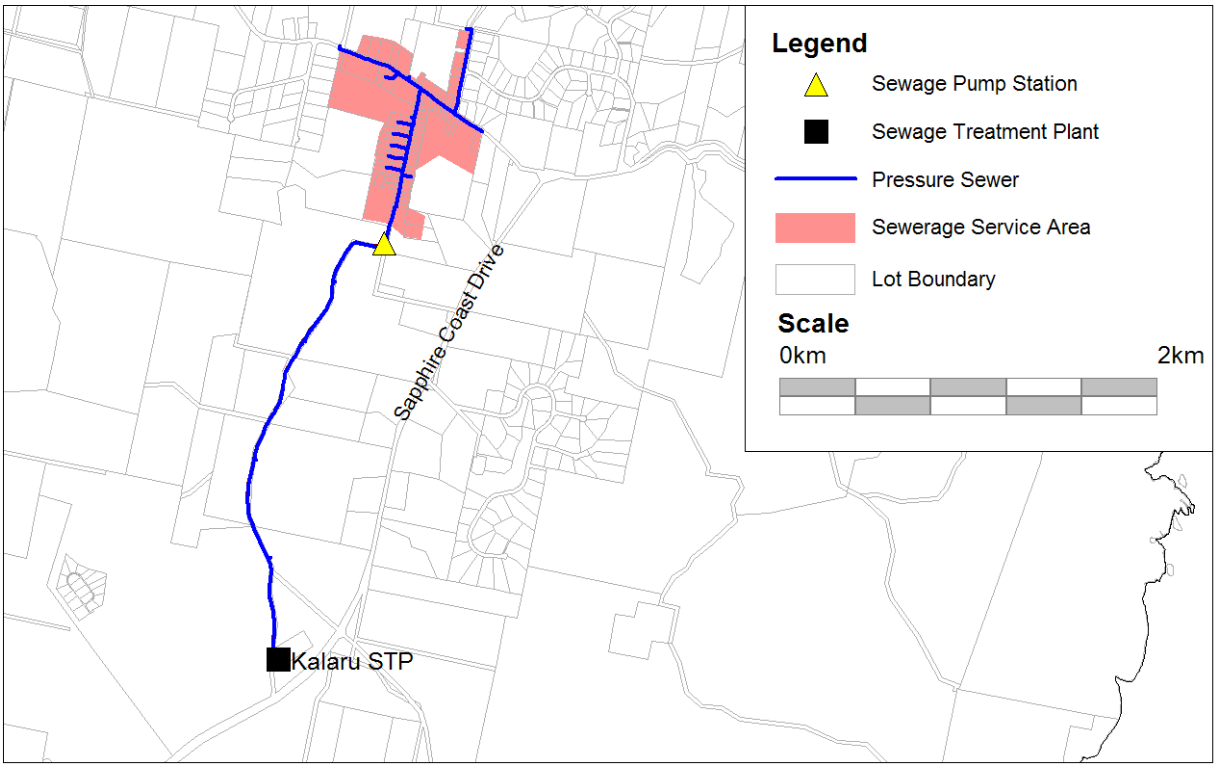
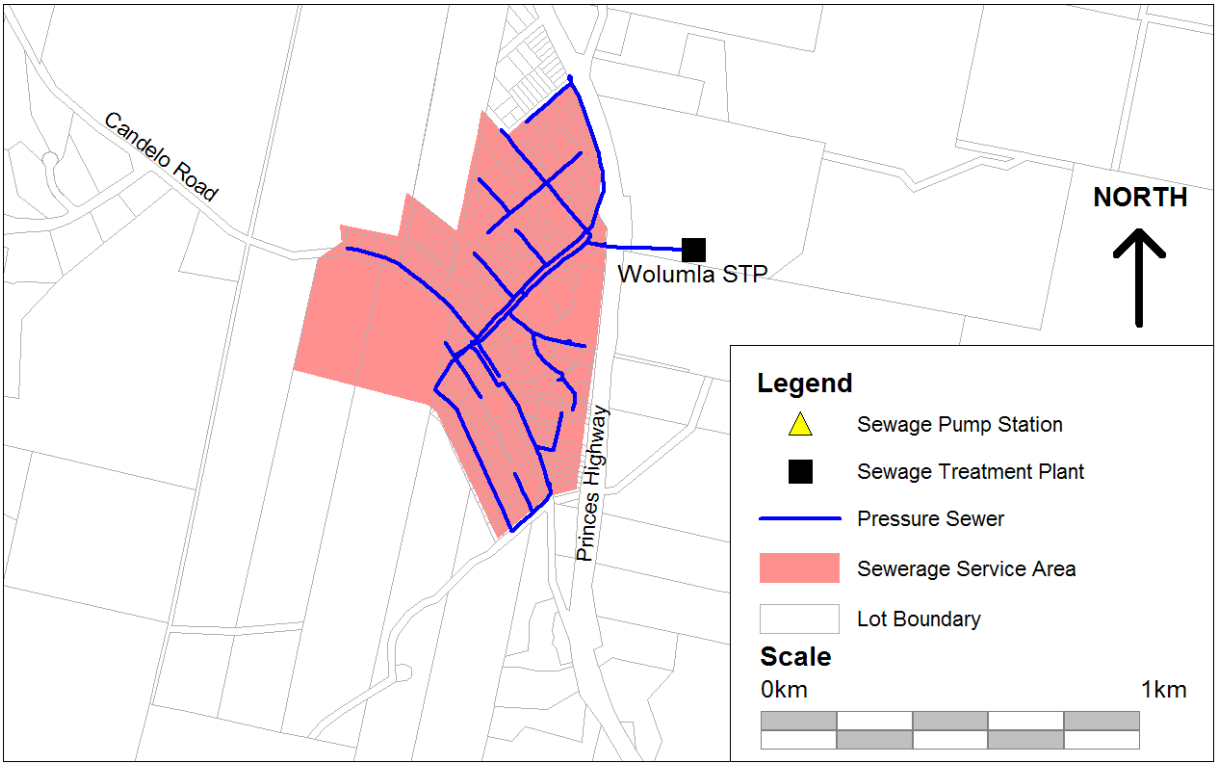


Figure 17 – Wolumla Pressure Sewerage Scheme



3.2.1 Sewage collection systems

The collection systems of each sewerage scheme consist of the pipes, pumps and accessories through which sewage is transported to a sewage treatment plant. In the Bega Valley Shire there are two distinctive types of sewage collection:

Conventional gravity sewerage systems

Bega, Bermagui (town), Eden, Merimbula/Pambula, Tathra and Tura Beach are conventional gravity sewerage systems. In these systems sewage flows from building property drainage pipelines to a nearby sewer main. The sewage flows under gravity in the sewer main to an underground collection well at a pump station from where it is pumped to a higher elevation in the next section of gravity sewer main (closer to the sewage treatment plant (STP)) or directly to the STP for treatment. Manholes are located at each change of direction, or approximately every 60 metres, along gravity mains, to provide access for inspections and maintenance. Pumped sections of sewer main are called “rising mains” and gravity sections called “gravity mains”.

The property owner owns and is responsible for all drainage pipelines within the property boundary. Council owns all sewerage infrastructures beyond the property boundary.

Low pressure sewerage systems

Candelo, Cobargo, Kalaru, Wolumla and the northern part of the Bermagui sewerage system (i.e. Fairhaven, Beauty Point and Wallaga Lake Heights) are low pressure sewerage systems. In these systems sewage flows from buildings in a property drainage pipeline to an underground collection tank, or “pod”, located on the property. Inside the pod is a grinder pump that grinds the sewage to watery slurry and pumps it to a low pressure sewer pipe located outside the property boundary. A network of low pressure pipes, connected to all pods in the area, transports the sewage towards the STP using the combined operating pump pressure of all the pod pumps. All piping downstream of the grinder pumps is under pressure (45m or 450kPa or less).

Inside each pod is a high level sensor that triggers an alarm if the sewage rises above this level. From ground level to the alarm level there is approximately 24 hours of additional emergency storage in the pod. This means that even after the alarm sounds, the system can continue to be used for around 24 hours. Household pods have a 660 litre capacity and are made of fibreglass.

The property owner owns all property drainage pipework to the pod and is responsible for maintaining power to the pump control panel (PCP) and for all power costs. Council owns the PCP, pod, grinder pump, discharge pipework from the pod and boundary kit. Any faults with these components are the responsibility of Council to repair. Council also owns all low pressure sewerage infrastructure beyond the property boundary.

3.2.2 Sewage treatment plants

Bega sewage treatment plant

Bega STP is an 8000 EP capacity sequencing batch reactor (SBR) treatment plant. The main treatment units in order of sewage flow through the STP are:

- Inlet works - to screen the sewage, remove grit and control odour
- Two sequencing batch reactor (SBR) basins within a single circular tank
    - to receive incoming sewage sequentially into each reactor
    - to enhance bacterial selection and nitrogen and phosphorous removal through an anoxic bioselector zone at the front end of each reactor
    - to coagulate and biochemically degrade organic matter and biologically remove nitrogen through the supply of oxygen via blowers and fine bubble diffusers in each reactor
    - to separate the liquid and solid phases during the settlement stage in each reactor

    - to withdraw the effluent via decant weirs during the decant stage in each reactor
- Chemical dosing - to reduce effluent phosphorous concentrations through dosing alum (aluminium sulphate) into the SBR's and caustic (sodium hydroxide) into the SBR's to maintain the required process alkalinity
- UV system - to disinfect the final effluent

Effluent from the UV system is directed to two storage ponds for discharge to a farm dam for use by the neighbouring farmer to irrigate pasture. Effluent surplus to reuse requirements is disposed to the Bega River.

Sludge collected in the reactors is pumped back to the bioselector of each SBR (return activated sludge (RAS)) and excess sludge is pumped to an aerobic sludge digestion tank (waste activated sludge (WAS)). The WAS from the digestion tank is pumped to a sludge lagoon for further digestion and thickening. Digested sludge is transferred to the sludge drying beds during the drier months of the year for drying. The digested, stabilised and dried sludge is disposed to landfill.

A Program Logic Control / SCADA system is used to control and monitor the treatment process.

Bermagui sewage treatment plant

Bermagui STP is a 6000 EP capacity continuous extended aeration (CEA) treatment plant. The main treatment units in order of sewage flow through the STP are:

- Inlet works - to screen the sewage, remove grit and control odour
- Anoxic tank - to enhance sludge settleability and biological phosphorous removal
- Aeration tanks - to coagulate and biochemically degrade organic matter and biologically remove nitrogen through the controlled supply of oxygen to a fine bubble diffused aeration tank and two Pasveer channels with surface brush aerators and parked (fixed) decant mechanisms at top water level
- Clarifier - to separate the liquid and solid phases
- UV system - to disinfect the final effluent

Effluent from the UV system is directed to a 500 kL recycled water storage tank, for use by the Bermagui Country Club to irrigate the golf course. Effluent surplus to reuse requirements is disposed to the ocean via a cliff face ocean outfall. A second 0.5ML tank is used as emergency storage for wet weather flow balancing.

Sludge collected in the clarifier is pumped back to the anoxic tank (return activated sludge (RAS)) and excess sludge is pumped to the aerobic sludge digestion tank (waste activated sludge (WAS)). The WAS from the digestion tank is pumped to the sludge lagoons for further digestion and thickening over several months. Digested sludge is transferred to the sludge drying beds during the drier months of the year for drying. The digested, stabilised and dried sludge is disposed to landfill.

A Program Logic Control / SCADA system is used to control and monitor the treatment process.

Eden sewage treatment plant

Eden STP is an 8000 EP capacity intermittently decanting extended aeration (IDEA) treatment plant. The main treatment units in order of sewage flow through the STP are:

- Inlet works - to screen the sewage and remove grit
- Two "Bathurst Box" type aeration tanks
    - to coagulate and biochemically degrade organic matter and biologically remove nitrogen through the controlled supply of oxygen via blowers and fine bubble diffusers in each tank

- to separate the liquid and solid phases during the settlement stage in each tank
- to withdraw the effluent via decant weirs during the decant stage in each tank

- Effluent pond
- Chlorine dosing system and contact tank and UV system - to disinfect the final effluent

Effluent from the UV system is directed to a recycled water storage tank, for use by the Eden Gardens Country Club to irrigate the golf course. Effluent surplus to reuse requirements is disposed to the ocean via a cliff face ocean outfall.

Excess sludge (waste activated sludge (WAS)) in the aeration tanks is pumped to sludge lagoons for digestion and thickening over several months. Digested sludge is transferred to the sludge drying beds during the drier months of the year for drying. The digested, stabilised and dried sludge is disposed to landfill.

A Program Logic Control / SCADA system is used to control and monitor the treatment process.

Merimbula sewage treatment plant

Merimbula STP is a 15,500 EP capacity intermittently decanting extended aeration (IDEA) treatment plant. The main treatment units in order of sewage flow through the STP are:

- Inlet works - to screen the sewage, remove grit and control odour
- Two “Port Macquarie” type aeration tanks
  - to coagulate and biochemically degrade organic matter and biologically remove nitrogen through the controlled supply of oxygen via surface aerators in each tank
  - to separate the liquid and solid phases during the settlement stage in each tank
  - to withdraw the effluent via decant weirs during the decant stage in each tank
- Catch pond - to collect biomass lost from the aeration tank in the event of a decant mechanism or other failure, for pumping back to the head of the works
- Chlorine dosing system and contact pipe - to disinfect the final effluent
- Effluent storage pond - to store effluent for transfer to the reuse and disposal schemes
- Effluent wet weather overflow pond - to store effluent during large wet weather events

Effluent from the storage pond is withdrawn by the Pambula Merimbula Golf Club to irrigate the golf course and pumped to Oaklands effluent dam for irrigation of farmland. Effluent surplus to reuse requirements is disposed to the ocean via a beach face ocean outfall or to dunal exfiltration ponds for disposal to groundwater.

Excess sludge (waste activated sludge (WAS)) in the aeration tanks is pumped to one of three sludge lagoons for digestion and thickening over several months. Digested sludge is transferred to the sludge drying beds during the drier months of the year for drying. The digested, stabilised and dried sludge is disposed to landfill.

A Program Logic Control / SCADA system is used to control and monitor the treatment process.

Tathra sewage treatment plant

Tathra STP is an 8000 EP capacity continuous extended aeration (CEA) treatment plant. The main treatment units in order of sewage flow through the STP are:

- Inlet works - to screen the sewage and remove grit
- Anoxic tank - to enhance sludge settleability and biological phosphorous removal
- Aeration tanks to coagulate and biochemically degrade organic matter and biologically remove nitrogen through the controlled supply of oxygen to two Pasveer channels with surface brush aerators and parked (fixed) decant mechanisms at top water level
- Chemical dosing - to reduce effluent phosphorous concentrations using alum (aluminium sulphate) and to maintain the required process alkalinity using caustic (sodium hydroxide), dosed into the Pasveer channels
- Clarifier - to separate the liquid and solid phases
- Chlorine dosing and contact channel system - to disinfect the final effluent

Effluent from the chlorine contact tank is directed to an 18 ML recycled water storage pond, for use by the Tathra Beach Country Club to irrigate the golf course. Effluent surplus to reuse requirements is disposed of along the central ridge of the golf course using the irrigation system and a “water dump” program.

Sludge collected in the clarifier is pumped back to the anoxic tank (return activated sludge (RAS)) and excess sludge is pumped to one of two sludge lagoons (waste activated sludge (WAS)) for digestion and thickening over several months. Digested sludge is transferred to the sludge drying beds during the drier months of the year for drying. The digested, stabilised and dried sludge is disposed to landfill.

A Program Logic Control / SCADA system is used to control and monitor the treatment process.

Tura Beach sewage treatment plant

Tura Beach STP is a 4500 EP capacity continuous extended aeration (CEA) treatment plant. The main treatment units in order of sewage flow through the STP are:

- Inlet works - to screen the sewage and remove grit
- Anoxic tank - to enhance sludge settleability and biological phosphorous removal
- Aeration tank “Bathurst Box” to coagulate and biochemically degrade organic matter and biologically remove nitrogen through the controlled supply of oxygen with surface aerators
- Clarifier - to separate the liquid and solid phases
- Chlorine dosing system and contact tank and UV system - to disinfect the final effluent

Effluent from the chlorine contact tank is pumped to a recycled water irrigation dam for use by the Tura Beach Country Club to irrigate the golf course. Effluent surplus to reuse requirements flows by gravity to be disposed underground via an exfiltration system in the dunes east of the STP.

Sludge collected in the clarifier is pumped to the Pasveer channel for thickening and digestion. Return activated sludge (RAS) is pumped back to the aeration tank and excess sludge is pumped to a sludge lagoon (waste activated sludge (WAS)) for digestion and thickening over several months. Digested sludge is transferred to a sludge drying bed during the drier months of the year for drying. The digested, stabilised and dried sludge is disposed to landfill.

A Program Logic Control / SCADA system is used to control and monitor the treatment process.

Membrane bioreactor sewage treatment plants - Candelo, Cobargo, Kalaru & Wolumla

Candelo, Cobargo, Kalaru and Wolumla sewage treatment are all 800 EP membrane bioreactor sewage treatment plants. The main treatment units in order of sewage flow through the STPs are:

- Inlet works - to screen the sewage and remove grit
- Bioselector tank - to enhance sludge settleability and biological phosphorous removal
- Bioreactor tank - to coagulate and biochemically degrade organic matter and biologically remove nitrogen through the controlled supply of oxygen with diffused air supply
- Membrane tanks - to filter the activated sludge through two modules of eight rows and nine bundles of hollow fibre membranes, to separate the liquid and solid phases
- Permeate tank to store effluent prior to UV disinfection

Effluent from the permeate tank flows by the UV disinfection unit to storages for recycled water use on showgrounds (Candelo and Cobargo), playing fields (Wolumla), a farm (Wolumla) and a racecourse (Kalaru). Effluent surplus to reuse requirements flows by gravity to be disposed in nearby creeks (Cobargo and Candelo) and to large irrigation dams (Wolumla and Kalaru).

Sludge is wasted to a waste activated sludge (WAS) tank at each STP and trucked to either Merimbula or Bermagui STP's for digestion and thickening.

A Program Logic Control / SCADA system is used to control and monitor the treatment process.

3.2.3 Managing Bega Valley's future sewerage service

The main challenges faced for sewerage service delivery include:

- Transporting sewage near sensitive waterways supporting aquaculture, primary and recreational uses
- High loads on sewage treatment plants during tourist seasons and rain events
- Effluent disposal and reuse in coastal environments with high environmental and community values
- Escalation of capital works and operation costs and the impact on service affordability in a shire with large numbers of assets and relatively low customer numbers
- High level of energy use due to local topography and MBR STPs

Important future sewerage service planning issues are:

- Collection system upgrades to reduce occurrence of sewage overflows due to inflow and infiltration
- Treatment plant upgrades to improve effluent quality and reduce potential risks to public health and the environment
- Effluent disposal and reuse system upgrades, particularly at Merimbula and Bermagui
- Population growth and increasing sewage loads

Capital works to meet future needs include:

- Disinfection facilities at Eden and Tura Beach STP
- Effluent disposal system to replace existing shore-based outfall at Merimbula STP

There are no plans to extend sewerage services to any currently un-serviced towns or villages. Extension of reticulated sewerage beyond existing service boundaries will be considered on an individual basis, contingent on the scale, staging and technical feasibility of the proposed development.

3.2.4 Sewerage Assets Summary

We have an Asset Register showing the locations and attributes of all major sewerage assets. We continuously update the Asset Register.

In 2012 we completed a valuation of our sewer assets, as required by the Department of Local Government. The estimated value of our major sewer assets is shown in Table 3-3.

We have yet to undertake a detailed condition audit of all underground assets and hence the timing for medium and long term asset replacement is based on the nominal lives of the assets (asset age), performance and consequence of failure, as well as information on asset condition obtained from operation and maintenance staff and CCTV reports. Cost projections for capital replacement modelling purposes are based on this information.

The estimated value of our major sewer assets are shown in Table 3-3.

Table 3-3: System Assets Summary – Sewerage

Asset	Quantity	Current Replacement Cost ($) June 2012	Fair Value ($) June 2012
Sewer Mains			
Reticulation (km)	268.59	92,499,634	60,851,100
Rising (km)	57.83	99,162	69,413
Trunk (km)	0.16	21,693,285	15,554,193
Vents (No.)	98	688,208	573,598
Pressure Sewer Mains & Components (Km)	37.92	20,416,326	18,343,274
Sewage Pumping Stations (No.)	58	49,204,041	31,486,933
Sewage Treatment Works - MBR (No.)	4	25,002,160	18,934,292
Sewage Treatment Works - Activated Sludge Plants (No.)	6	51,853,450	27,762,694
Reuse Schemes - Council owned assets (No.)	6.	5,237,094	4,301,316
Mobile Plant and Equipment (No.)	22	886,401	339,717
TOTAL	**-**	**267,579,760**	**178,216,530**

3.2.5 Capital Works Program for Sewerage

Table 3-4 is a summary of the major sewerage capital works planned and the justification for why they have been planned, over the next 15 years.

Table 3-4: Major Capital Works Summary – Sewerage

Proposed Capital Work	Year	Justification
Effluent disinfection at Tura STP	2012 - 2014	Improved Levels of Service (regulatory compliance)
Effluent disinfection at Eden STP	2012 - 2014	Improved Levels of Service (regulatory compliance)
Eden - Emergency storage at SPS 2	2013 - 2014	Improved Levels of Service (regulatory compliance)
West Pambula Sewerage	2013 - 2015	Improved Levels of Service
Reticulation mains rehabilitation at Bega and Eden	2014 onwards	Refurbishment of ageing assets
Bega STP - balance tank	2016 - 2017	Improved Levels of Service (regulatory compliance)
Merimbula STP and effluent disposal upgrade	2016 - 2018	Improved Levels of Service (regulatory compliance)
Sludge management - all STPs	2016 - 2017	Improved Levels of Service (regulatory compliance)
Bermagui STP – effluent reuse scheme upgrade	2017 - 2018	Improved Levels of Service
Merimbula STP - effluent reuse schemes expansion	2019 - 2022	Improved Levels of Service
Bermagui STP - ocean outfall	2020 - 2021	Improved Levels of Service (regulatory compliance)
Renewal of electrical mechanical components of system assets	2012 onwards	Renewal of ageing assets

4 Levels of Service

Levels of Service (LOS) define the standards required for the delivery of water supply and sewerage services Table 4-1 and Table 4-2 show current and target LOS for key water supply and sewerage service indicators.

The LOS are targets which we aim to meet and are not intended as a formal customer contract. It is our intent to strive for continual improvement to achieve these LOS in the most cost effective way.

Table 4-1: Levels of Service – Water Supply

Description	NWI Indicator Number	Unit	Level of Service	
			Current Target	Future Target
ASSETS				
Water main breaks	A8	No./100 km water main	8	6
Real water losses	A10	L/service connection/day	50	50
Minimum water pressure at property boundary - urban areas - non- urban areas (trunk main connected properties)		Metres Metres	20 No guarantee	20 No guarantee
Maximum water pressure at property boundary - urban areas - non- urban areas (trunk main connected properties)		Metres Metres	90 No guarantee	90 No guarantee
Peak day water availability - urban areas - non- urban areas (trunk main connected properties)		L/ET/day L/ET/day	2000 No guarantee	2000 No guarantee
CUSTOMERS				
Water quality complaints	C9	No./ 1000 connections	6	3
Water service complaints	C10	No./ 1000 connections	5	4
Billing and account complaints - water and sewerage	C12	No./ 1000 connections	3.0	2.0
Total complaints - water and sewerage	C13	No./ 1000 connections	10	5
Connect time to a telephone operator	C14	% of calls answered by an operator within 30 seconds	70	75
Average duration of an unplanned water interruption	C15	Minutes	120	120
Incidence of unplanned water interruptions	C17	No./ 1000 connections	35	30
Response times for unplanned				

Description	NWI Indicator Number	Unit	Level of Service	
			Current Target	Future Target
water interruptions - urban areas - non- urban areas (trunk main connected properties)		 Minutes Minutes	 30 No guarantee	 30 No guarantee
Planned water supply interruptions - Initial written notice - Notice immediately prior to works - Maximum duration • Residential • Non-residential during business hours		 Days Hours Hours Hours	 14 48 6 0	 14 48 6 0
ENVIRONMENT				
Greenhouse gas emissions	E10	Tonnes CO2-equivalent per 1000 connected properties	130	200[1]
PRICING				
Typical residential bill - urban areas - non- urban areas (trunk main connected properties) with disinfected water - non-urban areas (trunk main connected properties) without disinfected water	P6	 $/assessment $/assessment $/assessment	 540 540 450	 675 (+CPI) 675 (+CPI) 500 (+CPI)
Customer billing frequency		Months	4	4
PUBLIC HEALTH				
Number of zones where microbiological compliance was achieved	H2	Urban water supply zone	6/6	6/6
% of urban population where microbiological compliance was achieved	H3	%	100	100
Number of zones where chemical compliance was achieved	H4	Urban water supply zone	4/6	6/6
Non- urban areas (trunk main connected properties) microbial and chemical compliance			No guarantee	No guarantee

[1] *increase due to future water filtration plants*

Table 4-1shows that water supply service provision to existing trunk main customers is at a different Level of Service with respect to:

- Water pressure. Water pressures to properties with a connection to a trunk main cannot be guaranteed because pressures vary due to topography along trunk main routes and cannot be reduced without compromising the transfer capacity to urban centres. Pressures will also vary to different extents when town service reservoirs draw water from the trunk mains and/or when booster pumps operate
- Water availability. The continued supply of water to properties with a connection to a trunk main cannot be guaranteed due to the absence of storage reservoirs. Trunk main customers are encouraged to provide on-site storage tanks to ensure a continued supply. Repairs to trunk mains in remote areas may take considerably longer to carry out than in urban areas
- Water quality. The supply of potable water to properties with a connection to a trunk main upstream of chlorination facilities cannot be guaranteed water because this water has not been subject to any form of chemical disinfection. The water at these locations is provided in its natural state

Table 4-2: Levels of Service – Sewerage

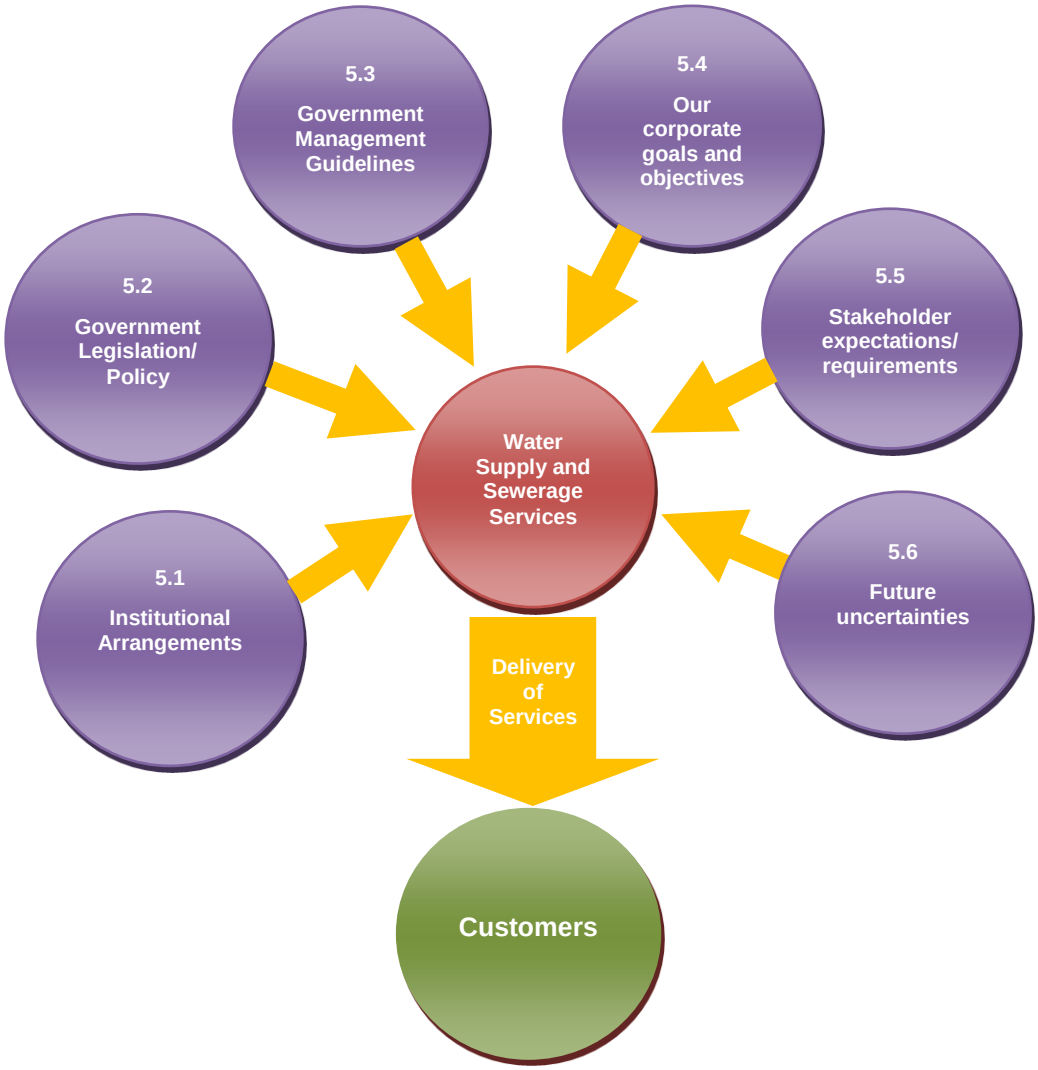
Description	NWI Indicator Number	Unit	Level of Service	
			Current Target	Future Target
WATER RESOURCES				
Recycled water	W27	% of effluent recycled	40	50
ASSETS				
Sewer main breaks and chokes	A14	No./100 km sewer main	30	20
Property connection sewer breaks and chokes	A15	No./1000 properties	5	3
CUSTOMERS				
Sewerage service complaints	C11	No./ 1000 connections	2.0	1.5
Billing and account complaints - water and sewerage	C12	No./ 1000 connections	3.0	2.0
Total complaints - water and sewerage	C13	No./ 1000 connections	10	5
Connect time to a telephone operator	C14	% of calls answered by an operator within 30 seconds	70	75
Average sewerage interruption	C16	Minutes	100	100
Response times				
- Sewer system main breaks and chokes and pump or other breakdown		Minutes	30	30
- Property pressure sewer system pump or other breakdown		Hours	8	8
ENVIRONMENT				
Sewage treated to a primary level	E1	%	100	100

Description	NWI Indicator Number	Unit	Level of Service	
			Current Target	Future Target
Sewage treated to a secondary level	E2	%	100	100
Sewage treated to a tertiary or advanced level	E3	%	40	65
Sewage treatment plant (STP) compliance	E4	% of sewage volume that was compliant	70	75
No. of STP's compliant at all times	E5	No.	4/6	5/6
Public disclosure of STP's performance	E6	Yes/no	Yes	Yes
Compliance with environmental regulator	E7	Yes/no	Yes	Yes
Total net greenhouse gas emissions	E10	Net tonnes CO2-equivalent per 1000 connected properties	230	250
Sewer overflows reported to the environmental regulator	E13	No./100 km sewer main	0.5	0.5
PRICING				
Typical residential bill	P6	$/assessment	1045	910 (+CPI)

5 Operating Environment Review

The delivery of water supply and sewerage services to our customers is subject a number of external and internal factors, collectively referred to as the operating environment. The six major elements of our operating environment are shown in Figure 18 and reviewed in this section.

