NSW Public Works

Hilltops Council

Strategic Plan

Water Supply and Sewerage Services

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Executive Summary

A local water utility's Strategic Plan is a strategy for the provision of appropriate, affordable, cost-effective, and sustainable urban water services that meet community needs and protect public health and the environment. The key outcomes of the Strategy are a 30-year Total Asset Management Plan (TAMP), a 30-year financial plan. This Strategy report outlines the adopted Scenario and includes a TAMP and a FP.

Hilltops Local Government Area (LGA)

Hilltops Council is a local government area (LGA) in the Southern Tablelands region of New South Wales. The LGA was established in May 2016 following the merger of the former LGAs of Young, Harden and Boorowa. The HC area is predominantly rural, with several townships which include residential, commercial and industrial areas. Settlement is based mainly in the townships of Boorowa, Harden – Murrumburrah and Young, and the villages of Bendick Murrell, Bribbaree, Frogmore, Galong, Jugiong, Koorawatha, Monteagle, Murringo, Reids Flat, Rugby, Rye Park and Wombat.

Council has advised that growth in the LGA will be driven by the establishment of intensive farming operations and the potential for further augmentation of the agricultural industry if water becomes available to these industries. This is reinforced by the proposed state-of-the-art CSIRO agricultural research facility in Boorowa which will attract skilled workforce and also the region's proximity to Canberra, making it possible for families to relocate in the Hilltops Region.

Population and demographic projections

Council nominated the population projections developed by *.id* for the strategic planning process. The projected projections are shown in Table S-1.

Table S-1: Forecast population projections in the HC service areas

Forecast Area	2017	2022	2027	2032	2037	2042	2047
Young North	5,122	5,246	5,408	5,599	5,806	6,020	6,242
Young South	5,174	5,315	5,495	5,673	5,839	6,009	6,185
Young Town Total	**10,296**	**10,561**	**10,903**	**11,272**	**11,644**	**12,029**	**12,427**
Rural Young - West	1,424	1,383	1,368	1,364	1,372	1,380	1,388
Harden-Murrumburrah	1,994	1,996	2,015	2,034	2,064	2,096	2,127
Rural Harden	1,316	1,305	1,296	1,294	1,294	1,293	1,293
Boorowa and Surrounds	3,432	3,462	3,490	3,520	3,553	3,586	3,620
Total for Hilltops LGA	**18,462**	**18,707**	**19,072**	**19,484**	**19,927**	**20,384**	**20,855**

Water supply schemes

Issues and Options

The issues with the Harden, Young and Boorowa water supply schemes, are outlined in Table S2, Table S3 and Table S4.

Table S2: Harden water supply scheme issues

Issue Type	Target for Compliance	Issue
Performance	Chlorine Residual	Council has advised that there are recurring low chlorine issues for the users along the line to Wombat near Kingsvale. Issue
Levels of Service	Reliability (Wombat)	Due to hydraulic conditions, the Wombat reservoir cannot contribute to the town supply. Hence there is no back-up supply in the event of a failure of the Goldenfields supply.
	Chlorine residual	There have been instances of low chlorine residuals in the town of Wombat and on the Kingsvale to Wombat pipeline. This could be because of the water age.
	Reliability (Jugiong)	The Jugiong Reservoirs are estimated to have storage sufficient to supply peak day demands for 3 hours each when supply is interrupted. This may impact the reliability of the system.
	Discoloured water	The 2017 drinking water quality risk assessment undertaken by Atom Consulting identified high turbidity (>2 NTU) routinely seen in the Harden reticulation. There was a large spike in dirty water complaints in 2016 with 58 complaints being recorded compared to 13 in 2015. No sampling is currently undertaken at the GWCC offtake, so it is difficult to determine the source of the high turbidity.

The issues identified at the Jugiong, Kingsvale and Wombat reservoirs will be considered and addressed in Goldenfields Water's Strategic Plan.

Discoloured water

One source of the discoloured water may be the cast irons mains in Harden. Council has been undertaking an extensive mains replacement program which is scheduled to continue for the next five years.

Table S3: Young water supply scheme issues

Issue Type	Target for Compliance	Issue
Performance	Chlorine residual	There were many instances (30% of samples) of low free chlorine levels in the reticulation at Young and Total Coliforms exceeded the ADWG value in 19% of all samples. The Young Terminal Storage (owned by GWCC) must be kept at 90% capacity to provide sufficient supply pressure to town. This can lead to aged water and depleted chlorine residual. The options may be to: • Review the pipework arrangement • Install chlorine dosing stations • Reduce the effective reservoir capacity.

Issue Type	Target for Compliance	Issue
	Chlorine residual Reliability	Back Range Reservoir was identified as an area with recurring low chlorine residuals.
		The Young Terminal Storage, which is owned by GWCC, supplies water to the town of Young. The reservoir (32 ML capacity) must be kept at 90% capacity to provide sufficient supply pressure. This means that if the supply to the Young Terminal Storage was interrupted, the reservoir has only 3.2 ML of useable storage. which would provide 9 hours supply on a peak day at 2017 demands reducing to 8 hours at 2047 demands. This may impact on the reliability of the system.

The issues of chlorine residual and reliability at the Young Terminal storage, will be considered and addressed in Goldenfields Water's Strategic Plan.

Table S4: Boorowa water supply scheme issues

Issue Type	Target for Compliance	Issue
Regulatory	Fluoridation of Public Water Supplies	The Boorowa's water supply is not fluoridated however NSW Health has approved an exemption because less than 20% of the customers drink the water
	Health Based Targets (HBTs)	Potential Issue: If the HBTs are introduced in the future, a UV disinfection system would need to be added to the WTP to provide the necessary log reduction for protozoa.
Water Security	Headworks	The secure yield of the Boorowa Weir water source is lower than the current unrestricted dry year demands, and the town has been on Level 3 and 4 restrictions during past droughts.
Level of Service	WTP capacity	Depending on the development of emerging industries in Boorowa, the clear water pump capacity is expected to be exceeded around 2034. Additional storage for the new industries should be considered.
	Reliability	The bore water supply is not a reliable alternate source due to the water quality issues from bore 1 and the potential for bore 1 water to contaminate bore 2 due to potential hydraulic connectivity.
		The Boorowa treated water storage capacity of 0.9 ML is less than half the peak day demand. Construction of a new 2 ML storage has been proposed.
	Taste and odour	It has been reported that only 18% of the consumers drink the water at Boorowa due to its high hardness and dissolved solids. The current WTP process is not able to reduce hardness and dissolved solids.
Performance	WTP	Boorowa WTP is not designed to reduce hardness, TDS, and chloride. The water produced regularly exceeds ADWG aesthetic guideline values for these parameters.

Issue Type	Target for Compliance	Issue
		There is not enough contact time for the PAC to be effective. The PAC dosing point needs to be located closer to the intake to provide the required contact time.
		At Boorowa WTP, filter backwash water is currently returned to the sedimentation pond. This increases the risk of recycling protozoa that is removed by the filters, within the system. UV disinfection of the filter backwash water return stream could be considered.
	Chlorine residual	There were a number of instances of low free chlorine levels in the reticulation and Total Coliforms exceeded the ADWG value in 4% of all samples.

The Boorowa Drought Security Scoping Study determined the optimised water supply solution for Boorowa. The following options were shortlisted:

- Option 4 – Off-stream storage and upgrade WTP
- Option 10 – GWCC Pipeline – Galong Offtake via Cunningar Road

Sewerage schemes

The issues with the Boorowa, Harden and Young sewerage schemes are outlined in Table S5 and Table S6.

Table S5: Boorowa sewerage system issues

Issue Type	Target for Compliance	Issue
Regulatory	EPA License	The EPA license for Boorowa STP specifies monitoring of flow and pollutants at the outlet to Boorowa River via irrigation channel. However, because of evaporation and infiltration in the “irrigation channel” there is rarely any discharge to the river and therefore the flow is measured at the inlet works. The EPA license conditions may need to be revised.
Performance	STP	One of the trickling filters is not in operation. Any failure to the operating trickling filter unit or dosing siphon will result in the failure of the treatment plant.
Asset Management	Asset renewal	Boorowa STP is very old has many operational and WHS issues which need to be addressed, to ensure satisfactory operation.

The following options were shortlisted for the development of the scenarios.

- Upgrade to oxidation pond system with effluent disposal by agricultural irrigation.
- Upgrade to activated sludge system with effluent disposal by irrigation of public open spaces and river discharge.

Table S6: Harden sewerage scheme issues

Issue Type	Target for Compliance	Issue
Regulatory	EPA License	Harden STP is regularly exceeding its licensed discharge volume of 300kL/day at either point 1 or point 2. This occurs as all the effluent in a day is discharged either at Point 1 or Point 2 and not both points. Council is therefore interested in increasing the allowed discharge volume to 600kL/day at each point in their EPA license.
	WHS	Work Health and Safety issues related to access, and operation and maintenance have been identified including corroded covers and handrails.
Performance	Sewage Treatment Plant	There have been continuous exceedances of total suspended solids and pH due to algal blooms in the maturation pond. This may be due to a long detention time in the ponds due to the plant operating significantly below design capacity.
Best Practice	Section 60 approval	Effluent from the Harden STP is reused for watering Harden Golf Course or Sporting Ovals Council does not have a Recycled Water Management System or Section 60 approval for the off-site effluent reuse.