Figure 18 – Operating Environment



5.1 Institutional arrangements

Institutional arrangements refer to both our own institutional arrangements for providing water supply and/or sewerage within our organisational structure and externally in the state context to determine that these arrangements are appropriate and optimal.

Our authority to provide water supply and sewerage services is delegated by the State Government under the Local Government Act 1993. Periodically the State Government takes a closer look at the way we and other Local Water Utilities deliver water supply and sewerage services. Two recent State Government Inquiries into institutional arrangements for Local Water Utilities and Local Government include:

- Local Water Utility Inquiry 2008 and
- Independent Local Government Review Panel 2012

Our response to these Inquiries is outlined below.

5.1.1 2008 Local Water Utility Inquiry

In 2008 the Institute of Sustainable Futures at the University of Technology Sydney developed a discussion paper identifying nine organisational structure model options that could be applied to the provision of urban water supply and sewerage in non-metropolitan NSW. The options were:

Model 1 - Mandatory (or Binding) Alliance

An arrangement between participating councils to establish a body with responsibility for certain water supply and sewerage functions, such as strategic planning. Asset ownership, operation, maintenance and customer interface remains with the participating councils.

Model 2 - County Council (Service Provision Only)

The transfer of water supply and sewerage services to a County Council proclaimed under the Local Government Act 1993. Asset ownership remains with the individual councils with individual councils represented on the County Council's board of management.

Model 3 - County Council (Asset Ownership)

As above with asset ownership also transferred to the County Council.

Model 4 - Council-Owned Regional Water Corporation

A corporation established to own water supply and sewerage assets and provide water supply and sewerage services, managed by a board of directors appointed by the shareholders (local councils).

Model 5 - State-Owned Regional Water Corporation

A state established corporation to own water supply and sewerage assets and provide services. No local council role in providing water supply and sewerage services.

Model 6 - Regional Council Aligned to Catchment or Sub-Catchment

The transfer of all water supply and sewerage assets and delivery of services to a new regional amalgamation of councils approximating water catchment or sub-catchment boundaries.

Model 7 - Single Regional NSW-Wide Corporation

A single state-owned corporation to own assets and provide water supply and sewerage services outside the areas serviced by Sydney Water, Hunter Water, Gosford City Council and Wyong Shire Council.

Model 8 - Disaggregated Model – Bulk Supply, Distribution and Retail

The creation of three separate functional areas to provide water supply and sewerage services with no local government involvement, or involvement limited to reticulation and retail:

- Bulk Supply
- Treatment and distribution
- Reticulation and retail

Model 9 - Status Quo

The current approach to water supply and sewerage service delivery.

5.1.2 Council's submission to the 2008 Local Water Utility Inquiry

The aforesaid nine organisational structure models were considered in 2008. Our submission to the Inquiry was, in part, as follows:

> *It is BVSC's position that Council has already achieved a critical mass through the amalgamation of three Councils in 1981 to form BVSC. For a sustainable and well managed LWU such as Bega Valley, maintenance of Council as the water and sewerage service provider is the logical strategy. There are no tangible benefits in reducing the BVSC asset base or services and similarly there are unlikely to be any gains from further levels of amalgamation. On the contrary, there is a significant risk that removal of assets or services from the control of Council would be harmful to the community, employment, standards of service and would necessitate large increases in rates to ensure Council's sustainability. Further increasing the size of the business would only serve to remove staff from their grass roots connection with, and high level of accessibility to, the community.*
>
> *There has been a suggestion in another submission that Bega Valley and Bombala Shire water and sewer functions could be amalgamated in one of two county council models. There is limited congruence between the two Council areas and discussion with Bombala Shire indicates that they see their future more closely allied with the tablelands and high country Councils. There is some cooperation between our two Councils in areas like IT and road design and this cooperation could be extended but it is not considered that it would extend to day to day management functions. County council models are not seen as being of benefit to either Council.*
>
> *There is no reason to modify the governance arrangement for BVSC and none of the models proposed by the Inquiry will provide a better path to the resolution of the challenges discussed in this submission.*
>
> *BVSC therefore supports the so called "status quo" governance model identified in the Inquiry's options paper. It should be noted that the term "status quo" implies a static management model that is a poor description of the normal business of BVSC. As demonstrated by changes that BVSC has implemented over the last decade, there is continual effort to improve the efficiency, level of service and sustainability of the water and sewer businesses that is facilitated by the current management model.*
>
> *Maintenance of Council as the provider of water and sewerage services, with an emphasis on increasing efficiency particularly with respect to the interactions between State and Local Government should be the focus of this Inquiry for Bega Valley Shire. Increasing fundamental efficiency is the only way that cost effectiveness can be achieved. None of the new models proposed by this Inquiry will assist BVSC to improve sustainability, but would instead create disruption and financial stress for BVSC and negatively impact our community. Given the need for councils generally to achieve a critical mass to become sustainable, it is likely that the viability of the smaller councils particularly should be reviewed on a case-by-case basis to determine the appropriate course of action.*

5.1.3 2012 Independent Local Government Review Panel

A broad examination of NSW Local Government institutional arrangements is currently underway as part of the NSW Government 2036 Future Directions initiative.

As part of this process an Independent Local Government Review Panel was established. In April 2013 the panel released a document entitled "Future Direction for Local Government – Twenty Essential Steps", outlining a number of reforms to the institutional arrangements and LGA boundaries. In some cases, the formation of County Councils covering a number of local government areas was recommended.

The panel's recommendation, for review and comment, is the creation of a County Council arrangement for Bega Valley Shire, Eurobodalla Shire and Shoalhaven City Council. This County Council is proposed to cover broad regional strategic local government planning and deliver specific services to the member councils.

This process enabled us to re-evaluate our opinion of County Councils and has led to a change in position. Our response to the report was, in part, as follows:

> *Council in general supports the concept of County Councils, not as an independent level of government with its own administration and facilities, but rather as a collaboration of member councils agreeing to contribute to the recruitment and sharing of human and technical resources amongst them, instead of paying commercial rates for consultancies whose skills and findings don't remain resident in the local government. However a cooperatives or company structure is suggested.*
>
> *No doubt the Panel would consider that local government must comply with the National Competition Policy requiring government businesses operate without net competitive advantages over other business as a result of their public ownership. The County Council system presents an opportunity for 'Regional service, Local delivery'.*
>
> *Council prefers a 'centres of excellence' approach where each council is capable of preparing bids to provide a higher order service across the county/cooperative to all LGAs, based on resident expertise, or an ability to strengthen that local council or community by that human or technical resource being housed in the LGA.*

If adopted, this arrangement would potentially deliver the benefits identified in the "Mandatory Alliance" model in the previous 2008 LWU Inquiry and avoid the risk of poor performance in the absence of mandatory cooperation.

Specific opportunities for increased efficiency in delivering water and sewerage services could arise from centres of excellence being established to cover areas of activity currently unable to be effectively provided by the individual Local Water Utilities, due to limited capacity to hire and retain specialist human resources. Cost savings could be realised by avoiding the need to engage consultants at considerable expense to carry out many functions, as well as the lead time in preparing briefs and assessing tenders for this type of work. Examples of functional areas for centres of excellence include:

- asset management systems
- hydraulic modelling
- water and sewerage infrastructure design
- water and sewerage treatment plant operational efficiency audits and improvement plans
- SCADA and telemetry software systems design and development

Other areas of potential savings under the County Council, or Mandatory Alliance "centres of excellence" model, include procurement of water and sewerage physical assets such as pipe supply, pump supply and treatment plant chemical supply and procurement of projects such as mains cleaning as well as renewals and refurbishment projects.

There is still some uncertainty about the final form of institutional arrangements as a result of the Independent Local Government Review Panel recommendations and

whether the creation of a County Council arrangement for Bega Valley Shire, Eurobodalla Shire and Shoalhaven City Council will occur. In the meantime we will continue to deliver water supply and sewerage services.

5.2 Legislative Framework

Numerous Acts, such as those listed below, influence the way in which we provides water supply and sewerage services to the community. Appendix B provides a discussion of the relevant legislation and the specific implications on our operations.

- Local Government Act (1993)
- Environmental Planning and Assessment Act (1979)
- Protection of the Environment Operations Act (1997)
- Water Management Act (2000)
- Dams Safety Act (1978)
- Public Health Act (2010)
- Fluoridation of Public Water Supplies Act (1957)
- Water Administration Act (1986)
- Independent Pricing and Regulatory Tribunal Act (1992)
- Water Industry Competition Act (2006)
- Catchment Management Act (1989)
- Soil Conservation Act (1938)

This legislation provides a governance framework and a degree of certainty to the way we deliver water supply and sewerage services. However more regulation and the declining availability of financial subsidies to Local Government will have an impact on our capacity to deliver services and our customers' capacity to pay. We will continue to adapt as necessary, yet will also seek to influence new legislation and policy when the opportunity arises, to minimise potential resourcing impacts and costs to our customers.

5.3 Government endorsed Management Guidelines

State Government endorsed management guidelines help to standardise and modernise the way we and other Local Water Utilities manage fundamental elements of water supply and sewerage service delivery. Some of the most important guidelines to us are:

- Best Practice Management of Water Supply and Sewerage Guidelines (2007)
- Australian Drinking Water Guidelines (2004)
- Australian Guidelines for Water Recycling: Managing Health and Environmental Risks (2006)
- Developer Charges for Water Supply, Sewerage and Stormwater Guidelines (2002)
- Water Supply, Sewerage and Trade Waste Pricing Guidelines (2002)

Meeting the requirements of these and other management guidelines will increase our Levels of Service. However meeting the requirements will also involve taking on increased responsibilities, extra financial and staff resourcing and ultimately additional costs to our customers. For example, new capital expenditure on water treatment facilities will be required to manage the water quality risks identified in a formal drinking water management system under the Australian Drinking Water Guidelines (2004). Similarly, the risk management approach to recycled water supply under the Australian Guidelines for Water Recycling (2004) has and will continue to require significant new capital expenditure on sewage treatment facilities.

5.3.1 Best Practice Management of Water Supply and Sewerage Guidelines (2007)

The key framework guidelines for water and sewerage service delivery in NSW are the Best Practice Management of Water Supply and Sewerage Guidelines (2007). These guidelines were established by the NSW Government to encourage continuous improvement in the management of local water supply and sewerage services.

The guidelines focus on six key areas:

- Strategic Business Planning – to ensure long-term plans are in place for the management of community infrastructure and water resources
- Pricing – to ensure transparent pricing structures that reflect social, environmental and operational requirements
- Water conservation – to encourage responsible use of water resources through education, rebate programs and operational requirements
- Drought management – to ensure the long-term security of community water supply and effective management of water resources during drought conditions
- Performance reporting – to ensure adequate systems are in place to monitor and report on organisational performance
- Integrated water cycle management – to encourage a holistic view of water resource management

The Best Practice Management of Water Supply and Sewerage Guidelines (2007) have helped to shape the direction of our Strategic Business Plan and we will continue to use them as a basis for our decision making, planning and reporting requirements.

5.4 Our Corporate Policies and Procedures

Our organisation has corporate policies and procedures for the whole organisation covering matters such as equal employment opportunity, work health and safety, risk management, asset management and complaints as required by the IPR framework.

We have adopted two major policy statements for the operation of the water supply and sewerage services, supported by a number of procedures.

These policies state that:

> *Bega Valley Shire Council is committed to providing our customers with high quality water and sewerage services. The Water and Sewerage Services section manages the collection, treatment and distribution of water in the Bega Valley Shire. It also collects and treats sewage and reuses and disposes of effluent safely back into the environment.*

The scope and purpose of each policy refers to associated procedures implemented to facilitate the efficient and effective delivery of water supply and sewerage services to residents and businesses in the shire. Both policy statements are currently under review (2014).

5.4.1 Procedures

A number of procedures are in place to provide guidance in implementing and administering the policies in specific areas. These procedures are currently under review and include:

- Water meter provision
- Sewer junction provision
- Bulk water supply
- Backflow prevention

- Water usage charging
- Water supply and sewerage section 64 charges
- Sewer services policy
- Private waste water pump up
- Sewer extension
- Sewerage facilities in Council area
- Construction over sewer mains
- Construction over drainage facilities
- Pressure sewerage systems
- Restricted development in unsewered villages
- Bega Valley Sewerage Program - Commercial Connections
- Liquid Trade Waste
- Water Restrictions
- Permanent water wise measures
- Multiple occupancy development - servicing

5.5 Stakeholders

Stakeholders are defined as individuals and organisations, both internal and external, with an interest and/or equity in the provision of water supply and sewerage services. They include:

- The community
- Water supply and sewerage services customers
- Councillors
- Council staff
- Government Agencies
- Industry Associations
- Environmental groups
- Special interest groups

We are committed to understanding our stakeholders and their needs and aspirations in the context water supply and sewerage services delivery. Our Customer Services Plan (Section 8.7) has more.

5.6 Future Uncertainties

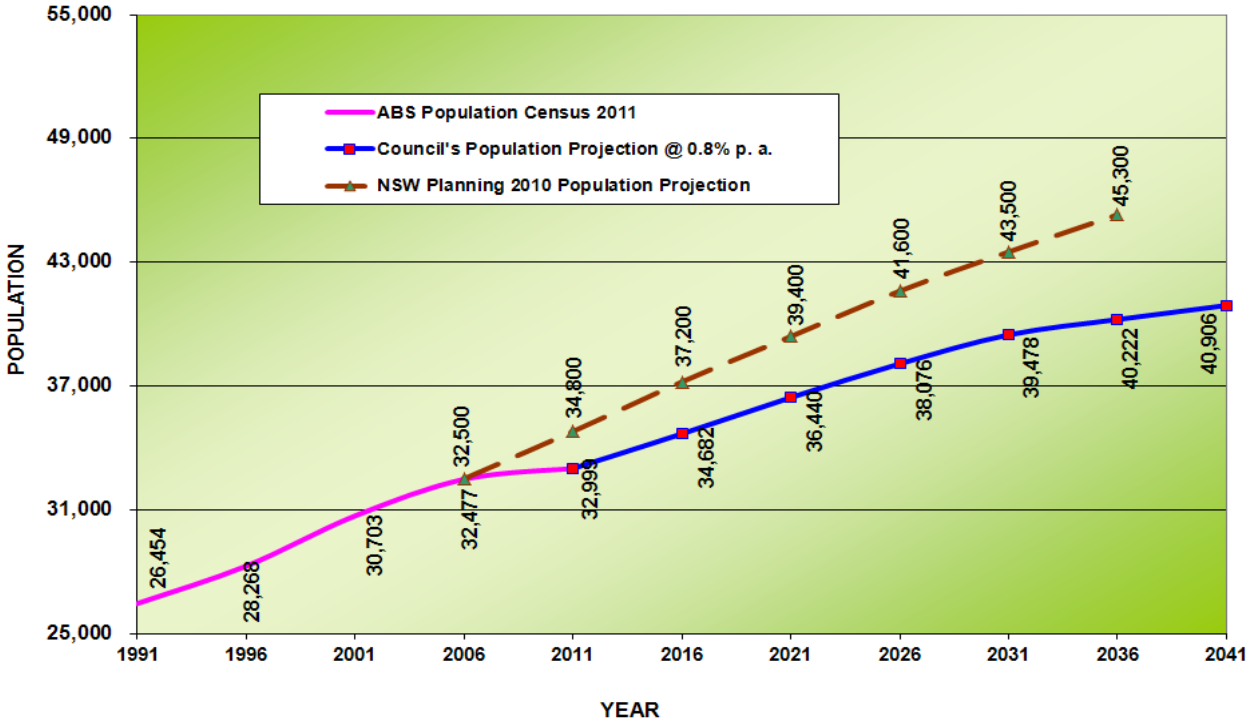
There are a number of uncertainties in the operating environment that will influence how we provide water supply and sewerage services in the future. The uncertainties considered to be the most likely and influential are population growth, commerce and industry, climate change, tourism, information and technology and government legislation and management guidelines. Each is considered below.

Population Growth

Figure 19 shows that Bega Valley Shire had a compounding population growth rate of 1.1% p.a. during the 20-year period between 1991-2011 (ABS Census Data),with a lower rate of 0.7 % p.a. between 2006 and 2011. We have adopted a 0.8% p.a. population growth forecast for this Strategic Business Plan and an identical growth rate for service connections because most of the growth is expected to occur in serviced areas.

Variability in population growth influences income levels and the affordability of capital works (CAPEX). Population growth uncertainty will be managed through regularly reviewing growth projections and proactively adjusting CAPEX, income needs, staff levels and staff skill sets.

Figure 19 – Population Growth Projections



Commerce and Industry

The major commercial and industrial activities in the Bega Valley Shire include agriculture and associated retail services and equipment supply, cheese production (Bega Cheese), forestry and timber production, the Eden wood chip mill (South East Fibre Exports), aquaculture (e.g. Bega Coast Oysters Inc.) and fisheries.

Future commercial and industrial developments include the South East Regional Hospital at Bega and the NBN satellite hub for the east coast of Australia.

Less certain future development proposals include new infrastructure in the Port of Eden for commercial shipping, cruise ships and game fishing and an expansion of Merimbula airport to enhance tourism.

The ongoing viability of these and future enterprises and initiatives will support the future population growth forecasts, which in turn support growth in demand for water and sewerage servicing as well as projected increased income from access and usage charges. We will manage future commercial and industrial developments and the potential impact on water and sewerage services by actively engaging with commerce and industry to determine needs and by responding in a supportive and timely manner.

Climate change

The impact of climate change on water supply and sewerage services is predicted to be significant. A strategy of adaptive actions based on monitoring and predicting the likelihood and consequence of impacts is necessary. Climate change and associated sea level rise, extreme weather events, longer and more frequent drought periods and increased bushfire risk, will require us to monitor forecasts and predictions closely for early mitigation to protect and in some cases move vulnerable infrastructure. We will also continue to develop, improve and adapt operational procedures and plans within a changing climatic environment to ensure water supply security and sewerage service capacity is maintained.

Tourism

Bega Valley Shire has a vibrant and growing tourism industry based on a wide variety of active and passive leisure activities. However the short duration of the tourist season requires increased infrastructure capacity to meet peak day demand for water and peak loadings for sewerage and hence assets are under-utilised for much of the year. This presents a challenge with added maintenance and renewal costs that must be paid for by our residential and business customer base.

The tourism industry is expected to experience further growth, especially if the proposed Merimbula airport expansion and Eden Port development proceed. Tourism growth on the back of major developments such as these will present short term challenges where water supply and sewerage capacity has to be created. We will deal with these and other tourism based developments on a case by case basis to ensure the required water supply and sewerage services are available to support the tourism industry.

Information and Technology

Information and technology is central to water supply and sewerage scheme planning, design, construction, system control, communications, asset management and data collection. New technologies provide solutions for regulatory and guideline compliance, energy and operational efficiencies and changing customer expectations.

The challenge is to make the right investment decisions relating to infrastructure and technology at the right time. Our approach is to maintain core in-house skills within the Information Technology Department, to research well and to build capacity through training and industry exposure.

Government Legislation and Management Guidelines

New and changing legislation and management guidelines for water supply and sewerage services are inevitable and for the most part outside of our control. Nevertheless we will take advantage of opportunities to comment and provide input into any proposed new, or changes to existing legislation and guidelines, with a view to improving outcomes and limiting the potential impact on the local community and our customers.

5.7 Service Delivery

The majority of operations and maintenance of water supply and sewerage assets is undertaken in-house. The exception to this is the operation and maintenance of our 10 sewage treatment plants, which is undertaken by Tenix. Our capital works program is largely delivered by contract.

We have significant in-house operational, maintenance, asset management, project management, planning, science and environmental management capability. This capability enables us to be active managers of our assets and contractors and to deliver services that meet legislative requirements and customer expectations.

There are a number of options available to us for water supply and sewerage service delivery in the future. These options include full service contract, part service contract, build, own, operate and transfer (BOOT) contract and resource sharing. We will consider these and other service delivery options, to ensure the ongoing efficiency and effectiveness of our service delivery.

6 Principal Issues

A number of issues have been identified as important to the future delivery of water supply and sewerage services. Table 6-1 presents a list of these issues and references the section in this Strategic Business Plan where they are addressed.

Table 6-1: Principal Issues

Issue	Section where this is addressed
Meeting the adopted Levels of Services	Levels of Service and Performance Review (Section 8.1)
Managing and funding new capital works	Asset Management (Section 10) Finance (Section 12)
Managing and funding rehabilitation and renewal of ageing assets	Asset Management (Section 10) Finance (Section 12)
Optimising costs of operation and maintenance	Asset Management (Section 10)
Managing increasing customer service expectations	Customer Relations and Community Involvement (Section 8.7)
Service provision to new areas	Future Service Areas (Section 8.2)
Security of water supply (quantity and quality)	Water Conservation (Section 8.4) Environment Protection and Sustainable Development (Section 9) Asset Management (Section 10)
Meeting EPA licence conditions for sewerage systems	Environment Protection and Sustainable Development (Section 8.8) Asset Management (Section 10) Liquid Trade Waste and Sewer Load Management (Section 8.3)
Meeting Government endorsed management guideline requirements	Levels of Service and Performance Review (Section 8.1)
Equitable and affordable service pricing	Pricing (Section 8.6)
Maintaining adequate number of skilled staff	Work Force (Section 11)
Capacity development (in alliance with neighbouring Councils) in the area of planning, design and modelling of water and sewerage schemes	Work Force (Section 11)

7 Strategic Action Planning - Overview

The purpose of this chapter is to introduce the next five chapters of this Strategic Business Plan, which are sub-plans for the key result areas of:

- Customer Service - Levels of Service and performance review, future service areas, liquid trade waste and sewer load management, water conservation, drought management, pricing and customer relations and community involvement
- Environmental Protection and Sustainable Development
- Asset Management - service delivery, operation and maintenance, capital works
- Work Force - staffing issues such as skills development, health and safety and resource planning
- Finance - overall financial management of the system including financing of future capital works and the setting of Typical Residential Bills (TRB's)

"Objectives and Actions Tables" are provided in the following chapters outlining objectives, performance targets strategies, actions, responsibilities and costs. The definitions of these terms are shown in Table 7-1.

Table 7-1: Definition of Terms used in Strategic Action Planning

Term	Description of Contents
Objective (Goal)	A statement of a result or outcome to be achieved
Performance Targets	Measurable indicators to assess whether an objective has been met
Strategies	The plan for achieving the objective(s), expressed in general terms
Actions	Specific tasks to implement strategies and achieve objective(s)
Responsibility	Person in charge of action completion
Cost	The estimated costs to achieve the actions, including - Implementation - one off cost - Ongoing - Cost incurred annually over a number of years or at regular intervals - NAE - No Additional Expenditure (over and above current level of expenditure)

The responsibility for ensuring that each action is undertaken is assigned using their position acronym, as shown in Table 7-2.

Table 7-2: Position Descriptions

Abbreviation	Position
GM	General Manager
GMIWW	Group Manager Infrastructure, Water and Waste
MWSS	Manager Water Supply and Sewerage Services
AEWSS	Asset Engineer Water and Sewer Services
OEWSS	Operations Engineer Water and Sewer Services
FM	Finance Manager
HRM	Human Resources Manager

8 Customer Service Plan

Our Customer Service Plan focuses on aspects of our operations where customer and community interaction is most relevant. It includes the aspects where we need to establish customer needs, maintain customer satisfaction and price appropriately. Figure 20 shows the seven (7) key aspects of our Customer Service Plan.

Figure 20 – Components of the Customer Service Plan

8.1 Levels of Service and Performance Review

This section of our Customer Service Plan outlines our approach to reviewing and improving our Levels of Service (LOS) and performance.

Each year data and information is collated and submitted to the NSW Office of Water to enable our LOS and performance to be measured, reported and reviewed. The data and information we collect covers service, social (charges and bills, health, service levels), environmental (natural resource management) and economic (finance and efficiency) characteristics.

Each year the NSW Office of Water prepares a Triple Bottom Line (TBL) Performance Report and Action Plan Template based on the data and information we provide. The TBL Report ranks our performance against other NSW water utilities and NSW state medians for a number of indicators. The Action Plan Template is completed and presented with the TBL Report to Councillors annually during a Performance Review workshop.

This process helps us and our customers to determine the areas where delivery of water and sewerage services is more or less effective than other local water utilities and what actions are needed to address areas of under-performance. The majority of our LOS (refer Section 4) have associated indicators that are measured and reviewed in this way.

In addition to this process and in accordance with the Inter-Government Agreement on a National Water Initiative signed between the Commonwealth and the State Governments, performance monitoring data/information for a number of indicators must also be reported annually to the Commonwealth Government for National Performance Reporting (NPR). To ensure the data/information reported is accurate and reliable an independent audit of performance data/information for 45 NPR indicators is required every three years for all water utilities with more than 10,000 connections. The audit verifies the reliability and accuracy of the performance data reported by water utilities and enables meaningful state-wide and nation-wide benchmarking and comparison of key issues affecting water utilities and their customers. We have successfully completed three NPR audits in 2007, 2010 and 2013.