The following options were shortlisted for the development of the scenarios.

- Upgrade to oxidation pond system with effluent disposal by agricultural irrigation.
- Upgrade to activated sludge system with effluent disposal by irrigation of public open spaces and river discharge.
- Undertake remediation works to extend life of existing STP.

Issues with the Young sewerage scheme have already been addressed in the current asset management plant.

On-site Sewage Management Systems (OSSMS)

The town of Jugiong has several small properties in proximity with small lot sizes and may not have sufficient land for septic effluent disposal. There is an ongoing and compounding OSSMS issue relating to existing residential and commercial premises and potential commercial development which is located within the Murrumbidgee floodplain.

Two options have been investigated for addressing the issues in the unserviced communities. These are:

1. Improving the performance of OSSMS under Section 68 Part F of the Local Government
2. Providing a reticulated sewerage scheme with centralised sewage treatment.

Recommended Water supply and sewerage scenarios

Water supply and sewerage scenarios were created and analysed, with preferred water supply and sewerage scenarios selected using triple bottom line assessment criteria.

The works required for the preferred water supply and sewerage scenarios, are listed below.

Water supply works

Boorowa water security

Construct a pipeline to supply the Boorowa service area from Goldenfields Water

Harden water supply

Construct a new Western reservoir to replace Bobbara Street reservoir

Non-revenue water

Install smart meters in the Boorowa and Harden distribution system to collect information that will enable identification of the system where losses are occurring.

Sewerage works

Boorowa sewerage scheme

Construct an additional maturation pond to provide 20 days detention time (2025)

Construct a new activated sludge sewage treatment plant (2046)

Harden sewerage scheme

Construct a new activated sludge sewage treatment plant and maintain existing reuse (2027)

Young sewerage scheme

Augment SPS3 to meet increased sewer loads due to growth (2025)

Unserviced areas

Provide a reticulated sewerage scheme with centralised sewage treatment at Jugiong (2048)

Typical Residential Bill (TRB) Analysis for IWCM Scenarios

As part of the IWCM Checklist requirements for assessment of IWCM scenarios, approximate annual Typical Residential Bills (TRBs) for the Council's water supply and sewerage services have been estimated by way of setting up financial models using FINMOD 4 software. The TRB forecasts considered government grant/ subsidy at 50% for the Boorowa water security option capital works and Harden STP upgrade option capital works.

The forecast water supply TRBs and the long-term price path for the IWCM scenarios are presented in Figure S-1 and Table S-7.

Table S-7: Comparison of TRB forecasts for water supply scenarios

Scenario	Forecast TRB p.a. in 2021/22$ for Boorowa water security option grant at 50%
BAU Baseline	875
Scenario 1 – Pipeline from Goldenfields Water	1,035
Scenario 2 – Off-stream storage and upgrade Boorowa WTP to meet Health Based Targets (HBTs)	975
Scenario 3 – Off-stream storage and upgrade Boorowa WTP to meet Health Based Targets (HBTs) and hardness guidelines	985
Scenario 4 – Off-stream storage and upgrade Boorowa WTP to meet Health Based Targets (HBTs) and full aesthetic requirements	1,005