Table 8-1: Objectives & Actions – Levels of Service and Performance Review

Objective					
Review and continually improve Levels of Service (LOS) and performance					
Performance Target					
100% compliance with the LOS					
Strategies					
Provide accurate performance monitoring data/information to NSW Office of Water on time Report compliance with our LOS and other performance indicators					
Action	**Start**	**End**	**Responsible**	**Cost ($'000)**	
				Implement	**Ongoing**
Collate performance monitoring data/information and enter data into NSW Office of Water web site	July Annually	September Annually	MWSS		NAE
Report key performance indicators based on TBL reports and Action Plans to Council	Annually		MWSS		NAE
Input and review of special schedules for the Department of Local Government in the financial statements	Annually		FM		NAE
Undertake 3 yearly audits of National Performance Reporting indicator data/information	Tri-annually		MWSS		NAE
Submit Annual Returns for EPA Environmental Protection Licences	Annually		OEWSS		NAE
Provide information for SoE reporting	Annually		MWSS		NAE
Review, update and adopt LOS within this Strategic Business Plan (SBP)	2018	4 yearly	MWSS	50	NAE
Implement and monitor SBP Action Plans	Ongoing		MWSS		NAE
Audit of Best Practice Management of Water Supply and Sewerage Guidelines	Nov 2016	Dec 2016	MWSS	20	NAE
Prepare Drinking Water Management System in accordance with the Australian Drinking Water Guidelines (2004)	Feb 2014	Sep 2014	MWSS	50	

8.2 Future Service Areas

This section of our Customer Service Plan outlines our intentions for the provision of water supply and sewerage services to new areas and for infill development.

The extension of water supply and sewerage services to new areas is dependent on a range of factors, the most important of which are:

- Population growth
- Public health issues
- Environmental issues and the environmental impact of works
- The cost to customers
- The impact on Levels of Service to existing customers

When extending services, we will:

- consider public health and environmental issues
- consider the financial viability and technical feasibility
- consider customer expectations of service
- consult the community
- consider land use planning

Most urban areas of the shire are fully serviced with water supply and sewerage infrastructure. Urban areas with partial service or no service at all are shown in Table 8-2, together with commentary on our strategic direction for future servicing.

Table 8-2: Part Serviced and Unserviced Urban Areas and Plans for Future Servicing

Name	Population (EP)		Current Service		Comment
	Current	Projected (2042)	Water Supply	Sewerage Scheme	
Akolele	95	121	Yes	No	In Eurobodalla Shire and no plans for the provision of reticulated sewerage within the planning horizon
Wallaga Lake (Koori Village)			Yes	No	In Eurobodalla Shire and currently subject of discussions with NOW for the provision of reticulated sewerage.
Bemboka	309	363	Yes	No	No plans for the provision of reticulated sewerage within the planning horizon
Quaama	173	191	Yes	No	
Mogareeka	88	85	Yes	No	
Tathra River Estate	210	260	Yes	No	
Tarraganda	227	236	Yes	No	
North Bega	102	124	Yes	No	
Boyd Town	61	576	Yes	No	Privately run sewerage scheme and no plans for the provision of reticulated sewerage within the planning horizon
Towamba	35	44	No	No	No plans for the provision of reticulated water supply and sewerage within the planning horizon
Wonboyn	40	50	No	No	
Wyndham	100	125	No	No	Privately run water supply scheme and no plans for the provision of water supply and reticulated sewerage within the planning horizon

Table 8-3: Objectives & Actions – Future Service Areas

Objective					
Future service areas identified based on consideration of technical feasibility, financial viability, demand, public health, environmental and land use planning					
Performance Target					
Service provided to 100% customers within designated service areas meets the adopted Levels of Service (LOS)					
Strategies					
Investigate options for ensuring adopted LOS are met in existing and new areas					
Action	**Start**	**End**	**Responsible**	**Cost ($'000)**	
				Implement	**Ongoing**
Review designated service area for each scheme	Jan 2016	Jan 2017	MWSS	70	NAE
Review and adopt revised Development Servicing Plans (DSP)	Jan 2016	July 2017	MWSS	30	NAE
Undertake feasibility studies to extend service to land within designated service areas	Ongoing		MWSS		NAE

8.3 Liquid Trade Waste and Sewer Load Management

This section of our Customer Service Plan outlines our approach to the management of loadings on the sewerage systems. While the impacts of overloading sewerage systems and management practices to reduce loads are of relevance to our customers, many of the solutions are an integral part of our Asset Management Plan since they involve long-term system maintenance strategies.

Increased hydraulic and biochemical loading on a sewerage system occurs due to liquid trade waste discharges, water ingress and/or changing development patterns affecting design capacity. Reducing the hydraulic and biochemical loading on the system can:

- prolong the life of the existing assets
- defer new works programs
- make treatment processes more effective
- reduce siltation in the system and reduce pump wear
- reduce operation costs
- improve environmental performance

Liquid Trade Waste Management

Liquid trade waste is any liquid waste produced and discharged to sewer from a business, commercial or industrial activity, other than from a toilet, hand basin and shower/bath. Liquid trade wastes can contain grease, oil, solids and other chemicals at higher concentrations than domestic sewage. If not pre-treated prior to discharge to sewer, liquid trade wastes can cause blockages in the sewerage system, overflows of sewage to the environment, odour problems, corrosion of sewer infrastructure, harm to sewage treatment processes, reduction in treated effluent quality and risk to the health and safety of our workers and the public.

Our liquid trade waste policy and management system is well developed. It involves routine inspections, approvals to discharge, monitoring, provision of advice and usage charging.

Sewer Load Management

The ingress of water into a sewerage system increases the hydraulic load on the system. This can lead to sewage overflows from the reticulation network and compromise treatment processes at the sewage treatment plant. It is important to control and reduce inflow and infiltration (I/I).

Inflow is due to direct ingress of stormwater from illegal connections of roof drains and other drains and from low gullies and unsealed manhole covers.

Infiltration is the ingress of water as a result of damage to the sewerage system network due to cracking, breakage, open joints, broken junctions etc. Infiltration can occur in dry weather, as well as wet weather, if the pipes are below the water table, or adjacent to a stream bed.

Table 8-4: Objectives & Actions – Liquid Trade Waste and Sewer Load Management

Objective					
Effective liquid trade waste and inflow and infiltration management to reduce loads on the sewerage system and minimise the risk of blockages, overflows, odour problems, corrosion, reduced effluent quality and harm to the health and safety of our workers and the public.					
Performance Target					
Comply with Levels of Service (LOS) for the number of sewer main breaks and chokes and sewer overflows reported to the environmental regulator					
Strategies					
Implement liquid trade waste management system Implement inflow and infiltration investigation program Determine and implement preferred inflow and infiltration reduction strategies					
Action	**Start**	**End**	**Responsible**	**Cost ($'000)**	
				Implement	**Ongoing**
Conduct inspections of all food related and automotive businesses	Annually		MWSS		NAE
Process applications to discharge liquid trade waste to sewer and issue approvals to new businesses	Ongoing		MWSS		NAE
Maintain liquid trade waste register	Ongoing		MWSS		NAE
Liaise with business operators and owners about pre-treatment requirements and liquid trade waste management and provide advice and support	Ongoing		MWSS		NAE
Review liquid trade waste fees and charges	Annually		MWSS		NAE
Monitor and record grease trap volume pump outs	Ongoing		MWSS		NAE
Monitor and record septic effluent and septage volumes discharged to approved STP's	Ongoing		MWSS		NAE
Undertake inspection of sewer mains using CCTV	Ongoing		MWSS		NAE
Review and update sewer hydraulic models for all schemes	Ongoing		MWSS		NAE
Implement sewer mains/ manhole maintenance and rehabilitation program	Ongoing		MWSS		NAE
Review hydraulic and biological capacity for Bega and Bermagui STPs	Jan 2013	April 2014	MWSS	55	
Review of STP performance as part of EPA licence reporting	Annually		MWSS		NAE

8.4 Water Conservation

This section of our Customer Service Plan outlines our intention with regards to conserving water within an integrated water cycle management (IWCM) context. The four key elements of our IWCM management approach to water conservation are:

- Reducing water extraction from local creeks, rivers and aquifers during low flow (dry) times
- Minimising water losses/leakage by maintaining efficient water supply schemes
- Minimising water wastage through encouraging wise water use
- Extensively using recycled water from our sewage treatment plants

This approach to water conservation provides more water for the environment and other water users and reduces the operating costs of our water supply schemes.

Table 8-5: Objectives & Actions – Water Conservation

Objectives
Reduced water extraction during low flow (dry) times to enhance environmental flows
Water used appropriately with minimal water wastage
The efficient supply of water with minimal losses/leakage
The sustainable use of recycled water
Performance Targets
100% compliance with Water Sharing Plan rules
Median annual residential water usage less than 150 KL/ property from year to year
Levels of Service met for real water losses and water main breaks
50% recycled water use in a median year
Strategies
Capitalise on higher flow times for water extraction and storage and reduce extraction during low flow (dry) times
Comply with Water Sharing Plan rules and water licences
Wise water use education and awareness programs
Appropriate water use charges set to promote efficient water use
Asset maintenance/renewal and leak reduction programs

Action	Start	End	Responsible	Cost ($'000)	
				Implement	Ongoing
Daily monitoring of stream gauging stations to determine total daily extraction limits (TDELs) for water extraction	Ongoing		OEWSS	NAE	
Maintain off-stream dam storages full for supply and use in dry times	Ongoing		OEWSS	NAE	
Conserve water for the environment by reducing water extraction in low flow (dry) times	Ongoing		OEWSS	NAE	
Promote water wise measures on water accounts	Quarterly		FM	NAE	
Provide information on water supply schemes and promote water wise measures on our web site and in the media	Ongoing		MWSS	NAE	
Periodically support and participate in water efficient appliance programs	Ongoing		MWSS	NAE	
Monitor and review water usage charges	Annually		MWSS	NAE	
Expand recycled water use to Pambula sports complex	June 2016	June 2017	MWSS	Refer to Section 10 Asset Management	
Investigate upgrades to the recycled water irrigation system at					
- Bermagui Country Club	May 2014	May 2015	MWSS	50	
- Pambula-Merimbula Golf Club	June 2016	June 2017	MWSS	50	

Action	Start	End	Responsible	Cost ($'000)	
				Implement	Ongoing
Implement water meter replacement program	Ongoing		MWS	Refer to Section 10 Asset Management	
Implement water supply asset maintenance/renewal program	Ongoing		MWSS	Refer to Section 10 Asset Management	
Periodically carry out leak reduction and water loss management programs	Ongoing		MWSS	10	

8.5 Drought Management

This section of our Customer Service Plan outlines our approach to managing drought.

Preparing and managing for drought is essential to the secure and continued supply of water. Our Drought Management Plan provides information on past droughts, the effect of drought on water supply and strategies for future drought management. It includes information on:

- Source water monitoring requirements
- Trigger points based on source water behaviour and/or Water Sharing Plan rules
- Actions relating to supply of customer demand, operation of the water sources, introduction of water restrictions and provision of emergency supply

Table 8-6: Objectives & Actions – Drought Management

Objective					
Ensure water supply schemes continue to provide water in times of drought					
Performance Target					
Water supplied for essential domestic purposes 100% of time					
Strategies					
Implement Drought Management Plan					
Action	**Start**	**End**	**Responsible**	**Cost ($'000)**	
				Implement	**Ongoing**
Implement Drought Management Plan including - levels of intervention (trigger points) - means and methods for introducing water restrictions - Operating alternative water supply sources - Customer education	Ongoing		MWSS		NAE
Review and update Drought Management Plan	July 2015	June 2016	MWSS	10	

8.6 Service Pricing

This section of our Customer Service Plan outlines our intentions regarding the pricing of water supply and sewerage services. These intentions are based on the following general principles:

Equity - a user pays principle where people pay for the cost of the services they use with significant cross-subsidies removed

Financial sustainability - the levying of fees and charges reflective of the cost of providing the services and able to raise the revenue required for business stability and sustainability in the long term

Simplicity - fees and charges that are easy to understand and administer

IPART and NSW Office of Water compliance - pricing methodology consistent with the IPART and NSW Office of Water pricing recommendations

8.6.1 Water Charges

Water charge and fee income is required to pay for water supply related operations, maintenance, renewals, new infrastructure and principle and interest on loans. General rates income is not used for any water supply assets or services. Owners of properties with a water supply connection are required to pay water charges and fees, where relevant.

We have a two-part tariff:

1. Water Access Charge (annual)
2. Water Usage Charge (quarterly)

There is roughly a 75/25 usage charge/access charge income split.

Water Access Charge

This is an annual charge billed at the same time as the annual rates notice. The access charge is calculated based on the size of the water service and meter connection to the property. The larger the water connection the larger the access charge.

Water Usage Charge

This is a volumetric charge levied at a rate per kilolitre of water used. The water usage charge is billed four times a year. The more water used by a customer the higher the total usage charge. Greater reliance is placed on the usage charge for income generation as a way of encouraging wise water use.

Water fees

These are one-off water fees levied for water related services such as water connection, water disconnection, meter testing, pressure testing, meter relocation, design and specialised water supply services.

8.6.2 Sewerage Charges

Sewerage charge and fee income is required to pay for sewerage related operations, maintenance, renewals, new infrastructure and principle and interest on loans. General rates income is not used for any sewerage assets or services. Owners of properties with a sewerage system connection are required to pay sewerage charges and fees, where relevant.

We have a flat annual sewerage charge for residential customers and a three-part tariff for non-residential customers:

Residential Sewerage Charge

A flat annual charge for all residential properties, strata title units and non-strata title units. This flat charge is also known as the base access charge.

Non-Residential Sewerage Charge

There are three recurrent non-residential sewerage charges,

1. Sewer Access Charge (annual)
2. Sewer Usage Charge (quarterly) and
3. Liquid Trade Waste Usage Charge (quarterly)

Sewer Access Charge

This is an annual charge billed at the same time as the annual rates notice. The Access Charge is calculated by the formula:

Sewer Access Charge = Base access charge X volume factor X sewer discharge factor (SDF)

Sewer Usage Charge

This is a volumetric based charge determined by applying a discharge factor to water used and discharged to sewer as sewerage. It is billed four times a year. The Sewer Usage Charge is calculated by the formula:

Sewer Usage Charge = Water usage (kL) X sewer discharge factor (SDF) X sewer usage charge rate (c/kL)

Liquid Trade Waste Usage Charge

This is a volumetric based charge determined by applying a discharge factor to water used and discharged to sewer as liquid trade waste (LTW). It is billed four times a year. The LTW Usage Charge is calculated by the formula:

LTW Usage Charge = Water usage (kL) X LTW discharge factor (LTWDF) X LTW usage charge rate (c/kL)

Developer Charges

Developer Charges are one-off up-front charges levied on developers to recover part of the capital cost incurred in providing infrastructure to a new development or additions/changes to existing developments. The Developer Charge is levied under Section 64 of the Local Government Act in accordance with the recommended pricing methodology of the NSW State Government.

Our Development Servicing Plan (DSP) was reviewed and updated in June 2013 in accordance with the NOW Developer Charges Guidelines.

The adopted DSPs achieve the following outcomes:

- an equitable monetary contribution for the provision of water supply and sewerage infrastructure to meet the loadings generated by development.
- the provision of future water supply and sewerage services to meet the required Levels of Service.

The adopted developer charges:

- take into account the affordability of charges and the impact on the rate of growth in serviced urban areas
- allow for the continuation of the current typical residential bills (TRBs) for water supply and sewerage for the next five years ($540 pa and $1045 pa respectively) with annual CPI increases applying
- resulted in a cross subsidy for water supply of $18 pa and sewerage of $85 pa. that will apply from the date of adoption of the developer charges (1 July 2013) and continue throughout the entire forecast period.

8.6.3 Affordability

Our organisation has a large number of assets relative to our customer base. This has the effect of making the water and sewerage combined typical residential bills (TRBs) high. Plans to increase our Levels of Service (LOS) and improve compliance with regulatory and management guidelines, together with diminishing state and federal subsidies for capital works, will inevitably result in higher TRB's.

We are conscious that the high TRB's are becoming difficult for some people to afford. Available options to reduce TRB's, such as winding back planned renewals and capital works and/or reducing our LOS, are not under consideration. Instead, we will manage affordability through running the business at least cost in accordance with our long-term capital works program, continually identifying and implementing efficiencies and savings and seeking subsidy from state and federal governments whenever possible.

Table 8-7: Objectives & Actions – Service Pricing

Objectives					
Pricing which distributes costs equitably among customers and minimises cross-subsidies Pricing that is reflective of long-term costs and avoids the need for sharp increases to the typical residential bill Pricing which raises the revenue required for long-term financial sustainability					
Performance Target					
Compliance with the NOW Water Supply, Sewerage and Liquid Trade Waste Pricing Guidelines					
Strategies					
Set fees and charges based on long-term financial plans					
Action	**Start**	**End**	**Responsible**	**Cost ($'000)**	
				Implement	**Ongoing**
Adjust tariffs in accordance with the adopted price path and for CPI	Annually		FM		NAE
Review and update Sec.64 developer charges and Development Servicing Plan	Jan 2016	July 2017	MWSS	30	NAE

8.7 Customer Relations and Community Involvement

This section of our Customer Service Plan outlines our approach to customer relations and community involvement.

8.7.1 Customer Relations

Maintaining good customer relations is important to providing effective and efficient water supply and sewerage services. We aim to achieve this by providing a reliable service, keeping customers and the community informed and responding to customer and community needs.

A number of means of communicating with our customers are available to us including, office front counters, telephone, letters and emails, website, fact sheets, plans and reports on display, media (newspaper, local radio), information brochures and fliers, public meetings and open houses, focus groups, customer surveys and Councillor feedback. Our approach is to identify and use the most appropriate means of communication for each circumstance, with a view to enhancing customer's sense of satisfaction.

Whilst we always appreciate positive feedback, we recognise that people tend to focus more on feelings of dissatisfaction than satisfaction. All customer complaints are recorded in our customer response management (CRM) system and responded to by our staff in a timely and professional manner in accordance with our corporate customer communication policy.

We also recognise that the media and public opinion expressed through the media are important. Our approach with using the media is to provide information in a timely, professional, open and honest manner.

Table 8-8: Objectives & Actions – Customer Relations

Objective					
Provide services in a professional and efficient manner and achieve a high level of customer satisfaction					
Performance Target					
100% compliance with the adopted Levels of Service for customer related indicators					
Strategies					
Deal with customer requests and complaints professionally and efficiently within identified time-frames					
Action	**Start**	**End**	**Responsible**	**Cost ($'000)**	
				Implement	**Ongoing**
Implement customer response management (CRM) system	Ongoing		GM		NAE
Review and improve CRM work flows	Ongoing		MWSS		NAE
Review TBL reports for customer related indicators and report to Council	Annually		MWSS		NAE
Provide 24 hour customer call availability	Ongoing		GM		NAE
Plan and conduct customer satisfaction surveys	Ongoing Every 3 years		GM		NAE

8.7.2 Community Involvement

Involving the community in decision-making is essential for the development of major infrastructure schemes and highly desirable for many other aspects of water supply and sewerage service delivery.

Through community consultation we aim to:

- gain agreement on the issues and that action is required
- ensure that the concerns of the community, particularly social and environmental concerns, are taken into account
- allow the community to propose options they want evaluated
- demonstrate to the community that we are making the most appropriate decisions after the proper evaluation of all the issues

Community consultation/involvement methods available to us include those listed for customer relations. Our approach is to identify and use the most appropriate means of consultation dependent on the project/issue, with a view to enhancing outcomes for both our customers and us.

Community consultation can be a lengthy and costly process and project lead times and budgets are programmed to take this into account. Surveys may sometimes be used to ascertain the percentage of people satisfied with the outcome of consultation as well as with the method or process of consultation.

Particular projects planned for upcoming community consultation include:

- Water fluoridation
- Merimbula effluent management
- Water treatment plants
- Development Serving Plan review

Table 8-9: Objectives & Actions – Community Involvement

Objective					
Consult with the community for all projects where there is a legislative requirement to consult, it is clear that there is significant community interest and when Levels of Service and pricing will be significantly affected					
Performance Target					
> 80% satisfied with consultation process as measured by survey					
Strategies					
Consult with community in accordance with our corporate Community Engagement Policy and Procedures					
Action	**Start**	**End**	**Responsible**	**Cost ($'000)**	
				Implement	**Ongoing**
Initiate community consultation as required in accordance with policy and procedures	As required		MWSS		NAE
Undertake community consultation for the addition of fluoride in drinking water	Stated	Dec 2014	MWSS	10	
Commence Merimbula coastal protection pipeline Environmental Impact Assessment and associated community consultation	Apr 2015	Apr 2016	MWSS	200	
Initiate community consultation for water treatment plants at Bemboka, Brogo, Yellow Pinch Dam and Bega	2017	2027	MWSS	100	
Undertake a review of Water and Sewerage Development Servicing Plans	2017	2018	MWSS	20	

9 Environmental Protection and Sustainable Development

This section of our Customer Service Plan outlines our approach to environment protection and sustainable development.

Our local waterways are highly valued by the community and their protection is a high priority for our organisation. In providing water supply and sewerage services it is essential that we minimise water quality impacts, protect aquatic ecosystems and minimise impacts on aquaculture industries.

Our activities also have the potential to impact upon biodiversity, soils, air quality, land use and Aboriginal cultural heritage. Systems of environmental management are required to ensure potential impacts are identified and minimised.

We are committed to improving environmental performance by:

- complying with relevant environmental legislation, licence requirements and environmental guidelines
- developing and implementing risk based environmental management systems for our actions and programs that impact on the environment
- undertaking scientific research to increase our knowledge and inform our decision making on environmental aspects and issues
- working in partnership with agencies, catchment management authorities and industry and community groups with specific interests in environmental protection

We are committed to minimising environmental impacts by:

- reviewing environmental factors and potential impacts prior to undertaking major works
- maintaining emergency preparedness plans where significant hazards exist
- promoting the adoption of environmental management principles by our staff, contractors and users of water and recycled water through appropriate education and training
- offsetting our energy consumption using solar technology and expanding recycled water use where possible

The main environmental aspects/issues of water and sewerage service delivery are:

- Sewer overflows to the environment
- Disposal of effluent to the environment
- Recycled water use on farms, playing fields, golf courses, race courses and show grounds
- Energy usage and greenhouse gas emissions from sewage pumping and treatment
- Odour near sewage treatment plants and sewage pumping stations
- Earth disturbance, dust, noise, vegetation and weed management during and after construction and maintenance activities
- Decommissioning and disposal of assets
- Extraction of water from waterways
- Discharge of flushed mains water to the environment
- Energy usage and greenhouse gas emissions from water pumping
- Earth disturbance, dust, noise, vegetation and weed management during and after construction and maintenance activities
- Decommissioning and disposal of assets

Table 9-1: Objectives & Actions – Environmental Protection and Sustainable Development

Objective					
Operate water supply and sewerage services in an ecologically sustainable manner with acceptable environmental impact					
Performance Target					
100% regulatory compliance and 100% compliance with adopted Levels of Service (LOS) for the environmental indicators					
Strategies					
Implement programs to ensure compliance with regulatory requirements Develop, implement and continually improve systems of management for identified environmental risks Develop additional energy efficient projects to reduce our dependence on non-renewable energy sources					
Action	**Start**	**End**	**Responsible**	**Cost ($'000)**	
				Implement	**Ongoing**
Undertake all activities, investigations, monitoring and reporting required to meet EPA and NOW licence requirements	Ongoing		MWSS	NAE	
Undertake Review of Environmental Factors and Environmental Impact Assessments where required for planned works	As required		MWSS	NAE	
Review Recycled Water Management Plans and implement required actions	Ongoing		MWSS	50	NAE
Review PRP100 program for sewer inspections and jetting and implement required actions	July 2015	June 2016	MWSS	NAE	
Review Pollution Incident Response Management Plan and implement required actions	Nov 2014	Mar 2015	MWSS	NAE	
Facilitate staff and contractor environmental management training	Ongoing		MWSS	NAE	
Implement liquid trade waste management system	Ongoing		MWSS	NAE	
Undertake Environmental Impact Assessment for Merimbula coastal protection pipeline	Oct 2014	Nov 2015	MWSS	500	NAE
Investigate feasibility of new recycled water schemes and improvements to existing schemes - Merimbula - Bermagui - Pambula Sports Complex	 Started May 2014 June 2015	 July 2014 June 2015 June 2016	MWSS	Included in the Capital Works Program	

Action	Start	End	Responsible	Cost ($'000)	
				Implement	Ongoing
Construct and commission Tathra STP solar array	Oct 2014	Dec 2014	MWSS	100	NAE
Monitor, review and optimise energy usage and investigate potential for offsets			MWSS		
- 4 MBR STP's	July 2014	July 2015		10	
- Other STPs	Ongoing				NAE

10 Asset Management Plan

Our Asset Management Plans for Water Supply and Sewerage (two separate plans) were developed in 2011. The aim of these plans is to demonstrate responsive management of assets (and services provided from assets), compliance with regulatory requirements and to communicate funding required to meet our Levels of Service (LOS).

Our goal in managing assets is to meet our LOS in the most cost effective manner for present and future customers.

The key principles of infrastructure asset management adopted in our Asset Management Plans are:

- taking a life cycle approach
- developing cost-effective management strategies for the long term
- providing a defined level of service and monitoring performance
- understanding and meeting the demands of growth through demand management and infrastructure investment
- managing risks associated with asset failures
- sustainable use of physical resources
- continuous improvement in asset management practices

Table 10-1 lists the key objectives and actions relating to our Asset Management Plans for water supply and sewerage.

Table 10-1: Objectives & Actions – Asset Management

Objective					
Meet the required Level of Service (LOS) in the most cost effective manner for present and future customers Provide capital works at optimal life cycle costs to meet social, economic and environmental considerations and current and future LOS					
Performance Target					
Meet regulatory requirements as defined by the LOS Meet customer expectations as defined by the LOS					
Strategies					
Complete projects on time and in accordance with our long term financial plan Operate the schemes in accordance with documented operating and maintenance procedures Develop maintenance strategies linked to assets condition					
Action	**Start**	**End**	**Responsible**	**Cost ($'000)**	
				Implement	**Ongoing**
Review Water and Sewerage Asset Management Plans	Major review every 5 years and minor review annually		AEWSS	50	NAE
Develop and introduce Authority asset management platform	April 2013	Jun 2014	AEWSS	30	30
Commission mobile computing functionality to support data input into the Authority asset management module	2014	2017	AEWSS	50	10
Undertake asset valuation	2015	3 yearly ongoing	AEWSS	15	NAE
Develop and implement long term capital works plan	2016	2017	AEWSS	NAE	
Prepare a maintenance plan in accordance with the Asset Management Plans and using the Authority asset management maintenance module	2014	2017	AEWSS	30	10
Review and update maintenance manuals	Ongoing		AEWSS	20	NAE

11 Workforce Plan

The aim of our Workforce Plan is to ensure that we have the appropriate staff numbers with the necessary skills to meet current and future requirements. If these are in order, our Levels of Service can be met.

Employee performance is crucial to the success of our organisation. Performance is strongly linked to motivation and morale. We endeavour to maintain high levels of performance through engendering a climate of trust, cooperation and confidence with employees. To achieve this requires attention to a wide range of issues, the key ones being work force planning, recruitment, personnel management, remuneration, training, succession planning, health and safety and equal employment opportunity.

The Water and Sewerage Services section has 46 fulltime staff and one apprentice who together manage, operate and maintain our water supply and sewerage schemes

Our Workforce Plan aims to ensure the following:

- sufficient skilled staff are available to meet current LOS
- strategies are in place to meet future LOS
- strategies are in place to identify gaps in the workforce, numbers and skills and programs are developed to fill the gaps
- gaps in service delivery are identified in a timely manner and strategies to resource are implemented
- there is an emphasis on work health and safety with the aim of minimal workplace injuries and zero fatalities

The staff structure of the Infrastructure, Waste and Water division of BVSC is shown on the following page.

Figure 21 – BVSC Infrastructure, Water and Waste Division Organisation Structure

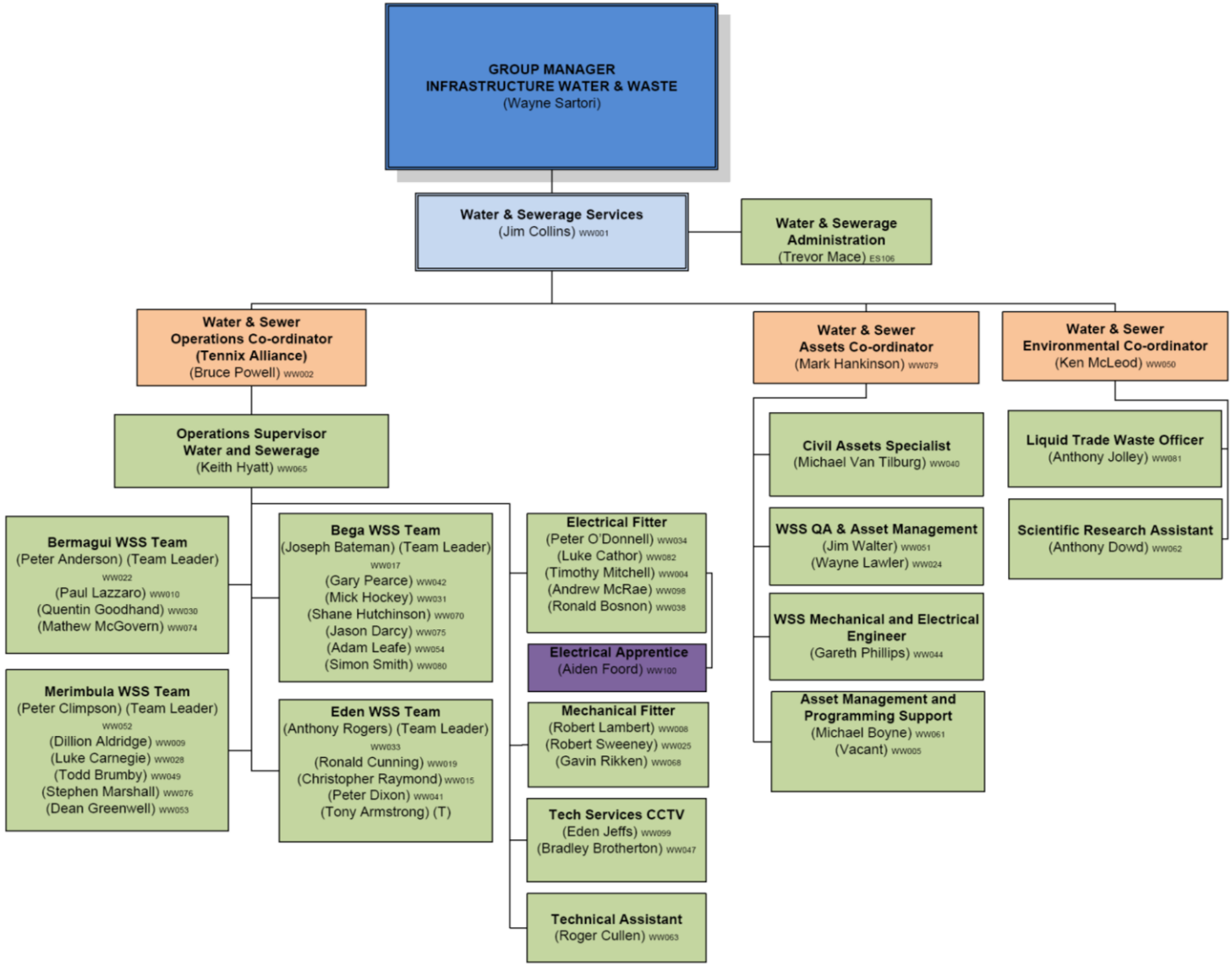


Table 11-1: Objectives & Actions – Workforce

Objective					
Have appropriate numbers of skilled staff to enable delivery of water supply and sewerage services that meet Levels of Service (LOS) in a safe working environment					
Performance Target					
No failure to meet LOS due to inadequate staff numbers or skills					
Strategies					
Implement our corporate Workforce Plan 2009 -2014					
Action	**Start**	**End**	**Responsible**	**Cost ($'000)**	
				Implement	**Ongoing**
Review our corporate workforce plan	Started	Jan 2015	HRM	10	NAE
Develop procedure for a collective agreement	June 2015	June 2016	HRM	10	NAE
Realign position duty statements with the IPR framework	June 2014	Dec 2014	HRM	70	NAE
Review and renew employee performance review (EPR) process	Aug 2014	Dec 2014	HRM	60	NAE
Implement Move for Life and manual handling training initiatives	Mar 2014	June 2014	HRM	60	15
Implement transition of skills initiative through cadets and trainees	Started	Ongoing	HRM	150	150
Implement Authority integrated training and development module to streamline training processes	Started	Sept 2014	HRM	50	NAE
Implement electronic outdoor timesheets	Mar 2014	June 2014	HRM	15	NAE
Implement staff mentoring program	Ongoing		HRM	15	15

12 Financial Plan

12.1 Overview of Financial Planning

The purpose of our long-term Financial Plan is to enable us to determine the revenues needed to meet the Levels of Service (LOS) over the long term and effectively manage cash flow.

Our commitment to providing the LOS described in this document requires the collection of revenues of the order shown in the Table 12-6 and Table 12-9. Estimates of the cost of activities in the Action Plan have been modelled using the NSW Financial Model (FINMOD) issued by the NSW Office of Water (NOW) and represent the optimum projection of future costs possible at this time. Actual billings will depend on the levels of developer charges and the pricing structure adopted.

As a general principle our recurrent operating costs are covered by annual water supply and sewerage charges and capital funds drawn from developer charges, government grants, annual water supply and sewerage charges and borrowing. Our objectives and actions with respect to financial planning are outlined in Table 12-1.

Table 12-1: Objectives & Actions – Financial Planning

Objective					
Provide water supply and sewerage services in a financially sustainable manner and in accordance with Levels of Service (LOS)					
Performance Target					
Water supply and sewerage funds are sustainable in the long term					
Strategies					
Implement and review our Asset Management Plans and our long term financial plan					
Action	**Start**	End	**Responsible**	**Cost ($'000)**	
				Implement	**Ongoing**
Review cost projections associated with Asset Management Plans (AMP) and changing LOS requirements	Ongoing		MWSS		NAE
Update long term Financial Plan in a accordance with the AMP	Annually		MWSS		NAE
Establish a price path for water supply and sewerage services	Annually		FM	Refer to Section 8.6: Pricing	

12.2 Financial Planning Process

The objective of financial planning is to develop full cost recovery models based on asset life cycle management. It models appropriate funding strategies for the preferred service planning option and projects a long-term price path for residential charges.

The long-term view of our modelling smooths out peaks and troughs to provide a consistent price path and highlight the impact of future actions. A 30 year planning horizon has been adopted to reflect the long lead times for major capital works, long asset life, expense of assets and loan funds required.

In establishing the financial plan a number of scenarios were explored in order to determine the best funding strategy for both water supply and sewerage. A minimum level of available cash was modelled to reflect risk of variable annual revenues.

All capital works estimates in the text are quoted in real (2012/13) dollars unless specified otherwise. The output data is quoted in real and inflated dollars.

A summary of the input data and results are included in the following pages. Detailed financial input data and output financial projections are available in the Appendices.

12.3 The Financial Model

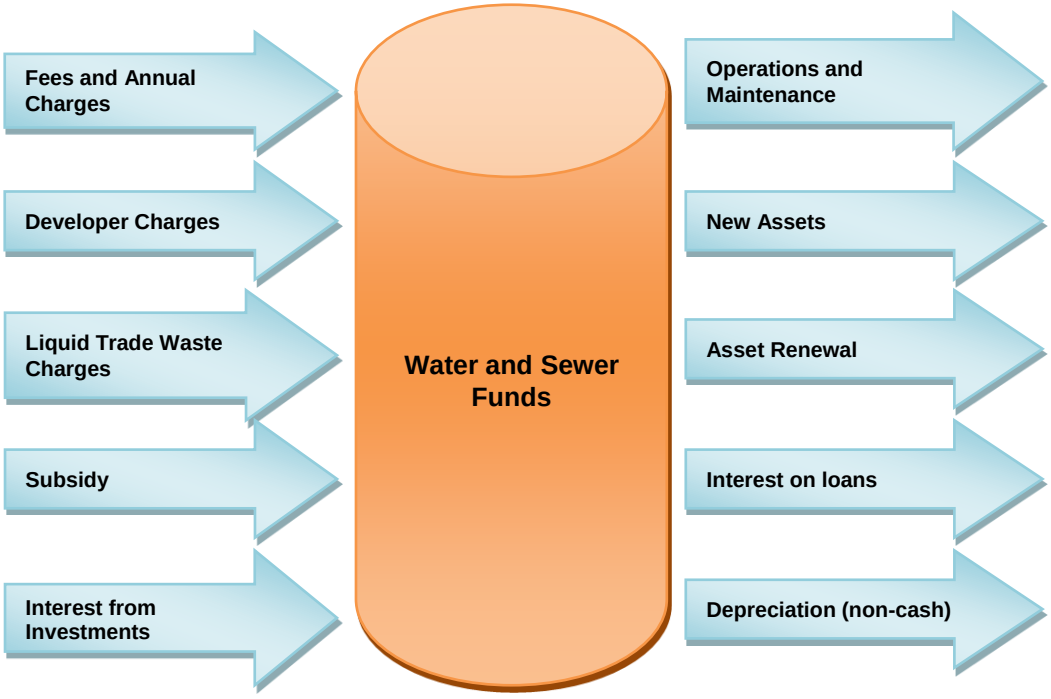
12.3.1 Inputs to the Financial Model

The financial model forecasts income streams to match projected expenditure. Figure 22 illustrates the main elements affecting the financial plan.

The financial modelling undertaken in this plan aims to:

- optimise the long term funding strategy
- meet the demands of the capital works program and other life cycle costs of the assets
- ensure a minimum level of cash liquidity
- provide a forecast of the typical residential bill over the long term

Figure 22 – Elements of the Financial Model



Input data for the model was sourced from three main areas:

- Special schedules for past financial performance of the water and sewerage funds
- Estimates for uncontrollable variables such as interest rates, growth and inflation
- Projected capital works, operations and management expenses

The financial plan seeks, after an initial adjustment, to model in real dollars, the lowest steady level of charging possible. This is indicative of the affordability of the services and shows the performance requirements for long-term stability, although actual TRBs depend on our pricing structure on a year-to-year basis

A number of variables and assumptions were used in the model as outlined below.

Opening Balances

Special accounting schedules were used to establish opening balances and baseline costs for the model. Financial statements for the last two years were compared to minimise the effect of 'one off' occurrences from being incorporated as part of a normal trend.

Developer Charges

The latest developer charges were adopted in July 2013 for a period of 5 years in accordance with our Development Servicing Plans. The adopted developer charges are $7,500/ET for water supply and $10,500/ET for sewerage services. These figures have been used in the modelling.

Growth Projections

A long-term average customer growth rate of 0.8% p.a. has been adopted for the financial projections.

Inflation

Average long-term inflation has been assumed as 3.0% per annum.

Interest Rates

A borrowing rate of 6.5% p.a. and investment rate of 5.5% p.a. have been used in this analysis.

Annual Revenue Splits

For water supply services, residential charges currently account for 73.5% of the water supply revenue through annual charges. The remaining 26.5% revenue is contributed by non-residential water customers.

For sewerage services, residential charges currently account for 81.8% of the sewerage revenue through annual charges. The remaining 18.2% revenue is contributed by non-residential customers.

The same level of revenue split has been used for all the forecast years.

Minimum Cash Levels

The minimum cash levels used for the financial modelling was $2000K for both the water and sewer funds. The $2000K amount is considered prudent given the likelihood of unforseen urgent capital works required, but not planned for, during the forecast period.

Expected Lives of Assets

The default average life of system assets is based on the weighted average of long-lived structures and shorter-lived mechanical and electrical plant. The average life of water and sewerage structures and plant is estimated to be approximately 70 years. Asset life controls the rate of depreciation, which is a non-cash expense that directly affects future renewal works as part of the capital works program.

Grants and Subsidy for Capital Works

Historically the NSW Government has provided financial assistance to local government for water supply and sewerage scheme renewal through the Country Towns Water Supply and Sewerage Program. Unfortunately the level of subsidy funding from the NSW Government through the Country Towns Water Supply and Sewerage Program has diminished to almost zero over the last five years.

Federal government subsidy is available from time to time for certain capital works aligned to federal strategies and programs. However it is episodic with limited availability expected in the medium-term.

With the above government subsidy situation in mind, the financial modelling scenario adopted is no subsidy or grant for any of the planned capital works program.

Ongoing Recurrent Costs: Management, Operations and Maintenance

By default, the model increases historical operation and maintenance expenses on a pro rata basis, based on growth. This increase has been overridden where revised estimates were produced, for example where the Action Plan requires new initiatives or where new works require additional operating resources.

Modelling Assumptions and Limitations

The projections in the financial plans are based on past financial performance with allowance made for new initiatives, future rate forecasts and maintenance of sustainable Levels of Service (LOS) as identified in the strategic planning process.

Depreciation is shown in the operating statement but is not a cash item. The financial planning model manages the cash flow but keeps a running tally of cumulative depreciation so that we can identify the potential future liability for maintaining the value in the system and LOS. By planning ahead and making optimum use of existing assets, a more cost-effective and efficient service should result.

The typical annual residential bill (TRB) is used as the performance measure representing overall annual revenue requirements from residential customers. This should not be confused with pricing. Pricing, namely the distribution of the charges according to consumption or special customer groups, is the subject of a separate revenue planning exercise.

The long-term financial model is not a substitute for normal budgeting or short-term financial planning. The model assumes that all expenses and income occur at the beginning of the year and does not track cash flow throughout the year. It is important however, that normal budgeting processes are carried out within the framework of the long-term financial plan.

Our Capital Works Plan provides a guide for estimation of long-term operation and maintenance costs. It is accepted that the level of confidence in these projections reduces with time but it is important to identify as many future commitments and liabilities as possible.

Model Funding Options

In considering funding for future options there are three basic options:

- Fund all capital works from revenues

- Borrow to fund all capital works
- Fund capital works from a mix of borrowing and revenue

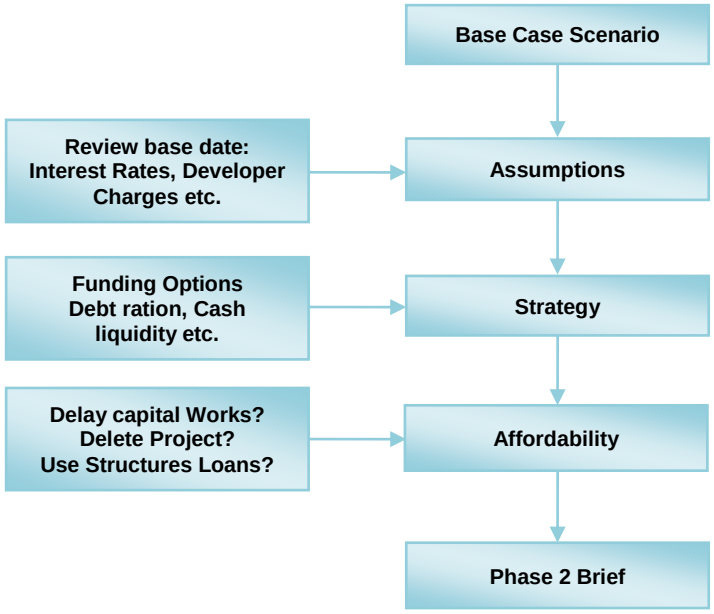
To establish the lowest stable rate of TRB's in reals terms, a combination of cash management and borrowing is required. However given the relatively high TRB's the adopted strategy is to minimise borrowings by deferring selected new capital works in the hope that subsidy funding is restored. The model outputs demonstrate the required financial management required to keep the plan 'on track'.

12.3.2 The Modelling Process

Phase 1 - Initial Runs

The objective of the Phase 1 development is to develop a first cut model of options for future service provision. The comparison of outcomes enables us to make decisions about the preferred model and the most beneficial and practical funding solution for the proposed asset management programs.

Figure 23 – Phase 1 Review of the Financial Model



Phase 2 - Preferred Model and Sensitivity Analysis

After consideration of Phase1 issues, the preferred modelling options for both water and sewer funds were adopted.

A sensitivity analysis was carried out where it was perceived that a model variable, such as growth, may change significantly in the future.

We believed it important to demonstrate the impact of the 'subsidy' scenario in comparison to the "no subsidy" scenario to show the potential benefit of government assistance. Our expectations for receiving subsidy are reflected in the adopted model.

On-going Review

Over time, changes in model variables can have a significant impact on the model's accuracy and this has implications for our forward planning. As recommended by the financial modelling guidelines, we will revisit the models annually to ensure that they retain their currency.

12.3.3 Model Inputs

Projected Costs

Projected capital costs are split into three categories as outlined in Table 12-2. Projected recurrent costs, including management, operation and maintenance costs are shown in Table 12-3.

Table 12-2: Categories of Projected Capital Works

Category	Description
Growth Works	Work required to increase the capacity of facilities, to service new subdivisions or infill development in existing service areas
Improved Level of Service Works (backlog works)	Works to provide better public health and environmental standards, better service, higher reliability, or an extension of services to unserviced existing development Works in this category may be eligible for Government grants.
Asset Renewal Works	Renewal/replacement of existing assets, which have aged and reached the end of their useful life

Table 12-3: Categories of Projected Recurrent Costs

Category	Description
Management	The costs associated with managing water supply and sewerage services
Operations and Maintenance	The costs associated with operating and maintaining water supply and sewerage assets
Model Cost Overrides	Additional costs incurred where specific activities have been identified in future years

The expected capital and recurrent cost expenditures are presented in Appendix E. A summary of our Capital Works Program is presented in the following pages. Projections are in real (2012/13) dollars.

Historical and additional input data used for financial forecasts are shown in Appendix F and Appendix H.

Table 12-4: 30-year Annual Capital Works Program Costs – Water Supply

2012/13 $ (000)	Growth and Minor Works	Improved Levels of Service	Asset Renewals	Total Capital Works	Expected Subsidy	Cost to Council
2012/13	735	855	1395	2985	0	2985
2013/14	1000	773	1995	3768	0	3768
2014/15	1450	2505	1740	5695	0	5695
2015/16	1200	2530	1740	5470	0	5470
2016/17	855	1025	1740	3620	0	3620
2017/18	622	108	1760	2490	0	2490
2018/19	666	864	1020	2550	0	2550
2019/20	1095	2160	1065	4320	0	4320
2020/21	1481	2959	990	5430	0	5430
2021/22	1376	2700	990	5066	0	5066
2022/23	853	588	1886	3327	0	3327
2023/24	857	598	1886	3341	0	3341
2024/25	5663	13050	1886	20599	0	20599
2025/26	5717	13196	1886	20799	0	20799
2026/27	5994	13927	1886	21807	0	21807
2027/28	629	0	1886	2515	0	2515
2028/29	629	0	1886	2515	0	2515
2029/30	629	0	1886	2515	0	2515
2030/31	676	123	1886	2685	0	2685
2031/32	700	184	1886	2770	0	2770
2032/33	400	184	2186	2770	0	2770
2033/34	1672	2687	1886	6245	0	6245
2034/35	1726	2833	1886	6445	0	6445
2035/36	1676	2693	1886	6255	0	6255
2036/37	629	0	1886	2515	0	2515
2037/38	629	0	1886	2515	0	2515
2038/39	629	0	1886	2515	0	2515
2039/40	629	0	1886	2515	0	2515
2040/41	629	0	1886	2515	0	2515
2041/42	629	0	1886	2515	0	2515
Total	**42075**	**66542**	**52455**	**161072**	**0**	**161072**

Table 12-5: 30-year Annual Capital Works Program Costs – Sewerage

2012/13 $ ('000)	Growth and Minor Works	Improved Levels of Service	Asset Renewals	Total Capital Works	Expected Subsidy	Cost to Council
2012/13	438	3000	1313	4751	0	4751
2013/14	1129	2561	2309	5999	0	5999
2014/15	960	1524	2112	4596	0	4596
2015/16	520	0	1559	2079	0	2079
2016/17	2270	8250	1559	12079	0	12079
2017/18	2719	4375	1782	8876	0	8876
2018/19	594	0	1782	2376	0	2376
2019/20	594	4200	1782	6576	0	6576
2020/21	594	4000	1782	6376	0	6376
2021/22	594	3500	1782	5876	0	5876
2022/23	850	0	2550	3400	0	3400
2023/24	850	0	2550	3400	0	3400
2024/25	850	0	2550	3400	0	3400
2025/26	850	0	2550	3400	0	3400
2026/27	850	0	2550	3400	0	3400
2027/28	850	0	2550	3400	0	3400
2028/29	850	0	2550	3400	0	3400
2029/30	850	0	2550	3400	0	3400
2030/31	850	0	2550	3400	0	3400
2031/32	850	0	2550	3400	0	3400
2032/33	1250	0	3750	5000	0	5000
2033/34	1250	0	3750	5000	0	5000
2034/35	1250	0	3750	5000	0	5000
2035/36	1250	0	3750	5000	0	5000
2036/37	1250	0	3750	5000	0	5000
2037/38	1250	0	3750	5000	0	5000
2038/39	1250	0	3750	5000	0	5000
2039/40	1250	0	3750	5000	0	5000
2040/41	1250	0	3750	5000	0	5000
2041/42	1250	0	3750	5000	0	5000
Total	**31412**	**31410**	**80762**	**143584**	**0**	**143584**

12.4 Outcomes of Financial Modelling

Our financial plan identifies the lowest stable typical residential bill required with maximum utilisation of existing cash reserves. A number of scenarios were analysed before we adopted a 'preferred' price paths for water supply and sewerage services. Modelling outcomes of the preferred scenarios and the sensitivity of the model forecasts for the financial parameters identified as important are presented in this section.

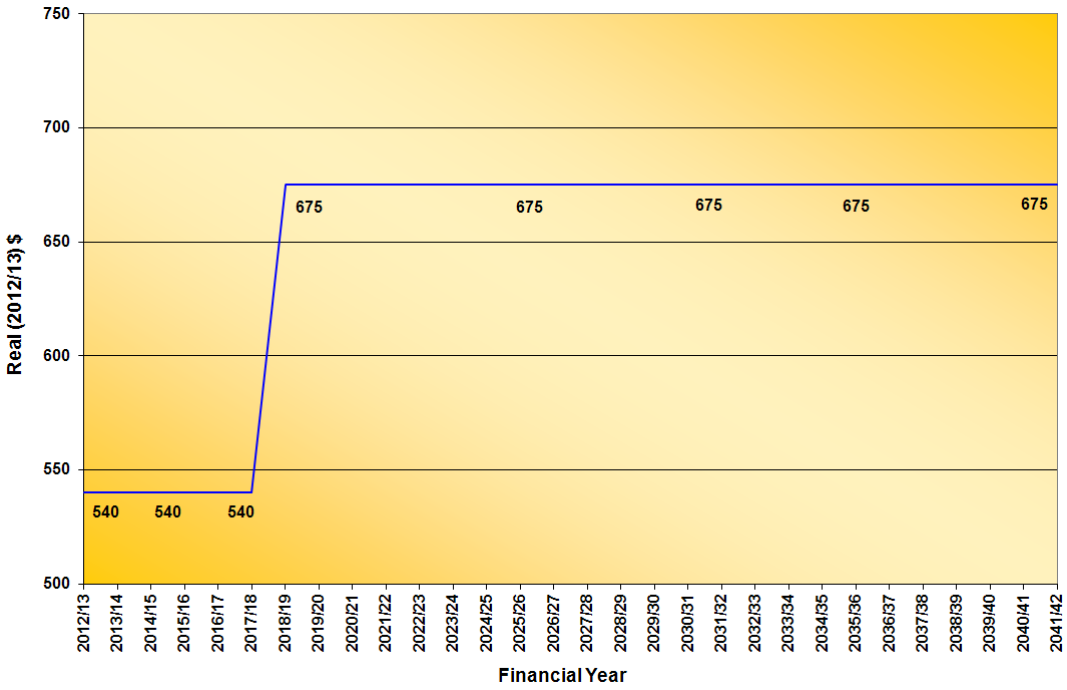
12.4.1 Water Supply

Financial modelling has demonstrated that the typical residential bill (TRB) for water supply services can be maintained at the current level of $540 p.a. for the next 5 years (plus annual CPI increases). In 2017/18 the TRB needs to increase by $135 to $ 675 p.a. for the remainder of the 30-year forecast period (Figure 24).

The adopted scenario of the financial model assumes that no government subsidy/grant will be available for any of the capital works planned for the next 30-years.

The forecast TRBs will be adjusted annually for CPI/inflation.

Figure 24 – Typical Residential Water Bill



This level of typical residential water bill for water supply is sufficient to maintain liquidity with a minimum of $2 million of cash in hand over the forecast period.

Over the next 12 years all the planned capital works will be internally funded from available cash and investments and no new borrowing will be required. New external borrowing will be required to fund major capital works from 2025/26 onwards. The outstanding borrowing will be at a maximum of $28,628 K in 2026/27 and $11,613K at the end of the forecast period (2041/42).

The level of cash and borrowings outstanding as the planned capital works program is implemented during the forecast period is shown in Figure 25. A summary of projected financial results is presented in the Table 12-6.