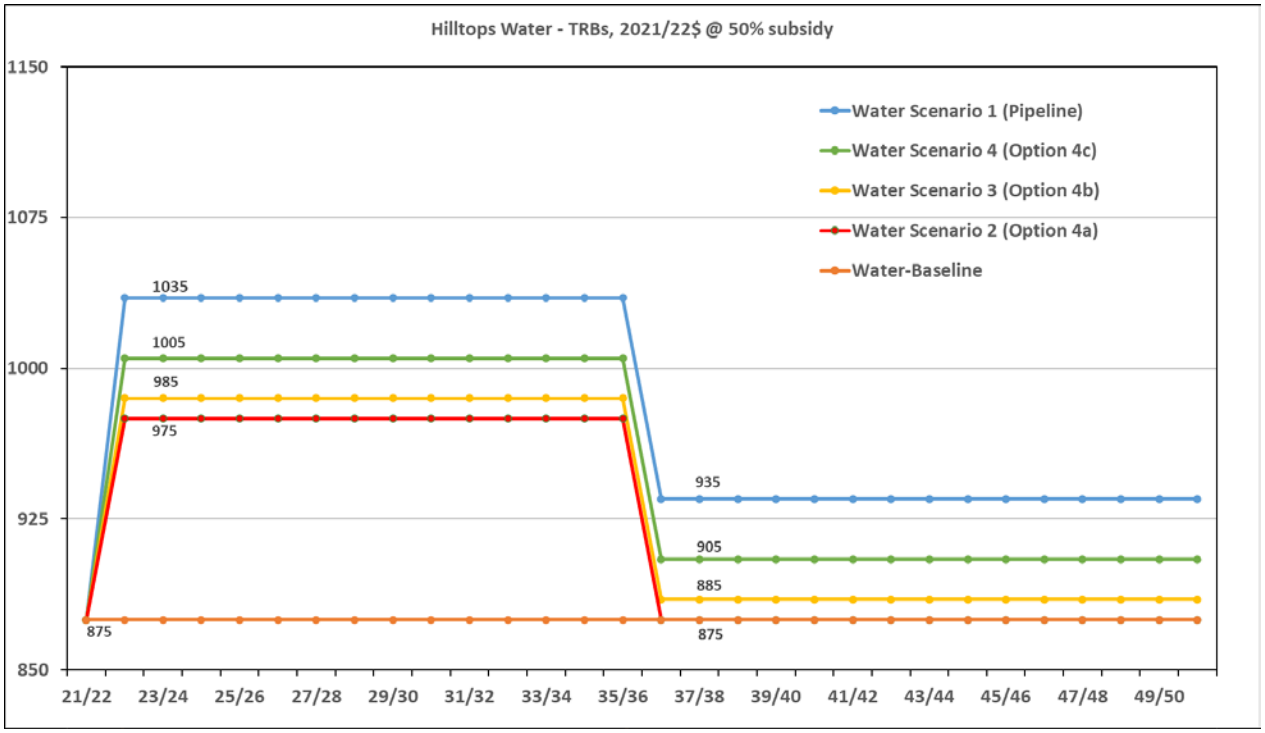

Figure S-1: Comparison of TRB Forecasts for the IWCM Scenarios – Water Supply

The forecast sewerage TRBs are not impacted by the IWCM scenarios, and the 2021-22 TRB of $774 p.a. can be maintained for all the IWCM scenarios including the baseline scenario during the 30-year forecast period.

Long-term financial plans

Council's Total Asset Management Plan for Water and Sewerage has been updated to include the growth and Improved Level of Service (ILOS) capital works identified to address the IWCM issues by the preferred strategy. Financial models for the Council's consolidated water and sewer funds developed for the TRB analysis have been further reviewed and refined to forecast the lowest stable sustainable price path for water supply and sewerage services on which to base Council's tariff structure. Note, all the forecast values are in 2021-22 dollars.

The revision also included the consideration of 50% Government grant under the Safe and Secure Water Program for the preferred option for Boorowa water security improvement through bulk water supply pipeline from GWCC, and for the Harden STP upgrade for reuse. Note, all the forecast values are in 2021-22 dollars.

Water Supply

The financial model forecasts for the preferred IWCM scenario show that the water supply TRB of $875 p.a. needs to be increased by $160 to $1,035 p.a. from 2022-23 and maintained at that level up to 2035/36. From 2036/37, water supply TRB can be decreased to $935 p.a. and maintained for the remaining 15 years of the forecast period with ongoing annual adjustments for CPI / inflation.

The projected water supply price path is sufficient to maintain liquidity with a minimum of $4.0 Million of cash and investments in the water fund over the forecast period.

Council's water fund had outstanding borrowing of $3.227 Million as of 30 June 2021. The model forecasts demonstrate that a new loan of $12 Million will be required to fund the Boorowa pipeline project. All other planned capital works can be internally funded throughout the projection period.

The levels of TRB, cash and borrowing outstanding for the 30-year forecast period are shown in Figure S-2. For detailed discussions of the water fund financial model forecast, refer to Section 14.5.