Figure 25 – Cash and Borrowing Projections – Water Supply

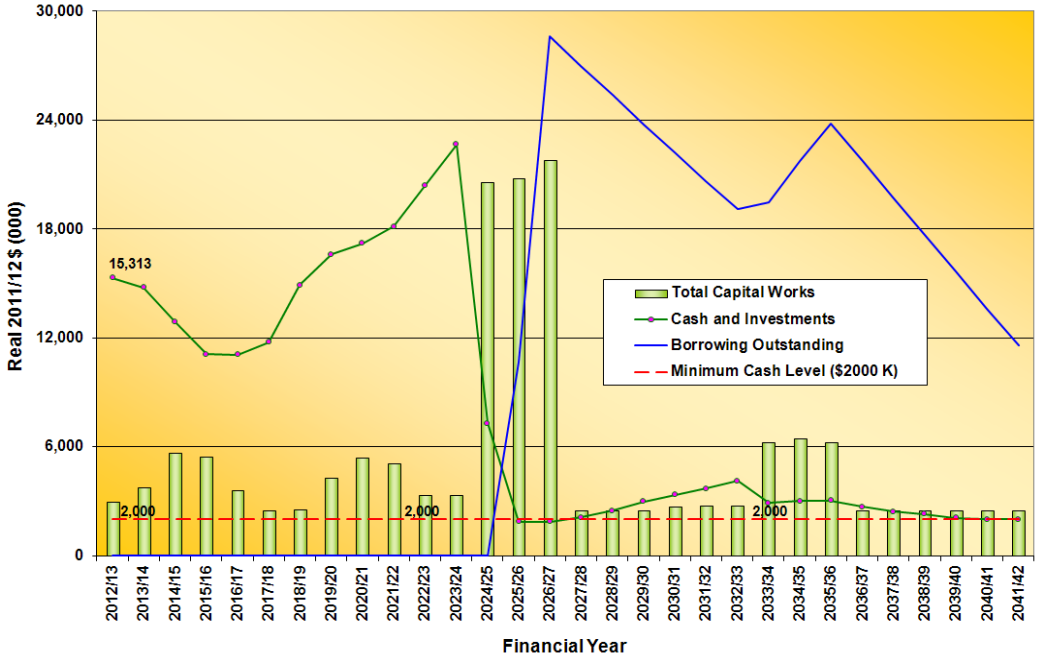


Table 12-6: Projected Financial Results – Water Supply

2012/13 $ ('000)	Revenue and Expenses			Capital Transactions		Financial Position					System Assets			Typical Residential Bills (2012/13 $)
Financial Year	Total Revenue	Total Expenses	Operating Result (Before Grants)	Acquisition of Assets	Principal Loan Payments	Cash and Investments	Borrowings	Total Assets	Total Liabilities	Net Assets Committed	Current Replacement Cost	Less: Accumulated Depreciation	Written Down Current Cost	
2012/13	11,066	9,394	1,672	2,985	103	15,313	6	205,688	1,090	204,598	290,243	102,122	188,121	540
2013/14	10,775	9,615	1,160	3,768	3	14,788	3	205,941	1,094	204,847	292,016	102,679	189,337	540
2014/15	11,173	9,531	1,642	5,695	3	12,885	-	206,818	1,103	205,715	295,970	103,547	192,423	540
2015/16	11,109	9,670	1,439	5,470	-	11,115	-	207,655	1,114	206,541	299,701	104,469	195,232	540
2016/17	11,107	9,860	1,247	3,620	-	11,083	-	208,264	1,125	207,139	301,581	105,417	196,164	540
2017/18	11,110	10,301	809	2,489	-	11,755	-	208,348	1,134	207,214	302,311	106,355	195,955	540
2018/19	13,728	10,364	3,364	2,550	-	14,905	-	210,539	1,143	209,396	303,841	108,056	195,785	675
2019/20	14,202	10,469	3,734	4,321	-	16,606	-	213,136	1,155	211,981	307,097	109,758	197,339	675
2020/21	14,349	10,614	3,735	5,430	-	17,213	-	215,845	1,167	214,678	311,536	111,598	199,938	675
2021/22	14,421	10,760	3,661	5,066	-	18,150	-	218,367	1,178	217,189	315,612	113,496	202,116	675
2022/23	14,598	11,378	3,220	3,327	-	20,379	-	220,061	1,189	218,872	317,052	114,518	202,534	675
2023/24	14,795	11,469	3,326	3,341	-	22,655	-	221,697	1,200	220,497	318,508	115,561	202,946	675
2024/25	14,566	11,820	2,746	20,599	-	7,294	-	227,871	1,211	226,660	337,221	116,872	220,348	675
2025/26	14,335	12,868	1,467	20,800	280	1,885	10,715	241,393	11,937	229,456	356,134	118,454	237,681	675
2026/27	14,349	14,414	- 65	21,807	774	1,889	28,628	259,435	29,861	229,574	376,055	120,319	255,736	675
2027/28	14,445	14,560	- 115	2,515	800	2,120	26,994	258,321	28,237	230,084	376,684	122,194	254,491	675
2028/29	14,566	14,513	53	2,514	828	2,493	25,380	257,278	26,632	230,646	377,313	124,078	253,236	675
2029/30	14,676	14,477	200	2,515	857	2,980	23,783	256,283	25,045	231,238	377,942	125,970	251,972	675
2030/31	14,759	14,466	293	2,685	888	3,358	22,202	255,366	23,473	231,893	378,741	127,874	250,867	675
2031/32	14,801	14,426	375	2,770	919	3,703	20,636	254,490	21,916	232,574	379,625	129,791	249,834	675
2032/33	14,894	14,422	472	2,769	951	4,113	19,084	253,631	20,372	233,259	380,208	131,416	248,792	675
2033/34	14,952	14,583	370	6,245	1,035	2,910	19,494	255,306	20,790	234,516	384,567	133,404	251,163	675
2034/35	14,722	14,807	- 85	6,445	1,173	3,020	21,752	257,834	23,054	234,780	389,126	135,456	253,670	675
2035/36	14,776	15,045	- 270	6,255	1,316	3,050	23,803	260,067	25,110	234,957	393,495	137,571	255,924	675
2036/37	14,809	15,158	- 350	2,515	1,362	2,701	21,748	258,366	23,059	235,307	394,124	139,694	254,430	675
2037/38	14,848	15,078	- 231	2,515	1,409	2,444	19,705	256,710	21,021	235,689	394,753	141,827	252,926	675
2038/39	14,898	14,981	- 83	2,515	1,460	2,301	17,671	255,106	18,992	236,114	395,382	143,969	251,412	675
2039/40	14,781	14,884	- 103	2,515	1,510	2,102	15,647	253,469	16,970	236,499	396,011	146,120	249,890	675
2040/41	14,811	14,768	43	2,515	1,563	2,011	13,628	251,876	14,954	236,922	396,640	148,280	248,360	675
2041/42	14,839	14,665	174	2,515	1,618	2,008	11,613	250,314	12,942	237,372	397,268	150,449	246,819	675

Sensitivity Analysis

The following sensitivities have been modelled to determine the impact of various scenarios on typical residential bill (TRB) for water supply:

Table 12-7: Sensitivity Analysis Scenarios – Water Supply

Criteria	Adopted Scenario	Sensitivity
Assessment growth rate	0.8% p.a.	0.4% p.a.
Subsidy	No subsidy	$ 10 M to bring forward the WTPs to comply with Drinking Water Quality Management guidelines
Borrowing Interest Rate	6.5% p.a.	9.5% p.a.

The results of sensitivity analysis are presented below.

Figure 26 – Sensitivity of Typical Residential Bill – Water Supply

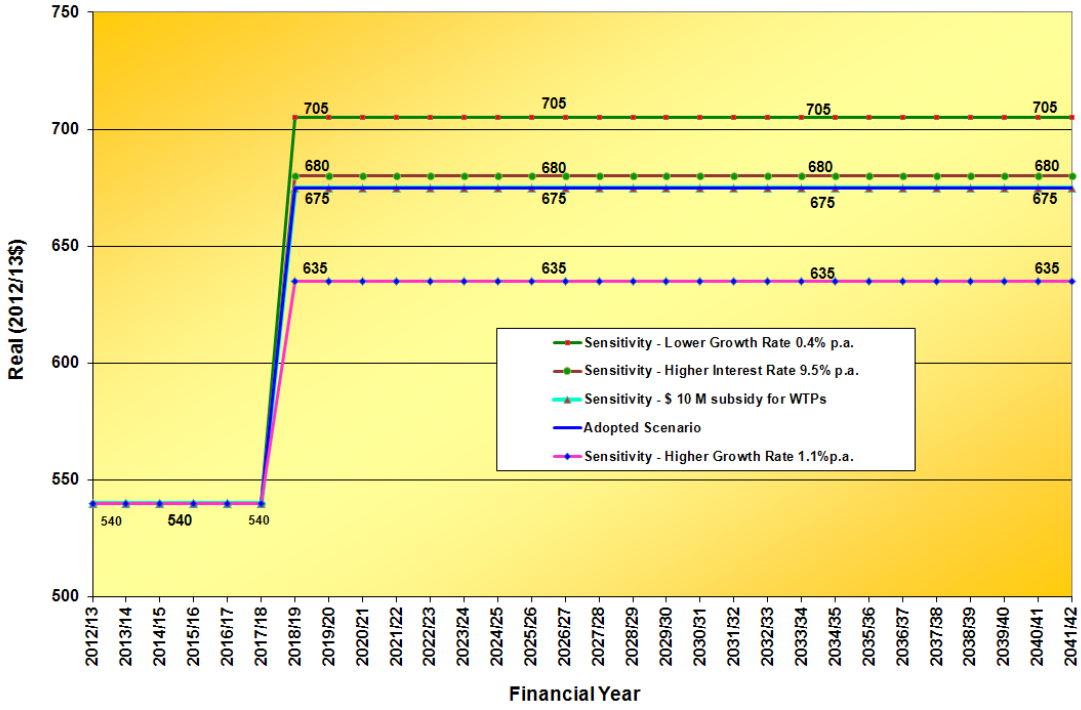


Table 12-8: Typical Residential Bills for Sensitivity Scenarios – Water Supply

Scenario	TRB for up to 2017/18	TRB from 2018/19 onwards
Adopted Scenario	$540	$675
$10M Subsidy for WTPs (bringing forward the WTPs to comply with Drinking Water Quality Management guidelines)	$540	$675
Lower Assessment Growth Rate of 0.4% p.a.	$540	$705
Higher Assessment Growth Rate of 1.1% p.a.	$540	$635
Higher borrowing interest Rate of 9.5% p.a.	$540	$680

Figure 27 – Sensitivity of Borrowing – Water Supply

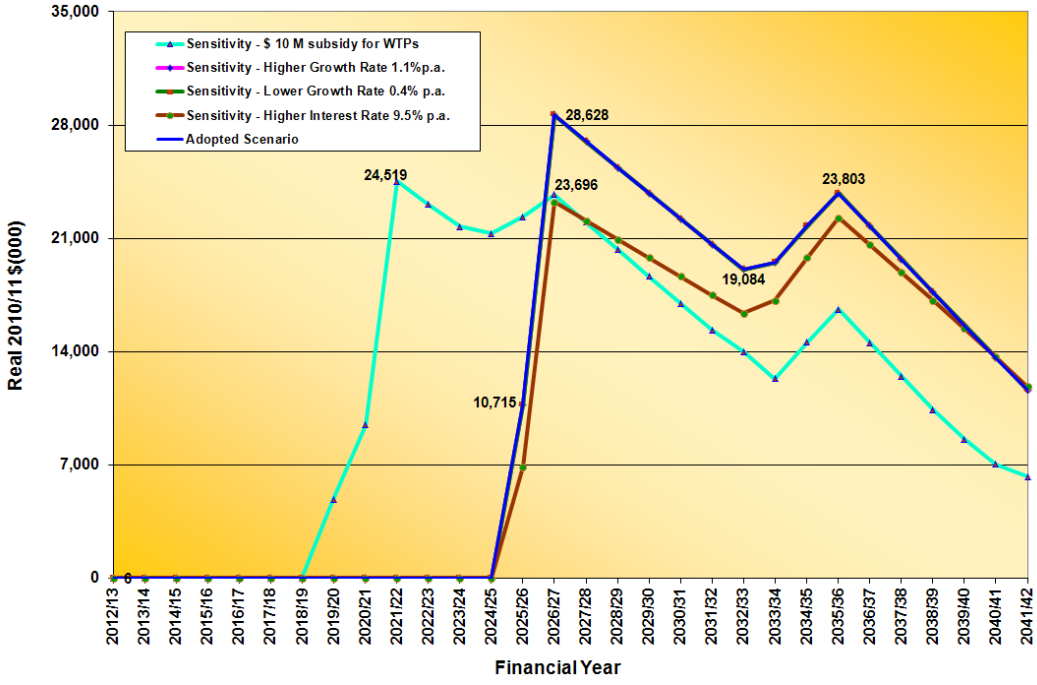
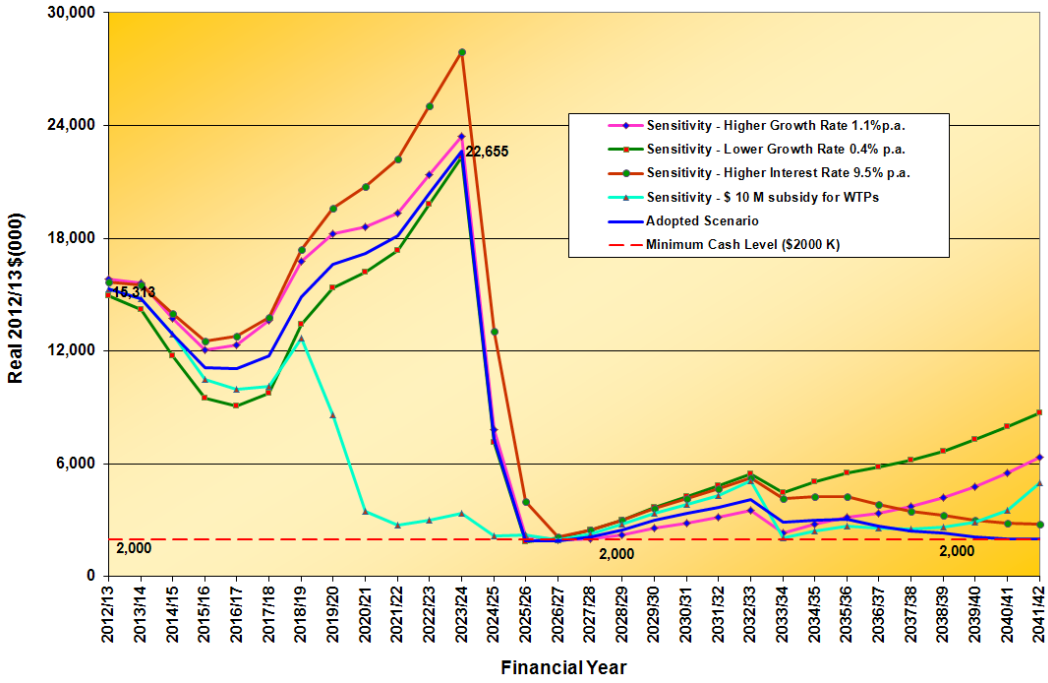


Figure 28 – Sensitivity of Cash and Investments – Water Supply



The sensitivity analysis indicates that the TRB for water supply is highly sensitive to the assessment growth rate. It has been ascertained that a subsidy for the planned WTPs at Yellow Pinch Dam and Bega of at least $10 million will be required to bring forward these capital works by 5 years while maintaining the TRBs at the same level as forecast under the adopted scenario. In the case of a low level of external borrowings, the TRBs are only slightly sensitive to higher borrowing interest rates.

12.4.2 Sewerage

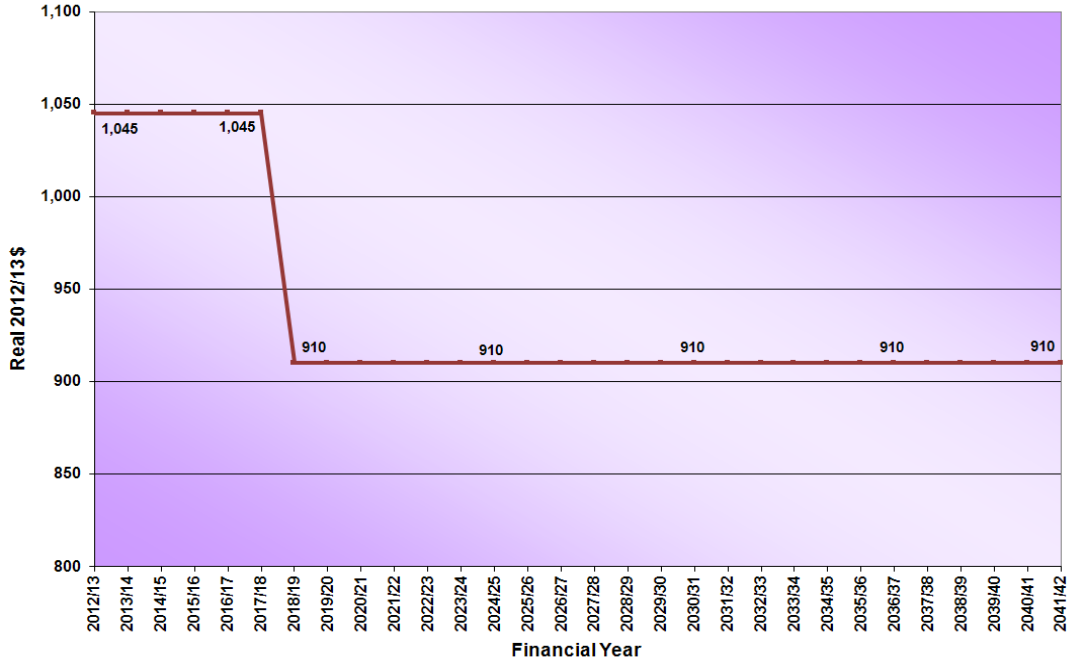
Financial modelling has demonstrated that the typical residential bill (TRB) for sewerage services can be maintained at the current level of $1,045 p.a. for the next 5 years (plus annual CPI increases). In 2018/19, The TRB can be decreased by $135 to $910 p.a. and can be maintained at that level for the remainder of the forecast period as shown in Figure 29.

As discussed in the previous section, the adopted scenario of the financial model assumes that no government subsidy grant will be available for any of the capital works planned for the next 30 years.

The forecast TRB's will be adjusted annually for CPI/inflation.

This level of sewerage TRB is sufficient to maintain liquidity with a minimum of $2 million of cash in hand over the forecast period.

Figure 29 – Typical Residential Sewerage Bill



All planned capital works will be funded through a mix of available cash and investments, annual revenue and external borrowings. New external borrowing will be required to fund major capital works from 2017/18 onwards. The outstanding borrowing will be at a maximum of $23,823K in 2021/22 and will be $7,379K at the end of the forecast period (2041/42).

The level of cash and borrowings outstanding, as the planned capital works program is implemented during the forecast period, is shown in Figure 30. A summary of projected financial results is presented in Table 12-9.

Figure 30 – Cash and Borrowing Projections – Sewerage

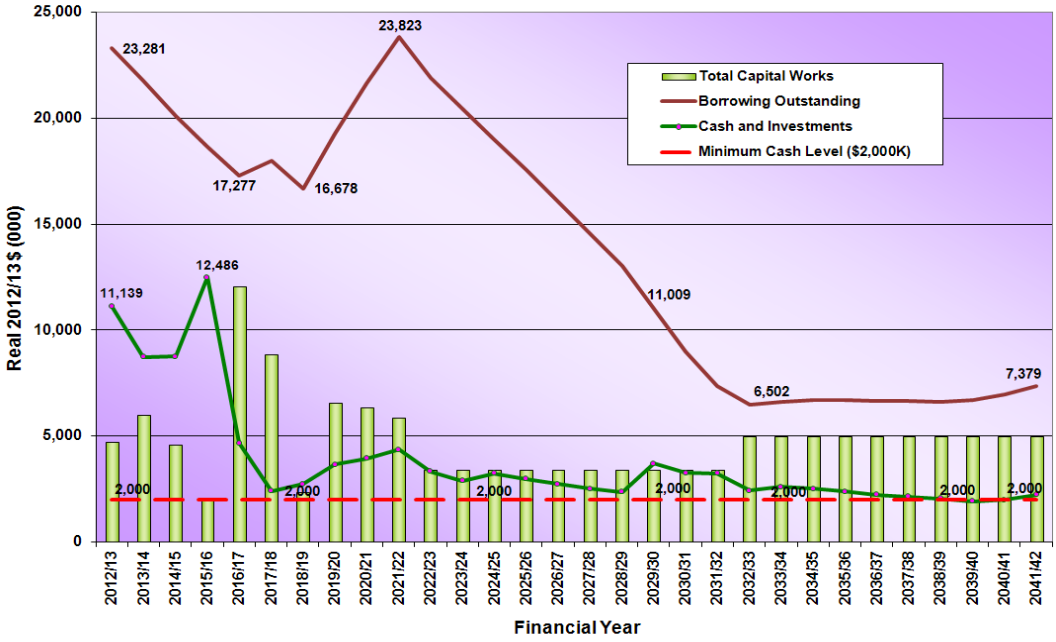


Table 12-9: Projected Financial Results – Sewerage

2012/13 ($'000)	Revenue and Expenses			Capital Transactions		Financial Position					System Assets			Typical Residential Bills (2012/13 $)
Financial Year	Total Revenue	Total Expenses	Operating Result (Before Grants)	Acquisition of Assets	Principal Loan Payments	Cash and Investments	Borrowings	Total Assets	Total Liabilities	Net Assets Committed	Current Replacement Cost	Less: Accumulated Depreciation	Written Down Current Cost	
2012/13	15,704	15,162	542	4,751	790	11,139	23,281	197,170	24,167	173,003	278,132	94,216	183,916	1,045
2013/14	15,740	15,187	552	5,999	819	8,729	21,783	196,548	22,674	173,874	281,822	96,007	185,816	1,045
2014/15	16,752	15,057	1,695	4,596	1,037	8,751	20,112	196,930	21,014	175,916	284,306	98,031	186,275	1,045
2015/16	17,810	15,082	2,729	2,079	879	12,486	18,648	198,509	19,562	178,947	284,826	100,614	184,212	1,045
2016/17	16,321	15,217	1,104	12,079	828	4,686	17,277	198,402	18,198	180,204	295,346	103,348	191,998	1,045
2017/18	16,197	15,145	1,052	8,876	775	2,417	17,999	200,526	18,927	181,599	302,439	105,960	196,479	1,045
2018/19	14,265	15,158	- 893	2,376	797	2,753	16,678	198,752	17,612	181,140	303,033	108,581	194,452	910
2019/20	15,423	15,472	- 50	6,576	924	3,660	19,268	201,694	20,217	181,477	307,827	111,269	196,558	910
2020/21	15,022	15,799	- 778	6,375	1,057	3,945	21,650	203,748	22,609	181,139	312,421	114,023	198,397	910
2021/22	15,053	16,110	- 1,057	5,876	1,196	4,357	23,823	205,376	24,791	180,585	316,515	116,835	199,680	910
2022/23	15,174	16,096	- 922	3,400	1,237	3,339	21,892	203,089	22,869	180,220	317,364	118,891	198,474	910
2023/24	15,284	16,109	- 824	3,400	1,292	2,901	20,463	201,375	21,448	179,927	318,214	120,958	197,256	910
2024/25	16,114	16,125	- 11	3,400	1,350	3,242	19,017	200,436	20,016	180,420	319,064	123,037	196,027	910
2025/26	15,560	16,124	- 564	3,400	1,408	2,974	17,555	198,873	18,563	180,310	319,914	125,130	194,784	910
2026/27	15,642	16,116	- 474	3,400	1,470	2,737	16,074	197,347	17,089	180,258	320,764	127,233	193,530	910
2027/28	15,743	16,111	- 368	3,400	1,534	2,519	14,572	195,871	15,595	180,276	321,614	129,349	192,265	910
2028/29	15,855	16,093	- 239	3,400	1,601	2,381	13,046	194,464	14,078	180,386	322,464	131,477	190,987	910
2029/30	17,798	16,041	1,757	3,400	1,657	3,700	11,009	194,510	12,057	182,453	323,314	133,617	189,697	910
2030/31	16,106	16,016	90	3,400	1,702	3,280	8,987	192,796	10,043	182,753	324,164	135,769	188,396	910
2031/32	16,084	15,965	120	3,399	1,367	3,249	7,358	191,459	8,421	183,038	325,014	137,933	187,081	910
2032/33	16,175	15,985	190	5,000	642	2,432	6,502	190,917	7,572	183,345	326,264	138,914	187,349	910
2033/34	16,286	16,102	184	5,000	690	2,603	6,623	191,344	7,699	183,645	327,514	139,914	187,599	910
2034/35	16,089	16,129	- 40	5,000	740	2,513	6,690	191,492	7,771	183,721	328,764	140,932	187,832	910
2035/36	16,158	16,190	- 32	5,000	791	2,400	6,704	191,598	7,790	183,808	330,013	141,967	188,046	910
2036/37	16,220	16,263	- 44	5,000	845	2,242	6,664	191,642	7,754	183,888	331,263	143,020	188,243	910
2037/38	16,287	16,323	- 36	5,000	798	2,161	6,672	191,745	7,767	183,978	332,513	144,091	188,422	910
2038/39	16,358	16,377	- 19	5,000	853	2,064	6,625	191,813	7,725	184,088	333,763	145,181	188,583	910
2039/40	16,200	16,413	- 214	5,000	705	1,939	6,727	191,835	7,829	184,006	335,014	146,288	188,726	910
2040/41	16,251	16,445	- 195	5,000	553	2,007	6,977	192,031	8,083	183,948	336,264	147,412	188,852	910
2041/42	16,288	16,501	- 213	5,000	395	2,231	7,379	192,366	8,487	183,879	337,514	148,554	188,959	910

Sensitivity Analysis

The following sensitivities have been modelled to determine the impact of various scenarios on typical residential bill (TRB) for sewerage services:

Table 12-10: Sensitivity Analysis Scenarios for Sewerage

Criteria	Adopted Scenario	Sensitivity
Assessment growth rate	0.8% p.a.	0.4% p.a.
Borrowing Interest Rate	6.5% p.a.	9.5% p.a.

The results of sensitivity analysis are presented below.

Figure 31 – Sensitivity of Typical Residential Bill – Sewerage

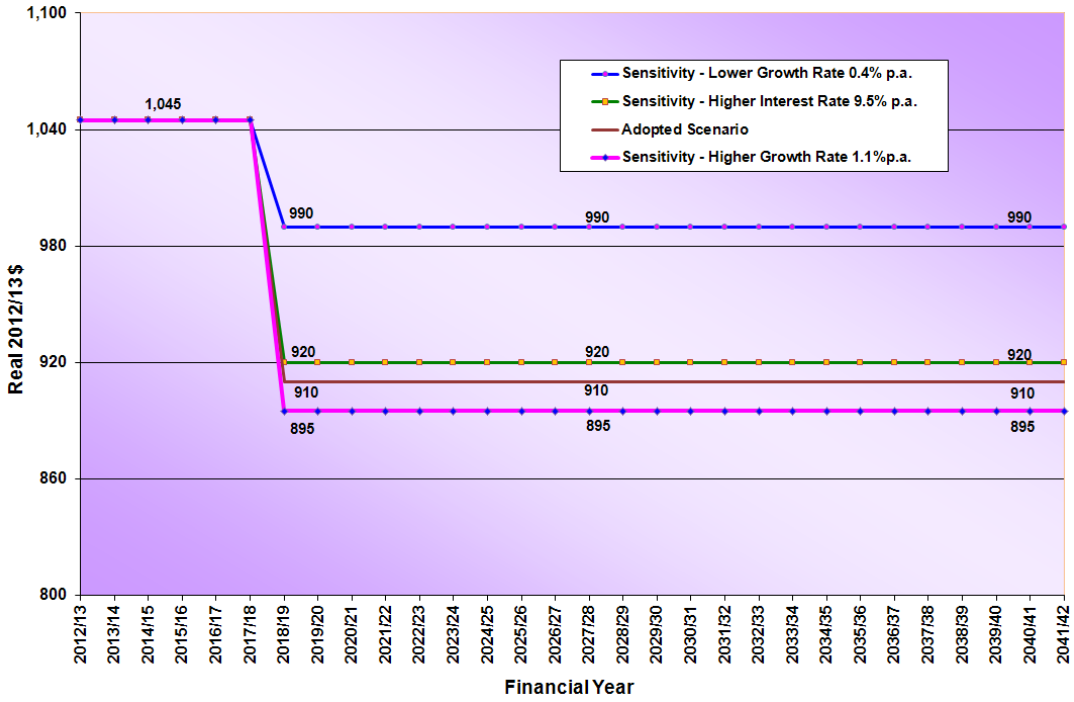


Table 12-11: Typical Residential Bills for Sensitivity Scenarios – Sewerage

Scenario	TRB for up to 2017/18	TRB from 2018/19 onwards
Adopted Scenario	$1,045	$910
Lower Assessment Growth Rate of 0.4% p.a.	$1,045	$990
Higher Assessment Growth Rate of 1.1% p.a.	$1,045	$895
Higher Borrowing interest Rate of 9.5% p.a.	$1,045	$920

Figure 32 – Sensitivity of Borrowing Outstanding – Sewerage

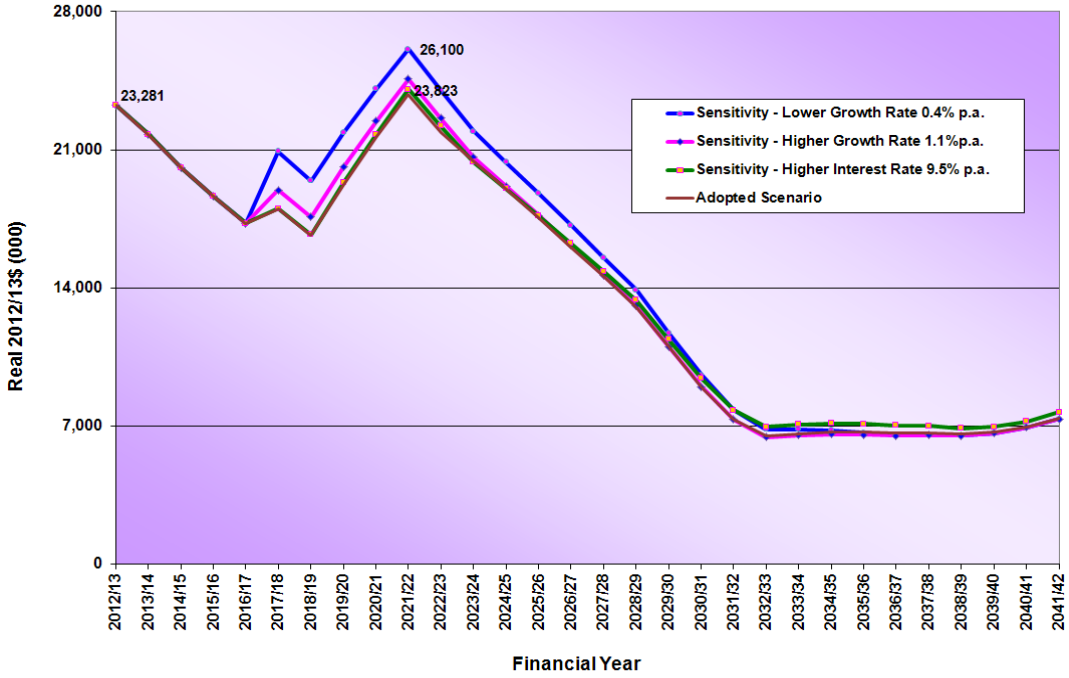
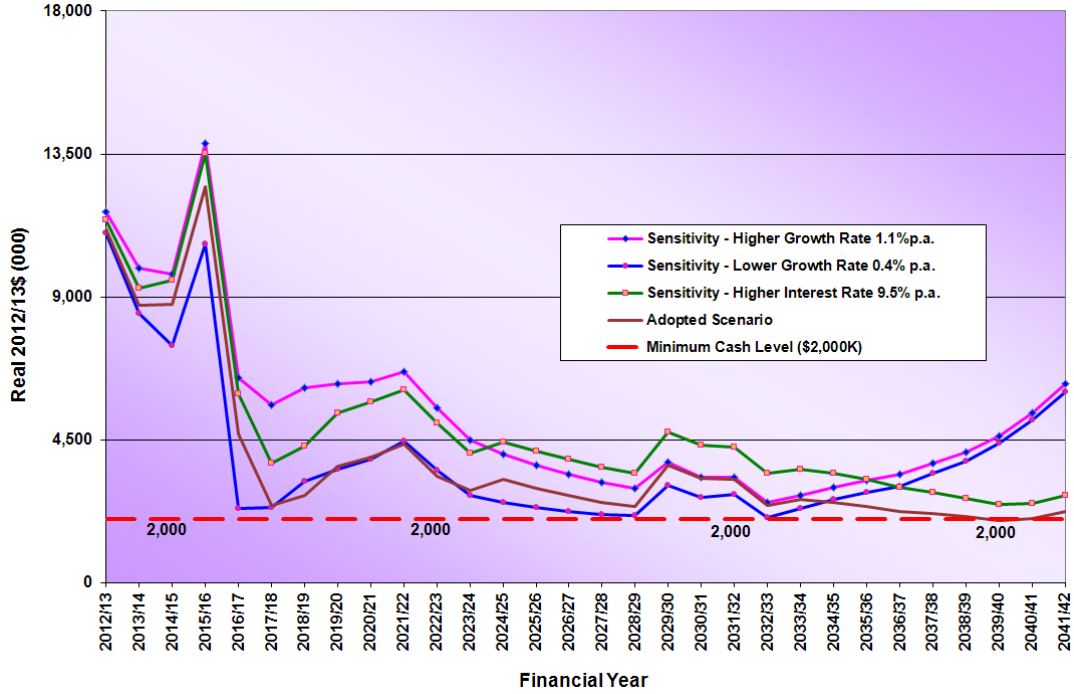


Figure 33 – Sensitivity of Cash Levels – Sewerage



The sensitivity analysis indicates that the TRB for sewerage services is highly sensitive to the assessment growth rate. At 0.4% p.a. growth rate, the difference in projected TRBs after the first 5 year period would be about 10% ($80) to that of the adopted scenario. In the case of a low level of external borrowings, the TRB's are only slightly sensitive to higher borrowing interest rates.

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National Water Commission 2012, 2011-12 National Performance Framework: urban performance reporting indicators and definitions handbook (online copy), National Water Commission, Commonwealth of Australia, Canberra

NSW Department of Water and Energy 2007, *Guidelines for Best-Practice Management of Water Supply and Sewerage*, NSW Department of Water and Energy, NSW

NRMMC 2011, *Australian Drinking Water Guidelines Paper 6 National Water Quality Management Strategy*. *(online copy),* National Health and Medical Research Council, National Resource Management Ministerial Council, Commonwealth of Australia, Canberra

Appendices

Appendix A Inputs for Reporting under IPR Framework

The main requirements of the Local Government Integrated Planning and Reporting Framework 2010 for the 10-year Community Strategic Plan, 4-year Delivery Program, Annual Operational Plan and Annual Report are summarised below. Inputs for water supply and sewerage services for inclusion in each of these reports are also presented alongside the summaries.

A.1 Community Strategic Plan

The requirements for the Community Strategic Plan in the IPR framework include:

- to be revised at least every 10 years
- give due regard to the State Plan and other relevant state and regional plans
- include a community vision statement

The planning process is generally used to:

- identify main priorities and aspirations for the future
- enable community input on the identification of social, environmental, economic and civic leadership issues
- establish strategic objectives and proposed strategies to achieve those objectives that address issues identified above
- establish expected Levels of Service

Input to Community Strategic Plan

"For sustainable water supply and sewerage services the Strategic Business Plan (SBP) for Water Supply and Sewerage will be reviewed and implemented in accordance with the NSW Government's Best Practice Management of Water Supply and Sewerage Guidelines, August 2007.

Major water supply and sewerage capital works identified in our Strategic Business Plan for completion over the next 10 years are shown in the following tables. The justifications for why these works have been planned also are presented in the tables.

Proposed Capital Work	Year	Justification
Water Supply		
Nutley Creek Reservoir and Quaama duplicate main	2013 - 2016	Service level improvement and servicing growth
Tarraganda Reservoir upgrade	2013 - 2014	Asset renewal and capacity enhancement for servicing growth
Bemboka WTP (0.4 ML/day)	2014 - 2017	Improved Levels of Service
Upgrade of transfer main for proposed Yellow Pinch Dam WTP	2015 - 2021	Improved Levels of Service and capacity enhancement for servicing growth
Refurbishment of Boyd Town Reservoir Pumping Station	2017 - 2019	Asset renewal
Bega-Tathra WTP (10 ML/day)	2020 - 2026	Improved Levels of Service and for servicing growth
Yellow Pinch Dam WTP (17 ML/day)	2020 - 2026	Improved Levels of Service and for servicing growth
Bermagui WTP (4 ML/day)	2022 - 2026	Improved Levels of Service and for servicing growth
Renewal of electrical mechanical components of system assets	2012 onwards	Renewal of ageing assets

Proposed Capital Work	Year	Justification
Sewerage		
Effluent disinfection at Tura STP	2012 - 2014	Improved Levels of Service (regulatory compliance)
Effluent disinfection at Eden STP	2012 - 2014	Improved Levels of Service (regulatory compliance)
Eden - Emergency storage at SPS 2	2013 - 2014	Improved Levels of Service (regulatory compliance)
West Pambula SPS	2013 - 2015	Renewal and upgrade of ageing asset
Reticulation mains rehabilitation at Bega and Eden	2014 onwards	Refurbishment of ageing assets
Bega STP - balance tank	2016 - 2017	Improved Levels of Service (regulatory compliance)
Merimbula STP and effluent disposal upgrade	2016 - 2018	Improved Levels of Service (regulatory compliance)
Sludge management - all STPs	2016 - 2017	Improved Levels of Service (regulatory compliance)
Bermagui STP - effluent reuse scheme upgrade	2017 - 2018	Improved Levels of Service
Merimbula STP - effluent reuse schemes expansion	2019 - 2022	Improved Levels of Service
Bermagui STP - ocean outfall	2020 - 2021	Improved Levels of Service (regulatory compliance)
Renewal of electrical mechanical components of system assets	2012 onwards	Renewal of ageing assets

A.2 Resourcing Strategy

Sets out what we will do over the next 10 years to address the community's main priorities in the Community Strategic Plan. We determine our Resourcing Strategy from the following:

- Asset Management Planning
- Work Force Planning
- Long-term Financial Planning

Input to Resourcing Strategy

"The SBP for Water Supply and Sewerage is our resourcing strategy for the water and sewerage services in which the strategies for Asset Management Planning (AMP), Work Force Planning (WFP) and the Long-term Financial Planning are presented in detail".

Note regarding the AMP and WFP, the SBP details the current status and key outcomes and detailed reference is from the individual planning documents

A.3 Delivery Program

The requirements for the Delivery Program in the IPR framework include:

- directly addresses the objectives and strategies of the Community Strategic Plan
- identifies principal activities council will undertake within available resources
- provides financial estimates for the 4 year period
- considers priorities and expected level of service in the Community Strategic Plan

Input to Delivery Program

"The SBP for Water Supply and Sewerage (Sections 8 to 11) is our delivery program for water and sewerage services wherein the objectives, strategies, activities planned for the next 4 - 5 years including the costs, start and end dates and responsible officer are presented in detail. The financial estimates for the next 4 year period are presented as part of the 30-year financial projections of the Long-term Financial Plan".

A.4 Operational Plan and Annual Report

The requirements for the Operational Plan and Annual Report in the IPR framework include:

- Operational Plan outlines the activities to be undertaken for the year as part of the Delivery Program and is prepared as a sub-plan of the Delivery Program
- Operational Plan includes Statement of Revenue Policy - fees and charges, pricing methodology, proposed borrowings, and detailed budget for activities to be undertaken in the year
- Annual Report is a report to the community which outlines council's achievements in implementing the Delivery Program as planned in the Operational Plan
- Annual Report outlines the effectiveness of the principal activities undertaken in achieving the objectives in the Community Strategic Plan

Input to Operational Plan

"The SBP for Water Supply and Sewerage (Sections 8 to 11) is our operational plan for water and sewerage services in which all the planned activities for delivery program are presented in detail".

Appendix B Legislative Framework

B.1 Legislative Framework

Bega Valley Shire Council delivers potable water supply and reticulated sewerage services to the community under the authority of the Local Government Act, 1993. We have embraced the principles underlying this Act as being of benefit to the community we serve. Community consultation and involvement in decision-making has increased in line with the Act over the last few years.

Several other Acts also affect our delivery of water supply and sewerage services. These generally fall into three main categories as follows:

Act	General Implications for Council
Pricing	
Local Government Act 1993 Esp. Sections 64 and 428	Determining developer charges: - provide a source of funding for infrastructure required for new urban development - provide signals regarding costs of urban development and encourage less costly forms Need to be more accountable Need for better asset management
Environmental Planning and Assessment Act 1979	Determining developer charges Requirement for LEP and DCPs Control of service approvals
Water Management Act 2000 Progressively replaces the previous Water Act 1912, Water Authorities Act 1987 and 10 others including irrigation, rivers and foreshores Acts)	Determining developer charges Water rights, licences, allocations
Local Government Regulation 2005 (Savings and Transitional) Independent Pricing and Regulatory Tribunal Act 1992	Determining developer charges Gives powers to the Independent Pricing and Regulatory Tribunal to inquire into and regulate prices IPART has developed a set of consistent pricing principles to be adopted by local government authorities Guidelines for 'user pays' charging system in the water and wastewater industry
Water Industry Competition Act 2006	Establishment of third-party access regime for water and sewerage infrastructure to encourage competition Authorisation of IPART to regulate licensed private network operators to ensure services are delivered in a safe and reliable manner
ENVIRONMENTAL PROTECTION	
Protection of the Environment Operations Act 1997	Regulating pollution activities and issue of licenses as well as the monitoring of and reporting on waste output Requirement to be "duly diligent" in undertaking the scheme operations
Soil Conservation Act 1938	Conserves soil resources and farm water resources and the mitigation of erosion and land degradation Preservation of watercourse environments
Environmental Planning and Assessment Act 1979	Encourages the proper management of natural and man-made resources, the orderly use of land, the provision of services and protection of the environment

Act	General Implications for Council
Catchment Management Act 1989	Promotes the coordination of activities within catchment areas
Water Management Act 2000	Provides for sustainable and integrated management of State's water sources Water rights, licences, allocations
Health and Safety	
Public Health Act 2010	Prevention of the spread of disease Effluent disposal methods Delivery of quality water
Fluoridation of Public Water Supplies Act 1957	Addition of fluoride in public water supply by water utilities
Work Health and Safety Act 2011 (and Regulations 2011)	To ensure health, safety and welfare of employees and others at places of work Likely be cost implications Impacts all operations Note public safety - insurance
Dam Safety Act 1978	Obligations and responsibility for local water utilities for the safety of dams under their jurisdiction

Local Government Act 1993

The main purpose of the Local Government Act 1993 is to provide the legal framework for an effective, efficient, environmentally responsible, and open system of Local Government in NSW.

The Act is, in the main, administered by the Minister for Local Government, but the Minister for Water has significant powers under the Act for water, sewerage and drainage.

The Act confers service functions on Councils. These include the provision, management and operation of water supply and sewerage works and facilities. The Act provides Councils with broad power to carry out their functions, and a "Council may do all such things as are supplemented or incidental to, or consequential on, the exercise of its functions" (section 23 of the Act).

Some particular parts of the Act relating to water supply and sewerage are:

- Section 64 - developer charges (Under this section of the new Act, a Council may use the relevant provisions of the Water Management Act 2000 to obtain water supply and sewerage developer charges. The provisions of Section 94 of the Environmental Planning and Assessment Act are no longer available to Councils for obtaining water supply and sewerage developer contributions.)
- Section 68 - Council approval of plumbing works
- Sections 634-651 - water supply, sewerage and drainage offences
- Water, Sewerage and Drainage Regulation which cover matters from the "old" ordinance 4.5 and 4.6

The role of the Minister for Water in regard to water supply, sewerage and drainage is covered in Sections 56-66. The Minister's role is generally along the lines of Part XIV of the 1919 Act, and it includes matters such as construction of works, hand over and vesting of work, approval of dams and treatment works, directions to Councils concerning dams and treatment works, action during emergencies, and the appointment of an administrator.

The NSW Office of Water provides section 60 approvals to council proposals to construct a dam, water or sewage treatment works and for effluent and biosolids reuse.

The NSW Office of Water carries out section 61 inspections of LWU dams and water and sewage treatment works.

The NSW Office of Water provides concurrence to Council liquid trade waste approvals under section 90(2) of the Act.

Councils issue approval to applications to discharge trade waste to their sewerage system under section 68 of the Local Government Act. Conditions of approval are imposed under clause 32 of the Local Government Regulation 2005.

Environmental Planning and Assessment Act 1979

The Environmental Planning and Assessment (EP&A) Act was enacted in 1979, and amended by the Environmental Planning and Assessment (Amendment) Act (1985). The Act is the principal planning instrument in NSW, and it specifies the environmental considerations required in all development activities. It also governs the procedures of all proposals that have an effect on the environment. Its objectives are to encourage the proper management of natural and man-made resources, the orderly use of land, the provision of services, and the protection of the environment.

The Act is administered by the Minister for Planning.

The Act requires that all proposals, activities, and functions which are investigated, designed, planned, constructed, and operated by Councils should be studied during all stages for their environmental impact on the basis of scale, location, and performance.

Environmental studies are to be undertaken concurrently with the technical or planning investigations. The findings of environmental studies should be reported initially in Reviews of Environmental Factors (REF), which indicate the need for further studies, their extent and depth, and the degree of public or other involvement required. The REF can often be used for consents or approvals. A Council can give consents for a development as prescribed in Local Environmental Plans (LEP) when the Council are the consent authorities (Part IV of the EP&A Act).

An Environmental Impact Statement (EIS) is a comprehensive report compiled from extensive studies. An EIS is required for:

- designated developments (Part IV of the EP&A Act)
- projects which affect the environment significantly (Part V of the EP&A Act)
- when designated by a State Environmental Planning Policy or in an LEP

Catchment Management Act 1989

The objectives of this Act are:

- To coordinate policies, programs and activities as they relate to total catchment management
- To achieve active community participation in natural resource management
- To identify and rectify natural resource degradation
- To promote the sustainable use of natural resources
- To provide stable and productive soil, high quality water and protective and productive soil and vegetation cover within each of the State's water catchments
- The Act is administered by the Minister for Land and Water Conservation

Soil Conservation Act 1938

The objective of the Soil Conservation Act is the conservation of soil resources and farm water resources and the mitigation of erosion and land degradation.

The Act is administered by the Minister for Land and Water Conservation.

Under Section 21C of the Act, a Council is required to protect land along prescribed streams and to prevent any destruction of trees and soil erosion on protected land. The same section of the Act specifies the rules for any person or occupier or any protected land from ringbarking, cutting down, felling, poisoning of, or otherwise destroying, vegetation or trees.

Section 21D of the Act requires that the land owner or occupier must obtain an authority before damaging or destroying trees between the banks or within 20 metres of banks of a prescribed stream. Public Works is responsible for preparing inspection reports for sites downstream of the tidal limit.

Section 22 of the Act outlines requirements for preservation of proclaimed works and catchment areas.

Public Health Act 2010

The Public Health Act 2010 replaced the Public Health Act 1991. The main objectives of the Public Health Act 2010 are:

- to promote, protect and improve public health
- to control the risks to public health
- to promote the control of infectious diseases
- to prevent the spread of infectious diseases

The Act recognises the role of local government in protecting public health. Under the Act, a local government authority has the responsibility to take appropriate measures to ensure compliance with the requirements of this Act in relation to public swimming pools and spa pools, regulated systems and premises on which skin penetration procedures are carried out. A local government authority has the responsibility of appointing authorised officers to enable it to exercise its functions under this Act and ensuring that its authorised officers duly exercise their functions under this Act.

Part 3 Division 1 of the Act includes the provisions in respect to safety measures for drinking water.

The Minister for Health has the power to take actions and to issue directions, as the Minister considers necessary:

- to restrict or prevent the use of unsafe water, potable or otherwise, that is likely to be a risk to public health
- to bring unsafe water to such a condition that it is no longer unsafe water

The Director General has the power to direct a supplier of drinking water to carry out testing and produce information in relation to the treatment and quality of drinking water.

The Chief Health Officer has the responsibility for determining the necessity for a boil water advice and additional information or correction or re-traction of such advice, by a supplier of drinking water for the drinking water it supplies. The Chief Health Officer may also prepare advice concerning public health risks or boil water advice, and provide the advice to the drinking water supplier.

According to the Clause 25 of the Act a supplier of drinking water must establish and adhere to a quality assurance program that complies with the requirements prescribe by the regulations. The regulations are yet to be enacted.

Fluoridation of Public Water Supplies Act 1957

This Act covers addition of fluoride to a public water supply by a water utility.

The Act is administered by the Minister for Health.

Under the Act, approval of NSW Health is required in order that a Council can add fluoride to a water supply.

The NSW Office of Water provides assistance to NSW Health in the training of authorised officers to operate fluoridation plants and conducts pre-commissioning inspections of

fluoridation plants to confirm they have met the requirement of the NSW Fluoridation Code of Practice.

Dam Safety Act 1978

The Dams Safety Act constitutes the Dams Safety Committee and imposes, on the Committee, functions relating to the safety of certain dams. The functions of the Committee include the following:

- Maintain a surveillance of prescribed dams
- Investigate the location, design, and construction of prescribed dams
- Obtain information and keep records on matters relating to the safety of dams
- Formulate measures to ensure the safety of dams
- Report to the Minister in relation to the safety of prescribed dams
- The Act is administered by the Minister for Primary Industries

Under the Act, the Dams Safety Committee may require the owner of a prescribed dam to:

- Make observations, take measurements and keep records in regard to such dams
- Furnish the committee with such information
- Local water utilities have obligations and responsibility for the safety of dams under their jurisdiction. Among other matters, local water utilities are required to prepare a five-yearly Dam Surveillance Report for their dams

Water Act 1912

This Act is being progressively phased out and replaced by the Water Management Act 2000, but some provisions are still in force.

The Water Act covers matters such as water rights, licences and water allocations.

It is necessary under this Act for the Council to obtain a licence for a work for the purpose of:

- Water conservation, irrigation, water supply or drainage
- Prevention of inundation of land and overflow of water thereon
- Changing the course of the river

Water Management Act 2000

The Water Management Act 2000 is the key NSW water legislation for the sustainable management of water. The Act promotes the sharing of responsibility for the sustainable and efficient use of water between the NSW Government and water users.

The Act provides a legal basis for water planning, the allocation of water resources and water access entitlements.

The main tool the Act provides for managing the NSW water resources are water sharing plans. The plans for each catchment set out the rules for the sharing of water between water users and the environment and rules for the trading of water.

Chapter 6 of the Act provides for the constitution, construction, operation and charging regimes for major water utilities and local water utilities.

Section 305 of the Act provides water utilities with a mechanism to control development in relation to water services through the provision of a “certificate of compliance”.

Section 306 of the Act enables water supply authorities and local water utilities, through a cross reference to section 64 of the Local Government Act 1993, to levy developer charges towards the cost of water infrastructure required for serving development.

The Act is administered by the Minister for Primary Industries and the Minister for Finance and Services.

Independent Pricing and Regulatory Tribunal Act 1992

The Independent Pricing and Regulatory Tribunal Act establishes the Independent Pricing and Regulatory Tribunal and enables the Tribunal to determine and advise on prices and pricing policy for government monopoly services. A government monopoly service is a service supplied by a government agency (which may include a local government council) and declared by the regulations, or the Minister, to be a government monopoly service.

The Tribunal conducts investigations and makes reports to the Minister on the determination of the maximum price and on a periodic review of pricing policies for services applied by these agencies specified in Schedule 1 to the Act. Schedule 1 presently includes Sydney Water Corporation, Hunter Water Corporation, Water Supply Authorities, including Gosford City Council, Wyong Shire Council, State Water (Fish River Water Supply) and Essential Energy (Broken Hill).

The Tribunal may also conduct investigations and make reports for any government monopoly service, at the request of the Minister, whether or not it is supplied by a government agency specified in Schedule 1.

Work Health and Safety Act 2011

This revised Act details Council's responsibilities to ensure health, safety and welfare of employees and others at places of work. All of the scheme's operational activities are impacted on by this Act. This act is administered by the Work Cover Authority.

Protection of the Environment (Operations) Act 1997

This Act came into effect in July 1998 and consolidated existing legislation to eradicate the duplication of powers and overlapping use of resources. The Act brought together what used to be five separate pieces of legislation:

- Clean Air Act 1961
- Clean Waters Act 1970
- Pollution Control Act 1970
- Noise Control Act 1975
- Environmental Offences and Penalties Act 1989

The POEO Act introduces a holistic approach to protecting the environment, changing from pollution control legislation to environment protection legislation.

The Act enables the NSW Government to set out explicit protection of the environment policies (PEPs) involving environmental standards, goals, protocols and guidelines.

Key features of the Act are as follows:

- Single licensing arrangement relating to air pollution, water pollution, noise pollution and waste management
- EPA issues licences and is the regulatory authority for scheduled activities specified in Schedule 1 of the Act
- Local councils are the regulatory authorities for non-scheduled activities except activities undertaken by a public authorities
- EPA can issue licences to regulate water pollution from a non-scheduled activity therefore becomes the regulating authority
- Environment protection notices that can be issued by appropriate regulatory authorities
- The Act includes an offence regime and may involve heavy penalties and or gaol

- The Act includes civil enforcement provisions for third parties
- The Act is administered by Office of Environment and Heritage

The POEO Act is a powerful tool for regulation of sewerage and trade waste by local water utilities and facilitating compliance with the utility's conditions of approval for liquid trade waste discharges to the sewerage system.

Councils may issue a penalty notice under section 222 of the Act to a discharger who fails to obtain an approval to discharge trade waste to the council's sewerage system or who fails to comply with the conditions of the council's approval. In addition, section 123 of the Act may be used to sue a discharger causing major damage to the council's sewerage system or to the environment

The legislation also incorporates major regulatory provisions of the Waste Minimisation and Management Act.

Water Industry Competition Act 2006

The objectives of the Act and supporting regulations are to encourage competition in the water industry and to foster innovative recycling projects and dynamic efficiency in the provision of water and wastewater services.

Increasing competition in the metropolitan water market and water recycling are key actions in the NSW Government's Metropolitan Water Plan and State Plan.

The Act provides for the matters such as:

- the establishment of a new licensing regime for private sector providers of reticulated drinking water, recycled water and sewerage services
- the establishment of a third-party access regime for water and sewerage infrastructure
- provisions for a licensed network operator to construct or remove water industry infrastructure
- provisions to authorise IPART to undertake regulatory functions in certain parts of the Act

Key aspects of General Regulation include:

- ensuring new entrants and the public water utilities face similar obligations, where like services are provided
- strict licensing rules to ensure that drinking water meets Australian standards, that recycled water is 'fit for purpose' and that all services are delivered in a safe, reliable manner with minimal environmental impacts
- provisions to prevent retailers from disconnecting small customers for non-payment of debt and to require the implementation of NSW Government social policies, such as pensioner rebates

B.2 Other Government Initiatives

Initiative	Purpose
Efficient Resource Use	The Federal Industry Commission Report on the Australian Water Industry is concerned to ensure efficient use of resources - natural, physical and financial. Its 1992 Report's recommendations were wide-ranging and covered matters such as pricing reforms and structural reforms (e.g. amalgamation of authorities).
Competition Policy	In 1995 the Council of Australian Governments (COAG) ratified the National Competition Policy. Of particular significance to the water and sewerage functions of Council is the application of competitive neutrality to operations. The purpose of this is to have councils "*operate under similar competitive pressures to those experienced by the private sector*". The NSW Government has embraced these principles and set in motion a number of policies to increase the efficiency and the competitiveness of this type of business area. (Refer to the NSW Government Policy Statement on the Application of National Competition Policy to Local Government).
Asset Management	The NSW Government, which has ultimate responsibility for water and sewerage in the State, is concerned to ensure that the $7 billion asset base in water supply and sewerage schemes of country towns under the care of Local Governments is well managed.
Financial Assistance	The NSW Government has been providing grants for the development and improvement of water supply and sewerage schemes in country areas, under the Country Towns Water, Sewerage and Drainage Program, which is now administered by the NSW Office of Water. The Minister responsible for water has made changes to the subsidy provisions. The main changes are the requirement to implement best industry management practices and the withdrawal of subsidies for growth related capital works. These changes are outlined in the publication Country Towns Water Supply and Sewerage Program: Technical and Financial Assistance available to Councils.
Best Practice Management	The NSW Government encourages best practice for all LWUs. The purpose of best practice management is: - To encourage the effective and efficient delivery of water supply and sewerage services - To promote sustainable water conservation practices and water demand management throughout NSW From 1 July 2004, compliance with the six best practice criteria is mandatory for payment of a dividend from the surplus of an LWU's water supply and sewerage businesses and future financial assistance under the Country Towns Water Supply & Sewerage program.