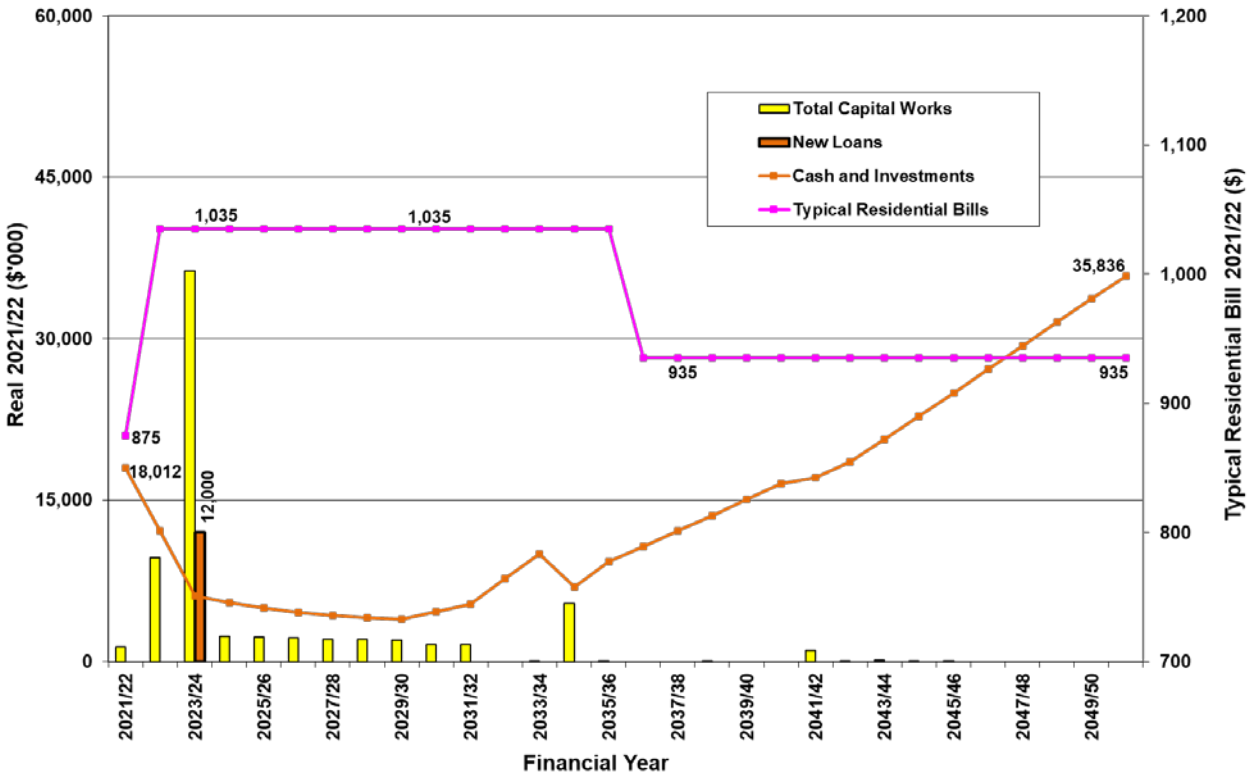

Figure S-2: Water Fund Financial Model Forecasts for the preferred IWCM Scenario

For the purpose of comparison of consolidated Hilltops Council water fund TRB forecasts for the recommended IWCM scenario with those of separate water funds for the pre-amalgamated Council areas, namely Boorowa, Harden and Young, separate financial models have been developed. The TRB forecasts are compared in Table S-8.

Table S-8: Typical Residential Bills for Separate Water Funds

Water Fund	TRB from 2022/23 up to 2035/36	TRB from 2036/37 to 2050/51
Hilltops (consolidated)	1,035	935
Boorowa	2,610	1,960
Harden	890	890
Young	875	875

Water fund financial model forecasts were recast with an additional capital works of $ 8.0 Million for Young water supply capacity included in the Council's 2024-25 LTFP. The work is planned to be undertaken during 2029-31. The model forecasts confirmed that this additional capital cost will not affect the water supply TRBs forecasts above.

Sewerage

The sewer fund financial model forecasts for the preferred IWCM scenario show that the sewerage TRB can be maintained at the 2021-22 adopted level of $774 p.a. throughout the forecast period with ongoing annual adjustments for CPI.

The projected sewerage price path is sufficient to maintain liquidity with a minimum of $4.0 Million of cash and investments in the sewer fund over the forecast period. There is an outstanding

borrowing of $9.7 Million for sewer fund as of 30 June 2021. The model forecast shows that with the adopted price path and 50% grant for Harden STP upgrade works, no new loans will be required, and all the planned capital works can be funded from internal revenue and cash reserves.

The levels of TRB, cash and borrowing outstanding during the model forecast period are shown in Figure S-3. For detailed discussions of the sewer fund financial model forecast for the adopted IWCM scenario 4, refer to Section 14.6.