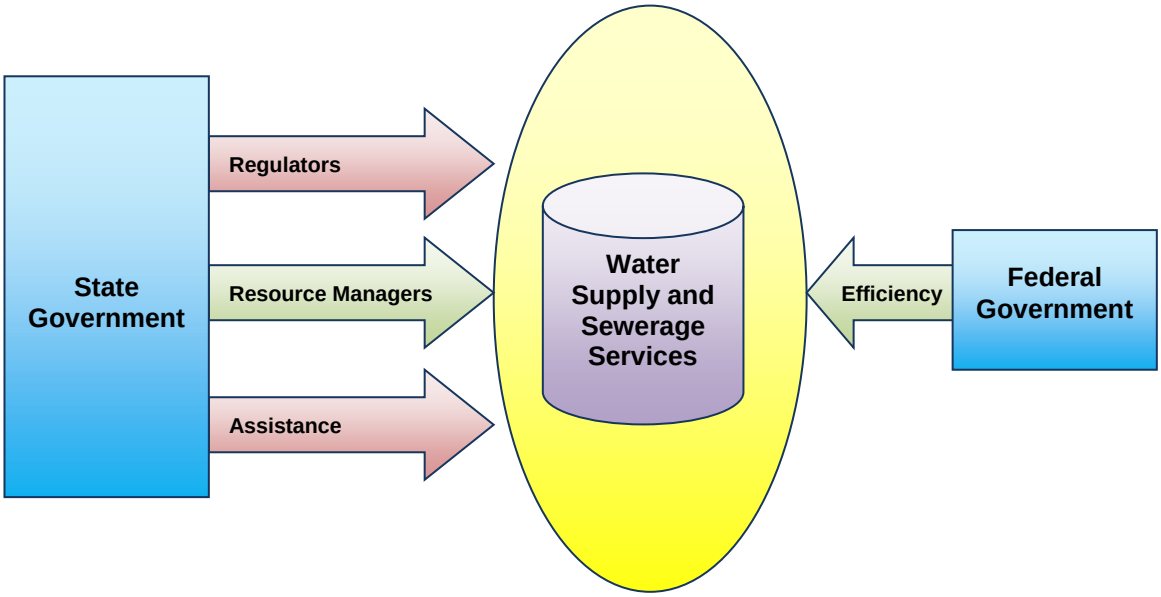
Appendix C Stakeholder Review

C.1 Identification of Stakeholders

Stakeholders are individuals and organisations with an interest and/or equity in the water supply services provided by our organisation. Stakeholders may have different expectations and the extent to which we meet, or are perceived to meet these expectations may vary.

Institutional Stakeholders

A large number of government departments and agencies have interest in and impact on the management of the water supply and sewerage services, as shown in the chart below.



Local Government

Water supply and sewerage service delivery is an integral part of BVSC operations. BVSC has the ultimate responsibility for the development, operation, maintenance and performance of water supply and sewerage schemes in the Bega Valley Shire. As the asset owner we are also responsible for any liability of the water supply and sewerage schemes.

State Government

The State Government has a significant impact on water supply and sewerage service delivery. Various government agencies fill a role in one or more of the following areas.

Agencies that are largely responsible for administering the various acts listed in the preceding section. Of particular significance to water supply and sewerage are the Independent Pricing and Regulatory Tribunal (IPART) and the Environment Protection Authority (EPA).

Resource Managers

Agencies responsible for managing the State's resources, such as water resources, forestry and land.

The NSW Office of Water (NOW), while nominally a resource manager has a special role in the development of water supply and sewerage schemes, setting standards and guidelines and administering the Government grants program (refer below).

Assistance

The State Government has been providing financial and administrative assistance for improvements of water supply and sewerage schemes through the Country Towns Water

Supply and Sewerage Program. Under the newly introduced guidelines, assistance is generally available for servicing backlog areas and improving standards, but not for augmentation works required to accommodate growth. This program is administered by the NSW Office of Water.

Other assistance is in the form of services, such as the professional services provided by the NSW Public Works.

Federal Government

The Federal Government has no direct bearing on the water supply and sewerage service delivery. Indirectly, the Federal Government is taking the initiative on reforming the way services are delivered to the community by Government agencies in order to improve efficiency.

C.2 Stakeholder Analysis

Stakeholders are individuals and organisations with an interest and/or equity in the water supply and sewerage services provided us. The major stakeholders and their general level of satisfaction with water supply and sewerage service delivery, as perceived by the participants of the Strategic Planning Workshop and our comments regarding operations are shown in the following table.

Low scores or perception gaps between Stakeholders and ourselves suggest the need for improvement in service standards and/ or communication.

Stakeholder	How to judge success?	How does Council rate its service? 1 - Poor 10 - Excellent	How do stakeholders rate the service 1 - Poor 10 - Excellent
GENERAL USERS			
Property Owners/ Ratepayers/ Residents (including pensioners)	- Value for money - Guaranteed Levels of Service - Quality services - Public health standards met and maintained - Guaranteed service - Reasonable cost - Palatability of water	W - 8 S - 7 (recognition of less than ideal value for money through contracting of treatment operations)	W - 8 S - 7 (very high annual charges)
Commercial and Industrial customers	- Quality - Sufficient supply - Guaranteed service - Reasonable cost	W - 8 S - 7 (recognition of less than ideal value for money through contracting of treatment operations)	W - 8 S - 6 (LTW charges on top of annual charges)
OTHER USERS			
Downstream water users	- Clean quality water - Continued supply - No future interference with their operations	W - 10 S - 9	W - 9 S - 8
Environmental groups	- Environmental responsibility - Minimisation of wastage - Environmental sustainability	W - 9 S - 9	W - 8 S - 7 (Merimbula and Bermagui sewerage outfall issues)
Tourists	- Quality and quantity of service - Aesthetics	W - 9 S - 9	W - 8 S - 7 (Merimbula and Bermagui sewerage outfall issues)
COUNCIL			
Councillors	- No complaints - Good public profile - Security of supply - Compliance - Pressure - Continued availability - Price	W - 9 S - 9	W - 9 S - 9

Stakeholder	How to judge success?	How does Council rate its service? 1 - Poor 10 - Excellent	How do stakeholders rate the service 1 - Poor 10 - Excellent
Council Employees	- Recognition for work - Safe workplace - Competency/training - Pride in workplace/ schemes - Support and security	W - 8 S - 8	W - 8 S - 8
Infrastructure, Waste and Water Services	- Efficient service - Chargeable service - Working relationship - Timeliness - Innovation and technology - Informed advice	W - 9 S - 9	W - 8 S - 8 (Complexity and duplication of planning and reporting requirements)
GOVERNMENT			
DLG	- Accountability - Financial stability	W - 9 S - 9	W - 9 S - 9
NOW	- Efficient operations - Performance - Best practice management	W - 9 S - 9	W - 8 S - 9
OEH /EPA	- Environmental requirements - Effluent and biosolids disposal - Catchment management	W - 9 S - 8	W - 9 S - 8
Others (Dept. of Health, Work Cover, ROC, CMA, Safe Food))	- Water quality - Effluent and biosolids disposal - Septic tanks - Catchment management - OHS	W - 9 S - 8	W - 9 S - 7

Appendix D Performance Indicators

D.1 NOW TBL Report 2011/12 – Water Supply

Bega Valley Shire Council	TBL Water Supply Performance	2011-12

WATER SUPPLY SYSTEM - Bega Valley Shire Council serves a population of 28,800 (14,330 connected properties). There are 4 separate water supply systems sourced from Towamba River (aquifer), Tantawanglo Creek, Bega River (aquifer), Bemboka River, Brogo River, Illawambra Creek and Courla Creek. Council has 3 storage dams (total capacity 3900 ML). The water supply network comprises 64 service reservoirs (70 ML), 20 pumping stations, 55 ML/d delivery capacity into the distribution system, 297 km of transfer and trunk mains and 357 km of reticulation. The water supply is unfiltered (disinfected).

PERFORMANCE - Bega Valley Shire Council achieved 80% compliance with Best Practice requirements. The 2012-13 typical residential bill was $493 which was close to the statewide median of $490 (Indicator 14). The economic real rate of return was 0.1% which was less than the statewide median (Indicator 43). The operating cost (OMA) per property was $550 which was well above the statewide median of $380 (Indicator 49). Water quality complaints were above the statewide median of 3 (Indicator 25). Compliance was achieved for microbiological water quality (6 of 6 zones compliant), chemical water quality (6 of 6 zones compliant) and physical water quality. There were no failures of the chlorination system or the treatment system. Bega Valley Shire Council reported no water supply public health incidents. Current replacement cost of system assets was $280M ($19,200 per assessment). Cash and investments were $14.2M, debt was $0.1M and revenue was $10.6M (excluding capital works grants).

IMPLEMENTATION OF REQUIREMENTS OF BEST-PRACTICE MANAGEMENT FRAMEWORK

(1) Complete Current Strategic Business Plan & Financial Plan	YES	(3) Sound water conservation implemented	YES
(2) (2a) Pricing - Full Cost Recovery, without significant cross subsidies	Yes	(4) Sound drought management implemented	
(2b,2c) Pricing - Appropriate Residential Charges		(5) Complete performance reporting (by 15 September)	YES
(2d) Pricing - Appropriate Non-residential Charges	Yes	(6) Integrated water cycle management strategy	YES
(2e) Pricing - DSP with Commercial Developer Charges	Yes	IMPLEMENTATION OF ALL REQUIREMENTS	80%

TRIPLE BOTTOM LINE (TBL) PERFORMANCE INDICATORS

		NWI	No.	Indicator	Unit	LWU RESULT Col 1	RANKING >10,000 properties Note 1 Col 2	RANKING All LWUs Note 2 Col 3	MEDIANS Statewide Note 3 Col 4	MEDIANS National Note 4 Col 5
UTILITY	CHARACTERISTICS	C1	1	Population served: 28800						
		C4	2	Number of connected properties: 14330 — Number of assessments: 14620						
			3	Residential connected properties (% of total)	%	91			91	
			4	New residences connected to water supply (%)	%	0.7	4	3	0.9	
		A3	5	Properties served per kilometre of water main	Prop/km	27			32	35
			6	Rainfall (% of median annual rainfall)	%	125	4	4	138	
		W11	7	Total urban water supplied at master meters (ML)	ML	3,700			6,100	8,610
			8	Peak week to average consumption (%)	%	155	5	3	130	
			9	Renewals expenditure (% of current replacement cost of system assets)	%	0.7	1	2	0.4	
			10	Employees per 1000 properties	per 1,000 prop	1.7	5	3	1.5	
SOCIAL	CHARGES & BILLS	P1		Residential tariff structure for 2012-13: two part; independent of land value; access charge $185.75						
		P1.3	12a	Residential water usage charge for 2011-12all usage (c/kL)	c/kL (2011-12)	227	1	1	179	187
			12	Residential water usage charge for 2012-13all usage (c/kL)	c/kL (2012-13)	235	1	1	185	
		P3	14a	Typical residential bill for 2011-12 ($/assessment)	$ (2011-12)	476	4	2	457	474
			14	Typical residential bill for 2012-13 ($/assessment)	$ (2012-13)	493	3	2	490	
			15	Typical developer charge for 2012-13 ($/equivalent tenement)	$ (2012-13)	12,430	1	1	5,200	
		F4	16	Residential revenue from usage charges (% of residential bills)	%	66	4	3	69	65
		F5	17	Revenue per property - water ($)	$	740	4	4	659	691
	HEALTH		18	Urban population without reticulated water supply (%)	%	1.5	4	2	0.8	
		H6	18a	Risk based drinking water quality plan?		Yes				
			19	Physical compliance achieved? Note 11		Yes	1	1		
			19a	Chemical compliance achieved? Note11		Yes	1	1		
		H4	19b	Number of zones with chemical compliance		6 of 6				
			20	Microbiological (E. coli) compliance achieved? Note 11		Yes	1	1		
		H3	20a	% population with microbiological compliance	%	100	1	1	100	100
	SERVICE LEVELS	C9	25	Water quality complaints per 1000 properties	per 1,000 prop	4.7	4	4	3	3
		C10	26	Water service complaints per 1000 properties	per 1,000 prop	16.4	3	4	4	1
		C17	27	Average frequency of unplanned interruptions per 1000 properties	per 1,000 prop				37	69
		C15	28	Average duration of interruption (min)	min	120	1	2	168	119
		A8	30	Number of water main breaks per 100 km of water main	per 100km	4	1	1	9	13
			31	Drought water restrictions (% of time)	%	0	1	1	0	
			32	Total days lost (%)	%	3.3	4	6	2.0	
ENVIRONMENTAL	NATURAL RESOURCE MANAGEMENT	W12	33	Average annual residential water supplied per property (kL)	kL	130	1	1	155	167
			33a	Average annual residential water supplied - COASTAL (kL/property)	kL	130	1	1	140	
			33b	Average annual residential water supplied - INLAND (kL/property)	kL				203	
		A10	34	Real losses (leakage) (L/service connection/day)	L/connection/day	50	2	2	66	73
			35	Energy consumption per Megalitre (kiloWatt hours)	kWh	459	2	3	650	
			36	Renewable energy consumption (% of total energy consumption)	%	56	1	1	0	
		E12	36a	Net greenhouse gas emissions - WS & Sge (net tonnes CO2 - equivalents per 1000 properties)	t CO2	190	1	2	370	390
ECONOMIC	FINANCE	F17	43	Economic real rate of return - Water (%)	%	0.1	3	3	0.5	0.6
			44	Return on assets - Water (%)	%	0.6	2	3	0.0	
		F22	45	Net Debt to equity - WS&Sge (%)	%	-7	5	4	2	11
		F23	46	Interest cover - WS&Sge		>100	1	1	1	2
			47	Loan payment per property - Water ($)	$	1	5	3	60	
		F24	47b	Net profit after tax - WS & Sge ($'000)	$'000	1,930	2	1	73	2581
	EFFICIENCY		48	Operating cost (OMA) per 100km of main ($'000)	$'000	1,490	3	4	1,280	
		F11	49	Operating cost (OMA) per property ($) Note 9	$	550	5	4	380	393
			50	Operating cost (OMA) per kilolitre (cents)	c/kL	213	5	6	131	
			51	Management cost per property ($)	$	181	5	4	130	
			52	Treatment cost per property ($)	$	59	4	2	49	
			53	Pumping cost per property ($)	$	52	5	3	28	
			54	Energy cost per property ($)	$	31	4	3	18	
			55	Water main cost per property ($)	$	210	5	6	59	
		F28	56	Capital Expenditure per property ($)	$	345	1	1	189	213

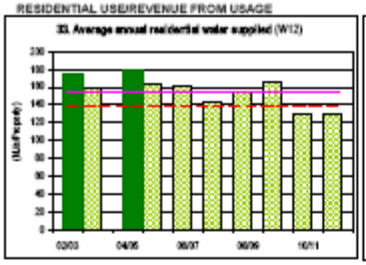
NOTES :

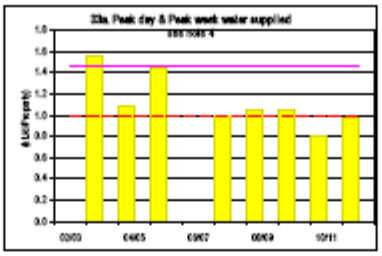
1 Col 2 rankings are on a % of LWUs basis - best reveals performance compared to similar sized LWUs (ie. Col 1 is compared with LWUs with >10,000 properties).
2 Col 3 rankings are on a % of LWUs basis - best reveals performance compared to all LWUs (ie. Col 1 is compared with all LWUs).
3 Col 4 (Statewide Median) is on a % of connected properties basis- best reveals statewide performance (gives due weight to larger LWUs & reduces effect of smaller LWUs).
4 Col 5 (National Median) is the median value for the 67 utilities reporting water supply performance in the National Performance Report 2011-12 (www.nwc.gov.au).
5 LWUs are required to annually review key projections & actions in their Strategic Business Plan and annually update their financial plan. The SBP should be updated after 4 years.
6 Bega Valley Shire Council has an unfiltered water supply.
7 2012-13 Non-residential Tariff: Access Charge based on Service Connection Size* (eg. 40mm $747), Two Part Tariff; Usage Charge 235c/kL.
8 Non-residential water supplied was 35% of potable water supplied excluding non-revenue water.
Non-residential revenue was 26% of annual rates and charges, indicating fair pricing of services between the residential and non-residential sectors.
9 The operating cost (OMA) per property was $550. Components were: management ($181), operation ($134), maintenance ($202), energy ($31) and chemical ($1).
10 Bega Valley Shire Council rehabilitations included 1.3% of its water mains and 0.32% of its service connections. Renewals expenditure was $365,000/100km of main.
11 Compliance with ADWG 2011 for drinking water quality is shown as "Yes" if compliance has been achieved (indicators 19, 19a & 20), otherwise the % of samples complying is shown.

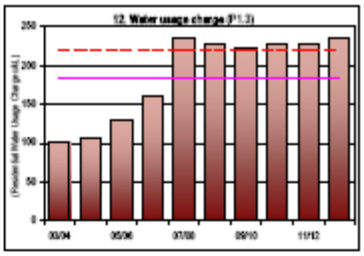
Bega Valley Shire Council | **TBL Water Supply Performance (page 2)** | **2011-12**

(Results shown for 10 years together with 2011-12 Statewide Median and Top 20%)

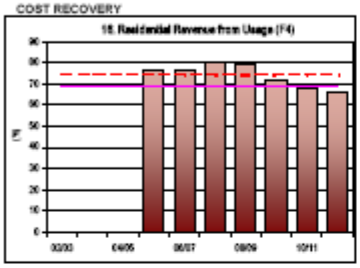
RESIDENTIAL USE/REVENUE FROM USAGE

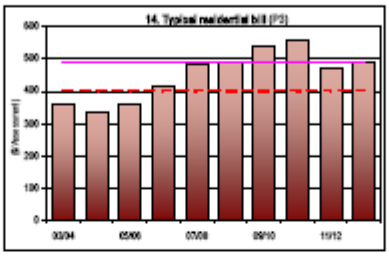


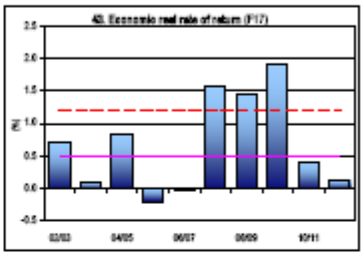




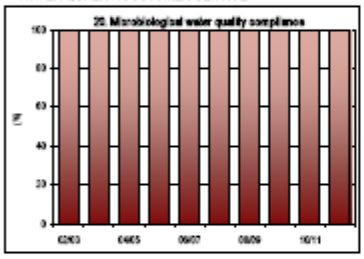
COST RECOVERY

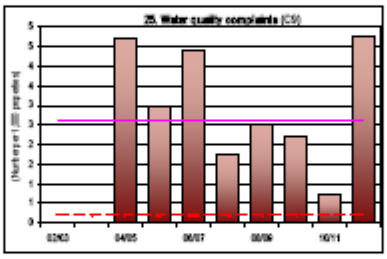


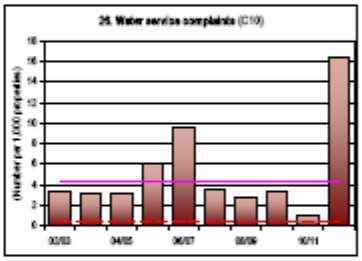




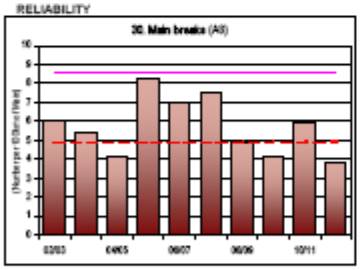
WATER QUALITY/CUSTOMER SERVICE

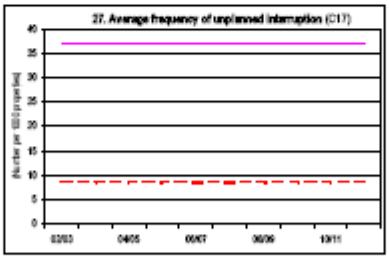


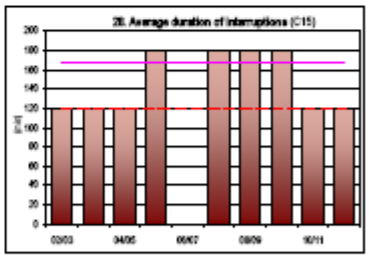




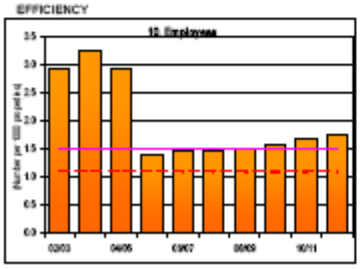
RELIABILITY

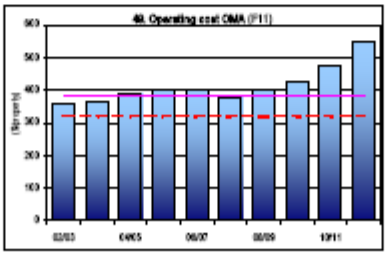


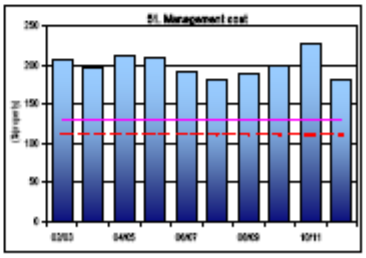




EFFICIENCY







NOTES:

1. Costs are in Jan 2012$ except for graphs 12 and 14, which are in Jan 2013$.
2. Microbiological water quality compliance 1999-00 to 2003-04 was on the basis of 1996 NHMRC/ARMCANZ Australian Drinking Water Guidelines for E. coli, from 2004-05 to 2010-11 compliance was on the basis of the 2004 NHMRC/NRMMC Australian Drinking Water Guidelines (ADWG) and for 2011-12 compliance was on the basis of the 2011 ADWG.
3. Indicators 33 and 33a - Green shading shows % of Time Drought Water Restrictions applied in each year: Nil or < 30% 30-50% >50%
4. Indicator 33a - Yellow bars show Peak Week Water Supplied for comparison with Peak Day Water Supplied: Peak Week Water Supplied

LEGEND
2011-12 State Median
2011-12 Top 20%

D.2 NOW TBL Report 2011/12 – Sewerage

Bega Valley Shire Council — **TBL Sewerage Performance** — **2011-12**

SEWERAGE SYSTEM - Bega Valley Council has 10 sewerage systems, 6 gravity and 4 pressure systems. The treatment works provide secondary and tertiary treatment. The system comprises 51,400 EP treatment capacity (Intermittent or Continuous Extended Aeration (gravity systems) or Membrane Bioreaction (pressure systems)), 57 sewage pumping stations, 913 household pressure pumping stations (249.5 ML/d), 133 km of rising mains and 276 km of gravity trunk mains and reticulation. 21% of effluent was recycled and treated effluent is discharged to land river and ocean.

PERFORMANCE - Residential growth for 2011-12 was 0.9% which is similar to the statewide median. Bega Valley Shire Council achieved 100% implementation of Best-Practice requirements. The 2012-13 typical residential bill was $1045 which was well above the statewide median of $600 (Indicator 12). The economic real rate of return was similar to the statewide median (indicator 46). The operating cost per property (OMA) was $698 which was well above the statewide median of $410 (indicator 50). Sewage odour complaints were above the statewide median of 0.5 (Indicator 21). Bega Valley Council reported no public health incidents. Council did not comply with the faecal coliforms & ammonia requirements of the environmental regulator for effluent discharge. The current replacement cost of system assets was $267M ($21,400 per assessment), cash and investments were $12M, debt was $24M and revenue was $14.6M (excluding capital works grants).

IMPLEMENTATION OF REQUIREMENTS OF BEST-PRACTICE MANAGEMENT FRAMEWORK

(1)	Complete current strategic business plan & financial plan	YES	(2e)	Pricing - DSP with commercial developer charges	Yes
(2)	(2a) Pricing - Full Cost Recovery without significant cross subsidies	Yes	(2f)	Pricing - Liquid trade waste approvals & policy	Yes
	(2b) Pricing - Appropriate Residential Charges	Yes	(3)	Complete performance reporting (by 15 September)	YES
	(2c) Pricing - Appropriate Non-Residential Charges	Yes	(4)	Integrated water cycle management strategy	YES
	(2d) Pricing - Appropriate Trade Waste Fees and Charges	Yes		IMPLEMENTATION OF ALL REQUIREMENTS	100%

TRIPLE BOTTOM LINE (TBL) PERFORMANCE INDICATORS

	NWI	No.			LWU RESULT	RANKING >10,000 properties Note 1	RANKING All LWUs Note 2	MEDIANS Statewide Note 3	MEDIANS National Note 4
					Col 1	Col 2	Col 3	Col 4	Col 5
UTILITY — CHARACTERISTICS	C5	1	Population served: 22,700						
	C8	2	Number of connected properties: 12,190	Number of assessments: 12,440					
	C6	3	Number of residential connected properties: 11,200						
		4	New residences connected to sewerage (%)	%	0.9	3	2	0.8	
	A6	5	Properties served per kilometre of main	Prop/km	30			40	42
	W18	6	Volume of sewage collected (ML)	ML	2,309			5,400	6,630
		7	Renewals expenditure (% of current replacement cost of system assets)	%	0.3	2	2	0.3	
		8	Employees per 1000 properties	per 1,000 prop	1.9	4	3	1.6	
SOCIAL — CHARGES & BILLS	P4		Description of residential tariff structure: access charge/prop; independent of land value						
	P4.1	11a	Residential access charge for 2011-12 ($/assessment)	$ 2011-12	988	6	6	570	597
		11	Residential access charge for 2012-13 ($/assessment)	$ 2012-13	1045	6	6	598	
	P6	12a	Typical residential bill for 2011-12 ($/assessment)	$ 2011-12	988	6	6	574	586
		12	Typical residential bill for 2012-13 ($/assessment)	$ 2012-13	1045	6	6	600	
		13	Typical developer charge for 2012-13 ($/equivalent tenement)	$ 2012-13	9,450	1	1	4,500	
		14	Non-residential sewer usage charge (c/kL)	c/kL	311	1	1	125	
	P8	15	Revenue per property - Sge ($)	$	1200	1	1	713	791
SOCIAL — HEALTH		16	Urban properties without reticulated sewerage service (%)	%	4.2	3	2	3.8	
	E3	17	Percent of sewage treated to a tertiary level (%)	%	40	6	3	94	92
	E4	18	Percent of sewage volume treated that was compliant (%)	%	93	3	4	100	99
	E5	19	Number of sewage treatment works compliant at all times		8 of 10				
SOCIAL — SERVICE LEVELS		21	Odour complaints per 1000 properties	per 1,000 prop	0.8	4	4	0.5	
	C11	22	Service complaints - sewerage per 1000 properties	per 1,000 prop	9	2	2	11	1
	C16	23a	Average sewerage interruption (minutes)	min	120	3	3	102	118
		25	Total days lost (%)	%	3.5	4	6	2.0	
ENVIRONMENTAL — NATURAL RESOURCE MANAGEMENT	W19	26	Volume of sewage collected per property (kL)	kL	189	1	2	250	238
	W26	26a	Total recycled water supplied (ML)	ML	490	3	2	450	1362
	W27	27	Recycled water (% of effluent recycled)	%	21	2	2	5	14
	E6	28	Biosolids reuse (%)	%				100	100
		30	Energy consumption - sewerage (kWh/ML)	kWh	1,104	6	6	790	
		31	Renewable energy consumption (% of total energy consumption)	%	55	1	1	0	
	E12	32	Net greenhouse gas emissions - WS & Sge (net tonnes CO2 equivalents per 1000 properties)		190	1	1	370	380
ENVIRONMENTAL — ENVIRONMENTAL PERFORMANCE		33	90th Percentile licence limits for effluent discharge:	BOD 10 mg/L; SS 20 mg/L					
		34	Compliance with BOD in licence (%)	%	100	1	1	100	
		35	Compliance with SS in licence (%)	%	100	1	1	100	
	A14	36	Sewer main breaks and chokes (per 100 km of main)	per 100km main	10	1	1	33	21
		37a	Sewer overflows (per 100 km of main)	per 100km main	15	3	4	15	
	E13	37b	Sewer overflows reported to environmental regulator (per 100km of main)		0.0	1	1	0.3	0.4
		39	Non res & trade waste % of total sge volume	%				17	
ECONOMIC — FINANCE		43	Revenue from non-residential plus trade waste charges (% of total revenue)	%	19	3	3	17	
		44	Revenue from trade waste charges (% of total revenue)	%				2.4	
	F18	46	Economic real rate of return - Sge (%)	%	1.2	2	2	1.0	1.8
		46a	Return on assets - Sge (%)	%	0.7	3	3	0.5	
		46a	Loan payment per property - Sge ($)	$	191	2	1	87	
	F34	46b	Net profit after tax - WS & Sge ($'000)	$'000	1,930	2	1	73	2591
ECONOMIC — EFFICIENCY		49	Operating cost (OMA) per 100 km of main ($'000)	$'000	2,090	6	6	1,570	
	F12	50	Operating cost (OMA) per property ($) (Note 8)	$	698	6	6	410	398
		51	Operating cost (OMA) per kilolitre (cents)	c/kL	369	6	6	152	
		52	Management cost per property ($)	$	229	6	6	140	
		53	Treatment cost per property ($)	$	293	6	6	137	
		54	Pumping cost per property ($)	$	120	6	6	70	
		55	Energy cost per property ($)	$	18	1	1	36	
		56	Sewer main cost per property ($)	$	56	4	4	45	
	F29	57	Capital Expenditure per property - Sewerage ($)	$	140	4	3	244	238

NOTES :

1 Col 2 rankings are on a % of LWUs basis - best reveals performance compared to similar sized LWUs (ie. Col 1 is compared with LWUs with >10,000 properties).