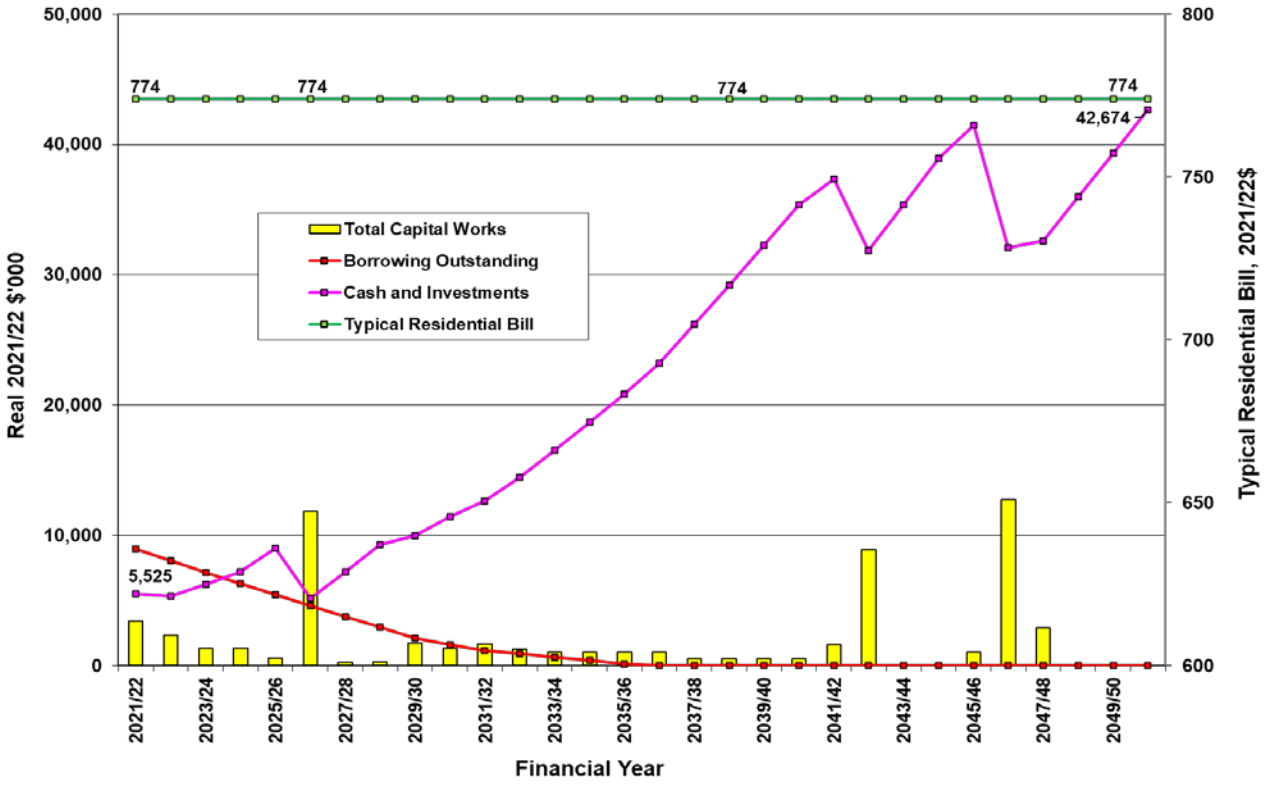

Figure S-3: Sewer Fund Financial Model Forecasts for the preferred IWCM Scenario

For the purpose of comparison of consolidated Hilltops Council's sewer fund TRB forecasts for recommended IWCM scenario, with those of separate sewer funds for the pre-amalgamated Council areas, namely Boorowa, Harden and Young, separate financial models have been developed. The TRB forecasts are compared in Table S-9.

Table S-9: Typical Residential Bills for Separate Sewer Funds

Sewer Fund	TRB in 2022/23	Required annual increase from 2023/24 to 2027/28	TRB from 2027/28 to 2050/51
Hilltops (consolidated)	774	Nil	774
Boorowa	800	25	900
Harden	793	70	1073
Young	780	Nil	780

Sewer fund financial model forecasts were recast with an additional capital works of $ 4.0 Million for Biosolids Management Infrastructure (septic receival) at the Young Sewage Treatment Plant included in the Council's 2024-25 LTFP. The work is planned to be undertaken during 2025-27. To address NSW Environment Protection Authority requirements. The financial model forecasts confirmed that this additional capital cost will not affect the sewerage TRBs forecasts above.

Contents

Tables

Figures

1. The Strategy

1.1 Process

A local water utility's (LWU's) Strategic Plan is a 30-year strategy for the provision of appropriate, affordable, cost-effective, and sustainable urban water services that meet community needs and protect public health and the environment. The Strategy:

- Identifies the water supply and sewerage needs of an LWU
- 'Right sizes' any infrastructure projects and determines their priority
- Identifies the lowest level of stable Typical Residential Bill (TRB) to meet the levels of service
- Includes a 30-year Total Asset Management Plan (TAMP) and Financial Plan (FP); and
- Identifies strategies to mitigate identified organisation risks such as drought, water quality health-based targets, climate change and community expectations on levels of service.

The nominated growth and levels of service (LOS) targets are the key drivers that impact the development of the TAMP. The 30-year financial plan determines the revenue requirements to support the TAMP and forecasts the Typical Residential Bill (TRB) and the Developer Charge (DC) for the preferred strategy. The process is iterative, and an affordable level of service and DC is determined through community and stakeholder consultation.

1.2 Progress

The following tasks have been completed for the development of the Hilltops Council's (HC) Strategic Plan:

- **Issues Paper**

  This report identified and outlined the current and 30-year projected issues relating to Hilltops Council's regulatory requirements, growth, levels of service (LOS), and performance of the sewerage services.

- **Technical studies**

  A number of technical studies were completed to evaluate options to address the issues and risks identified in the Issues Paper. and shortlist the individual options for subsequent bundling into scenarios.

- **Scenario Bundling**

  Following the evaluation and shortlisting of options, Scenarios were created using a mix of options that together, address the urban water service issues. A Triple Bottom Line (TBL) assessment method was used to assess and identify the scenario which provides the best value for money taking full account of the social, environmental, and economic considerations.

- **Stakeholder and community consultation**

  Stakeholder and community consultation has been undertaken through workshops with the Project Reference Group (PRG) established by Hilltops Council.

  (i) Workshop 1 was held at the completion of the IWCM Issues paper; and

  (ii) A Technical Review meeting was held at the completion of the scenario assessment and financial modelling.

2. Background information

2.1 Hilltops LGA

Hilltops Council is a local government area (LGA) in the Southern Tablelands region of New South Wales. The LGA was established in May 2016 following the merger of the former LGAs of Young, Harden and Boorowa. Figure 2.1 shows the former Young, Harden and Boorowa LGAs and the amalgamated Council area.

The HC area is predominantly rural, with several townships that include residential, commercial, and industrial areas. Settlement is based mainly in the townships of Boorowa, Harden – Murrumburrah and Young, and in the villages of Bendick Murrell, Bribbaree, Frogmore, Galong, Jugiong, Koorawatha, Monteagle, Murringo, Reids Flat, Rugby, Rye Park, and Wombat.

The largest town in HC is Young, promoted as the “Cherry Capital of Australia”, and as a regional growth centre. The area surrounding Young boasts many cherry and stone fruit orchards, and vineyards. Most of the land in the Shire is used for grazing of cattle, horses, and sheep studs, with a number of chicken, duck, pig and alpaca farms. Cropping is also a major industry with wheat, canola and oats predominating.