2 Col 3 rankings are on a % of LWUs basis - best reveals performance compared to all LWUs (ie. Col 1 is compared with all LWUs). - see attachment.

3 Col 4 (Statewide Median) is on a % of connected properties basis- best reveals statewide performance (gives due weight to larger LWUs & reduces effect of smaller

4 Col 5 (National Median) is the median value for the 66 utilities reporting sewerage performance in the National Performance Report 2011-12 (www.nwc.gov.au).

5 LWUs are required to annually review key projections & actions in their Strategic Business Plan and annually update their financial plan. The SBP should be updated after 4 years.

6 Non-residential access charge - $1060, proportional to square of meter size. Sewer usage charge - 311 c/kl.

7 Non-residential revenue was 19% of revenue from access, usage & trade waste charges. The sewage collected (residential, non-residential & trade waste) was not reported.

8 Compliance with Total N in Licence was 100%. Compliance with Total P in Licence was 100%.

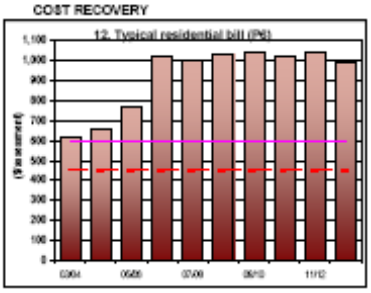
9 Operating cost (OMA)/property was $698. Components were: management ($229), operation ($367), maintenance ($68), energy ($18) & effluent/biosolids ($16).

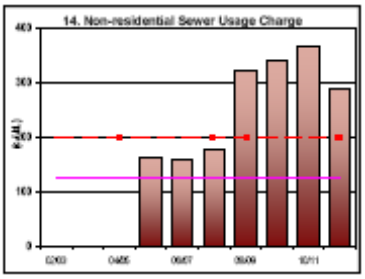
10 Bega Valley Shire Council rehabilitations included 0.7% of its sewerage mains and 0.1% of its service connections. Renewals expenditure was $226,000/100km of main.

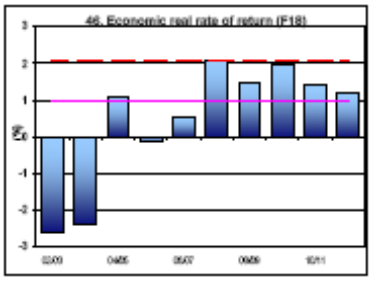
Bega Valley Shire Council | **TBL Sewerage Performance** | **(page 2)** | **2011-12**

(Results shown for 10 years together with 2011/12 Statewide Median and Top 20%)

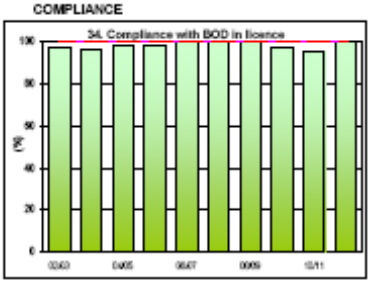
COST RECOVERY

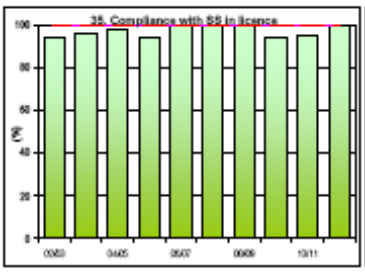


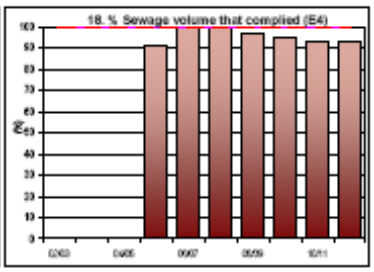




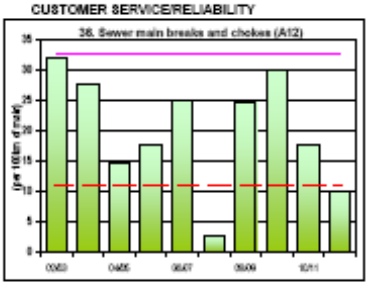
COMPLIANCE

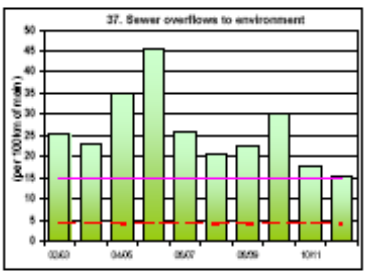


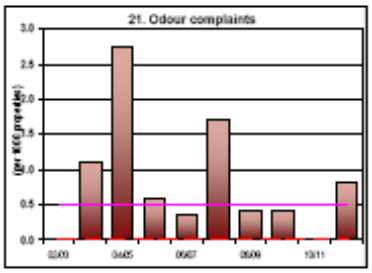




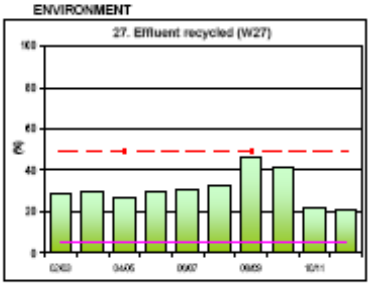
CUSTOMER SERVICE/RELIABILITY

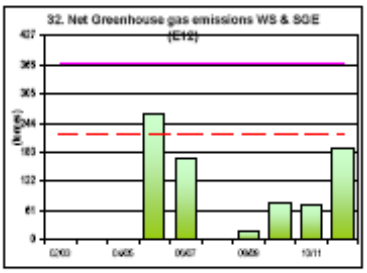


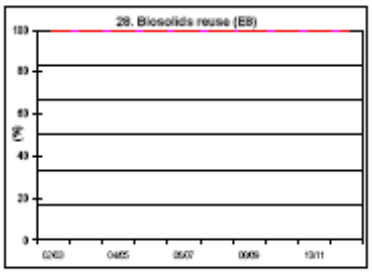




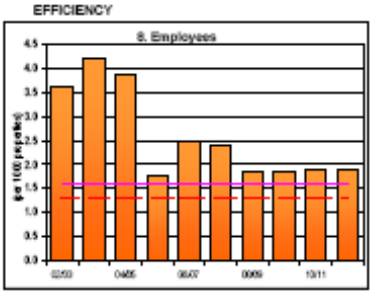
ENVIRONMENT

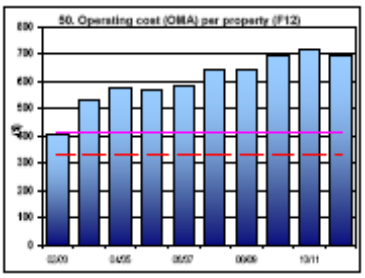


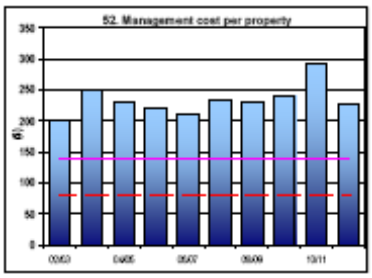




EFFICIENCY







NOTES:

1. Costs are in Jan 2012$ except for graph 12, which is in Jan 2013$.

LEGEND
2011-12 State Median
2011-12 Top 20%

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Appendix E Projected Cost Schedules

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E.1 30-year Capital Works Program – Water Supply

BEGA VALLEY SHIRE COUNCIL - STRATEGIC ACTION PLANNING

WATER - 30-Year Capital Works Program — Current Year 2012 /13

CAPITAL WORKS IN 2012$('000)

	SUBSIDY	ILOS	GROWTH	RENEW	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
					Total	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42
BERMAGUI:																																			
Water Treatment Plant - Pre Construction Activities say 20%		73%	27%		917										262	328	328																	
4ML/d Water Treatment Plant (iron, turbidity & colour)		73%	27%		8800													2904	2904	2992														
Nutley's Creek Reservoir 200mm Inlet & 300mm Outlet Main -		73%	27%		2100		300	1800																										
Nutley's Creek Reservoir (4ML)		73%	27%		2900	1000		400	1000	500																								
Quamma Duplicate Main - 100mm		73%	27%		1000		200	800																										
Cobargo duplicate Mains		73%	27%		860														200	660														
Akolele duplicate main		73%	27%		400																					100	300							
BEGA-TATHRA																																			
Tarraganda System Upgrade -Reservoir			50%	50%	510		510																												
Water Treatment Plant - Pre Construction Activities say 20%		72%	28%		900									257	212	212	218																	
10ML/d Water Treatment Plant (iron)		72%	28%		16500													5445	5445	5610														
BEMBOKA																																			
Water Treatment Plant - Pre Construction Activities say 20%		84%	16%		563		188	375																											
0.4ML/d Water Treatment Plant (iron, turbidity & colour)		84%	16%		2800				2100	700																									
TANTAWANGLO-KIAH																																			
Water Treatment Plant - Pre Construction Activities say 20%		72%	28%		1178									353	272	272	280																	
17ML/d Yellow Pinch Dam Water Treatment Plant (algae, iron, Mn, colour)		72%	28%		29500													9735	9735	10030														
Transfer Main Upgrade to supply water to South with YPD WTP		72%	28%		11000				50	100	150	1200	3000	3500	3000																			
Transfer Main Upgrade from Palestine PS to South Eden Reservoir				100%	1200																				1200										
0.75ML/d Refurbished PS for Boyd Town Reservoir & Reservoir Controls				100%	350						20	30	300																						
Water Treatment Plant - Pre Construction Activities say 20%		72%	28%		681																		170	255	255										
6.5ML/d Ben Boyd Dam Water Treatment Plant (Iron)		72%	28%		11000																					3630	3630	3740							
Water Quality Risk Assessment		100%			250		250																												
Developemt Servicing Strategy, DSP & SBP		100%			125	125																													
RENEWALS/ REPLACEMENT - ALL SYSTEMS																																			
30-year renewal works (AMP & consolidated)			25%	75%	67540	1860	2320	2320	2320	2320	2320	1320	1020	1320	1320	2515	2515	2515	2515	2515	2515	2515	2515	2515	1315	2515	2515	2515	2515	2515	2515	2515	2515	2515	2515
GRAND TOTAL					161073	2985	3768	5695	5470	3620	2490	2550	4320	5430	5066	3327	3341	20599	20799	21807	2515	2515	2515	2685	2770	2770	6245	6445	6255	2515	2515	2515	2515	2515	2515

E.3 30-year Capital Works Program – Sewerage

BEGA VALLEY SHIRE COUNCIL - STRATEGIC ACTION PLANNING

SEWER - 30-Year Capital Works Program — Current Year 2012 /13

CAPITAL WORKS IN 2012$('000)

	SUBSIDY	ILOS	GROWTH	RENEW	0 Total	1 2012/13	2 2013/14	3 2014/15	4 2015/16	5 2016/17	6 2017/18	7 2018/19	8 2019/20	9 2020/21	10 2021/22	11 2022/23	12 2023/24	13 2024/25	14 2025/26	15 2026/27	16 2027/28	17 2028/29	18 2029/30	19 2030/31	20 2031/32	21 2032/33	22 2033/34	23 2034/35	24 2035/36	25 2036/37	26 2037/38	27 2038/39	28 2039/40	29 2040/41	30 2041/42
BERMAGUI																																		
Bermagui STP upgrade - Balance Tank		100%			**500**			500																										
Bermagui STP - Effluent Reuse		50%	50%		**2000**						2000																							
Effluent Disposal - Ocean outfall		100%			**4000**									4000																				
TURA																																		
Tura - Effluent Disinfection		100%			**2000**	1500	500																											
EDEN																																		
Eden - Effluent disinfection		100%			**2000**	1500	500																											
Retic Mains Rehabilitation (MWH Report)			25%	75%	**6150**		615	615	615	615	615	615	615	615	615	615																		
2.1ML Storage at SPS 2 and related works		80%	20%				1795																											
BEGA																																		
Bega STP - Balance Tank		100%			**1000**					1000																								
Retic Mains Rehabilitation (MWH Report - Item 2)			25%	75%	**7500**		750	750	750	750	750	750	750	750	750	750																		
MH4 - SPS 4 - Sewer Main Upsize(Item 6)			25%	75%	**238**			238																										
0.4ML Storage at MH255 (Item 8)		80%	20%		**1280**			1280																										
MERIMBULA/PAMBULA																																		
STP Upgrade and Effluent disposal - Dunal Exfiltration		75%	25%		**11500**					7000	4500																							
Effluent reuse - Golf course and Millingandi		100%			**7700**								4200		3500																			
West Pambula SPS			25%	75%	**1500**		1000	500																										
OTHER WORKS																																		
Sludge Management - All Schemes		100%			**2000**					2000																								
Telemetry upgrade - All schemes					**0**																													
Developemt Servicing Strategy, DSP & SBP		100%			**125**		125																											
30-YEAR RENEWALS PROGRAM			10%	90%	**92292**	1750	713	713	713	713	1011	1011	1011	1011	1011	2035	3400	3400	3400	3400	3400	3400	3400	3400	3400	5000	5000	5000	5000	5000	5000	5000	5000	5000
					0																													
GRAND TOTAL					**143580**	**4750**	**5998**	**4596**	**2078**	**12078**	**8876**	**2376**	**6576**	**6376**	**5876**	**3400**	**3400**	**3400**	**3400**	**3400**	**3400**	**3400**	**3400**	**3400**	**3400**	**5000**	**5000**	**5000**	**5000**	**5000**	**5000**	**5000**	**5000**	**5000**	**5000**

E.4 30-year Recurrent Cost Schedule – Water Supply

WATER SUPPLY - OPERATIONS, MAINT, ADMIN AND REVENUE OVERRIDES <INCREASES IN RECURRENT EXPENDITURE> (2012/13 $000)

	30 YEAR	2012	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
	TOTAL	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42
Administration																																	
Review and Update of Strategic Business Plan	108			18					18					18					18					18				18				
Best Practice Compliance Audit	60			2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Drinking Water Quality Management Plan	100				100																											
Designated Service Area Review	35			35																												
Water Loss Management Study	150			5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Review and Update Drought Management Plan	10								10																							
Best Practice Pricing for Water Supply	0																															
Review and update of Sec.64 developer charges	30			30																												
Conduct customer survey	0																															
Community consulations	0																															
IWCM- Strategy Implementation (provisiional)	50				50																											
IWCM- Strategy Implementation (Provisional)	150			5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Carry out Energy Audit and implement recommendations	0																															
Develop OEMPS for all systems	20			20																												
Training and retraining plans	0																															
Adjustment for average Management cost				192	192	192	192	192	192	192	192	192	192	192	192	192	192	192	192	192	192	192	192	192	192	192	192	192	192	192	192	192
Total Adjustment	6,473			307	354	204	204	204	232	204	204	204	204	222	204	204	204	204	222	204	204	204	204	222	204	204	204	204	222	204	204	204	204
Override (Inflated to 12/13$ and pro-rata adjustment for growth)	58,577	1.757	1.436	1,805	1,871	1,741	1,760	1,777	1,822	1,808	1,827	1,846	1,864	1,902	1,900	1,918	1,936	1,953	1,990	1,985	2,000	2,014	2,028	2,064	2,056	2,063	2,070	2,078	2,107	2,092	2,096	2,100	2,104
Engineering and Supervision																																	
Recruit new staff - Apprentice	585			5	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
Recruit new staff - Trainee	875			5	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
Recruit new staff - Cadet Engineer	1,170			10	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
Recruit new staff - WFP Operators	10,100						100	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400
Recruit new staff - Asset Manager	2,175				75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75
	0																																
Total Adjustment	14,905			20	165	165	165	265	565	565	565	565	565	565	565	565	565	565	565	565	565	565	565	565	565	565	565	565	565	565	565	565	565
Override (Inflated to 12/13$ and pro-rata adjustment for growth)	58,715	1.376	1.159	1,226	1,387	1,405	1,421	1,540	1,873	1,889	1,909	1,929	1,948	1,967	1,985	2,004	2,023	2,041	2,057	2,074	2,090	2,105	2,119	2,134	2,148	2,156	2,164	2,171	2,179	2,186	2,191	2,195	2,199
Operations Expenses																																	
Asset Valuation (Fair Value Calculation)	120			12			12			12			12			12			12			12			12			12			12		
Develop and maintain Asset Management System	825			100	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
Savings in chemical costs due to operational changes	0																																
Operations Plan	75				25					10					10					10					10					10			
Water Reticulation modelling	100			50	50																											
Additional operating cost for Brogo WTP	1,725																		115	115	115	115	115	115	115	115	115	115	115	115	115	115	115
Additional operating cost for Bemboka WTP	525								21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21
Additional operating cost for Bega WTP	4,120													206	206	206	206	206	206	206	206	206	206	206	206	206	206	206	206	206	206	206	206
Additional operating cost for YPD WFP	5,100													255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255	255
Additional operating cost for Ben Boyd WTP	918																											153	153	153	153	153	153
Adjustment for average operating cost. (energy+chemc.)	-12,390			-413	-413	-413	-413	-413	-413	-413	-413	-413	-413	-413	-413	-413	-413	-413	-413	-413	-413	-413	-413	-413	-413	-413	-413	-413	-413	-413	-413	-413	-413
	0																																
Total Adjustment	1,118			-251	-313	-388	-376	-388	-367	-345	-367	-367	-355	94	104	106	94	94	221	219	209	221	209	209	231	209	209	374	362	372	374	362	362
Override (Inflated to 12/13$ and pro-rata adjustment for growth)	70,290	1.720	1.920	1,745	1,699	1,644	1,674	1,678	1,715	1,753	1,748	1,767	1,797	2,316	2,350	2,375	2,383	2,403	2,572	2,590	2,598	2,631	2,635	2,653	2,698	2,680	2,690	2,903	2,898	2,921	2,929	2,920	2,925
Maintenance Expenses																																	
Adjustment for average O&M costs (excl. energy and chemical costs)				-1,559	-1,559	-1,559	-1,559	-1,559	-1,559	-1,559	-1,559	-1,559	-1,559	-1,559	-1,559	-1,559	-1,559	-1,559	-1,559	-1,559	-1,559	-1,559	-1,559	-1,559	-1,559	-1,559	-1,559	-1,559	-1,559	-1,559	-1,559	-1,559	-1,559
Maintenance Plan					10					5						5				5					5					5			
Total Adjustment	-46,770			-1,559	-1,559	-1,559	-1,559	-1,559	-1,559	-1,559	-1,559	-1,559	-1,559	-1,559	-1,559	-1,559	-1,559	-1,559	-1,559	-1,559	-1,559	-1,559	-1,559	-1,559	-1,559	-1,559	-1,559	-1,559	-1,559	-1,559	-1,559	-1,559	-1,559
Override (Inflated to 12/13$ and pro-rata adjustment for growth)	48,990	1.339	2.889	1,431	1,446	1,465	1,481	1,496	1,509	1,522	1,538	1,554	1,569	1,584	1,599	1,614	1,630	1,644	1,657	1,670	1,683	1,695	1,707	1,719	1,730	1,736	1,743	1,749	1,755	1,761	1,764	1,768	1,771
Energy Costs																																	
Allowance for increasing energy costs	137			3	3	3	3	4	4	4	4	4	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	0																																
Total Adjustment	137			3	3	3	3	4	4	4	4	4	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Override (Inflated to 12/13$ and pro-rata adjustment for growth)	16,151	337	449	470	475	481	487	493	497	501	506	512	518	523	528	533	538	542	547	551	555	559	563	567	571	573	575	577	579	581	582	583	584
Chemical Costs																																	
Chlorination chemical cost (Sodium Hypo)	0																																
	0																																
Total Adjustment	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Override (Inflated to 12/13$ and pro-rata adjustment for growth)	713	18	20	21	21	21	22	22	22	22	22	23	23	23	23	23	24	24	24	24	24	25	25	25	25	25	25	25	26	26	26	26	26
Purchase of Water																																	
	0																																
	0																																
Total Adjustment	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Override (Inflated to 12/13$ and pro-rata adjustment for growth)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Expenses																																	
	0																																
	0																																
Total Adjustment	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Override (Inflated to 12/13$ and pro-rata adjustment for growth)	4,915	3	138	144	145	147	149	150	151	153	154	156	157	159	160	162	164	165	166	168	169	170	171	172	174	174	175	175	176	177	177	177	178
Other Revenue																																	
	0																																
	0																																
Total Adjustment	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Override (Inflated to 12/13$ and pro-rata adjustment for growth)	8,620	209	242	252	254	258	261	263	265	268	271	273	276	279	281	284	287	289	292	294	296	298	300	302	304	306	307	308	309	310	310	311	312
Other Grants																																	
	0																																
	0																																
Total Adjustment	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Override (Inflated to 12/13$ and pro-rata adjustment for growth)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Contributions																																	
	0																																
	0																																
Total Adjustment	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Override (Inflated to 12/13$ and pro-rata adjustment for growth)	42,102	0	1.182	1,230	1,243	1,259	1,273	1,286	1,297	1,308	1,322	1,336	1,348	1,361	1,374	1,387	1,400	1,413	1,424	1,436	1,446	1,457	1,467	1,477	1,487	1,492	1,498	1,503	1,508	1,513	1,516	1,519	1,522

E.5 30-year Recurrent cost Schedule – Sewerage

SEWERAGE - OPERATIONS, MAINT, ADMIN AND REVENUE OVERRIDES <INCREASES IN RECURRENT EXPENDITURE> (2012/13 $000)

	30 YEAR	2012	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
	TOTAL	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42
Administration																																	
Action																																	
Review and update Strategic Business Plan	102			17					17					17					17					17				17				
Best Practicce Compliance Audit	90			3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Designated Service Area Review	35			35																												
Sewer hydraulic models for all schemes	100			80	20																											
Capacity review of Bega and Bermagui STPs	55			55																												
Best Practicce Sewerage Pricing	0																															
Review and update of Sec.64 developer charges	30			30																												
Conduct customer survey	0																															
Community consultation	0																															
IWCM - Completion of Strategy Development (net of grant)	50				50																											
IWCM- Strategy Implementation (provisiional)	150			5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Carry out Energy Audit and implment recommendations	0																															
Develop OEMPS for all systems	20			20																												
Adjustment for averge admin. Cost	5,760			192	192	192	192	192	192	192	192	192	192	192	192	192	192	192	192	192	192	192	192	192	192	192	192	192	192	192	192	192
	0																															
Total Adjustment	6,392			437	270	200	200	200	217	200	200	200	200	217	200	200	200	200	217	200	200	200	200	217	200	200	200	200	217	200	200	200	200
Override (Inflated to 12/13$ and pro-rata adjustment for growth)	67,725	2,236	1,704	2,206	2,059	2,013	2,035	2,055	2,091	2,090	2,113	2,135	2,156	2,195	2,197	2,218	2,239	2,258	2,296	2,295	2,313	2,329	2,346	2,382	2,378	2,386	2,395	2,403	2,433	2,420	2,425	2,430	2,434
Engineering and Supervision																																	
Recruit new staff - Apprentice	585			5	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
Recruit new staff - Trainee	875			5	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
Recruit new staff - Cadet Engineer	1,170			10	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
Recruit new staff - Asset Manager	2,175				75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75
Total Adjustment	4,805			20	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165
Override (Inflated to 12/13$ and pro-rata adjustment for growth)	44,019	1,188	1,085	1,144	1,304	1,321	1,335	1,348	1,360	1,372	1,386	1,401	1,414	1,428	1,441	1,455	1,469	1,482	1,494	1,506	1,517	1,528	1,539	1,549	1,560	1,566	1,571	1,577	1,582	1,588	1,591	1,594	1,597
Operations Expenses																																	
Asset Valuation (Fair Value Calculation)	130			13			13			13			13			13			13			13			13			13			13		
Develop and maintain Asset Management System	825			100	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
Operations Plan	75				25					10					10					10					10				10				
Sewer Reticulation Modelling	150			75	75																											
Addl. Operating Expenditure (adjsmt.for all new initiatives)	1,450				50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
Adjustment for average operating cost	-21,150			-705	-705	-705	-705	-705	-705	-705	-705	-705	-705	-705	-705	-705	-705	-705	-705	-705	-705	-705	-705	-705	-705	-705	-705	-705	-705	-705	-705	-705	-705
Indexation of Tenix Contract cost				300	300	300	300	300																									
Total Adjustment	-17,020			-217	-230	-330	-317	-330	-630	-607	-630	-630	-617	-630	-620	-617	-630	-630	-617	-620	-630	-617	-630	-630	-607	-630	-630	-617	-630	-620	-617	-630	-630
Override (Inflated to 12/13$ and pro-rata adjustment for growth)	146,066	3,828	4,680	4,628	4,662	4,620	4,684	4,716	4,438	4,500	4,523	4,570	4,629	4,658	4,714	4,763	4,793	4,834	4,889	4,925	4,950	5,002	5,021	5,055	5,118	5,108	5,127	5,161	5,163	5,194	5,208	5,202	5,211
Maintenance Expenses																																	
Adjustment for average maintenance cost	5,820			194	194	194	194	194	194	194	194	194	194	194	194	194	194	194	194	194	194	194	194	194	194	194	194	194	194	194	194	194	194
Prepare Maintenance Plan	35				10					5					5					5					5				5				
	0																																
Total Adjustment	5,855			194	204	194	194	194	194	199	194	194	194	194	199	194	194	194	194	199	194	194	194	194	199	194	194	194	194	199	194	194	194
Override (Inflated to 12/13$ and pro-rata adjustment for growth)	35,923	1,065	823	1,048	1,069	1,073	1,085	1,096	1,105	1,120	1,126	1,138	1,149	1,160	1,177	1,182	1,193	1,204	1,213	1,229	1,233	1,242	1,250	1,259	1,274	1,272	1,277	1,281	1,286	1,296	1,293	1,295	1,298
Energy Costs																																	
	0																																
Allowance for increasing energy costs	120			4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
	0																																
Total Adjustment	120			4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Override (Inflated to 12/13$ and pro-rata adjustment for growth)	7,975	109	221	233	235	238	241	243	246	248	250	253	255	258	260	263	265	267	270	272	274	276	278	280	282	283	284	285	286	287	287	288	288
Chemical Costs																																	
	0																																
	0																																
Total Adjustment	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Override (Inflated to 12/13$ and pro-rata adjustment for growth)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Expenses																																	
	0																																
	0																																
Total Adjustment	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Override (Inflated to 12/13$ and pro-rata adjustment for growth)	7,726	2	218	226	228	231	234	236	238	240	243	245	247	250	252	255	257	259	261	263	265	267	269	271	273	274	275	276	277	278	278	279	279
Other Revenue																																	
Effluent reuse revenue	0																																
	0																																
Total Adjustment	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Override (Inflated to 12/13$ and pro-rata adjustment for growth)	2,801	113	79	82	83	84	85	85	86	87	88	89	90	91	91	92	93	94	95	95	96	97	98	98	99	99	100	100	100	101	101	101	101
Other Grants																																	
	0																																
	0																																
Total Adjustment	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Override (Inflated to 12/13$ and pro-rata adjustment for growth)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Contributions																																	
	0																																
	0																																
Total Adjustment	0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Override (Inflated to 12/13$ and pro-rata adjustment for growth)	19,778	363	558	578	584	592	598	604	609	614	621	627	633	639	645	652	658	663	669	674	679	684	689	694	699	701	704	706	709	711	713	714	715

Appendix F Financial Input Data – Water Supply

Appendix G Detailed Financial Statements – Water Supply

Appendix H Financial Input Data – Sewerage

Appendix I Detailed Financial Statements – Sewerage