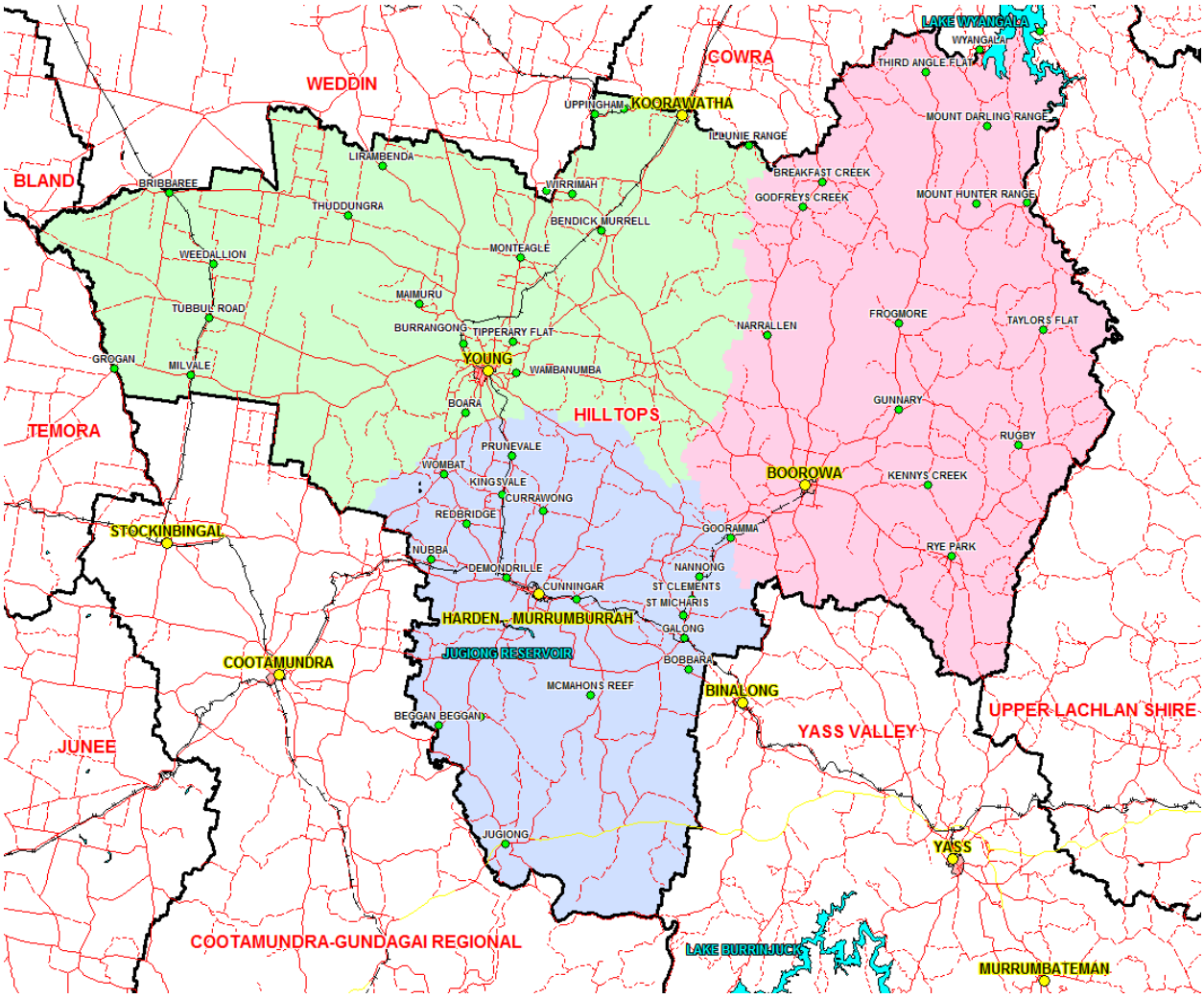

Figure 2.1: Hilltops LGA showing former Young Shire (green), Harden Shire (blue) and Boorowa Shire (pink) LGAs.

2.1 Serviced Communities

The population of the serviced communities within Hilltops LGA are given in Table 2-1.

Table 2-1: Communities provided with reticulated services

Community	Potable Water Supply	Sewerage Scheme
Young	Goldenfields	Young Sewerage Scheme
Harden-Murrumburrah	Goldenfields	Harden Sewerage Scheme
Boorowa	Boorowa Water Supply Scheme	Boorowa Sewerage Scheme
Koorawatha	Cowra Shire	None
Aurville	Goldenfields	None
Jugiong	Goldenfields	None
Bendick Murrell	Cowra Shire	None
Galong	Goldenfields	None
Wombat	Goldenfields	None
Murringo	Cowra Shire	None
South Galong	Goldenfields	None
Kingsvale	Goldenfields	None
Prunevale	Goldenfields	None

2.2 Unserviced Communities

There are some remote small villages and rural localities throughout the LGA without a reticulated potable water supply including Bribbaree, Frogmore, Godfreys Creek, Hovells Creek, Maimuru, Milvale, Monteagle, Mount Collins, Reids Flat, Rugby, Rye Park, Taylors Flat, Thuddungra, Wirrimah, and parts of Wyangala.

Residents in these areas predominantly rely on rooftop rainwater and/or groundwater bores for water supply. During periods of extended drought, water is carted to these communities. These residents manage wastewater using onsite sewage management systems (OSSMS) such as septic tanks.

2.3 Economic outlook and growth strategy

Council has nominated the .id population and household forecasts for the planning process. Council has advised that they anticipate growth in the LGA to be higher than the low levels projected by NSW Department of Planning due to the recent establishment of intensive farming operations and the potential for further augmentation of the agricultural industry if water becomes available to these industries. This is further reinforced by the recently announced state-of-the-art CSIRO agricultural research facility in Boorowa, which will attract skilled workforce, and the region's proximity to Canberra, making it possible for families to relocate in the Hilltops Region.

3. Business objectives and Levels of Service

Following the merger to form Hilltops LGA, HC has developed a draft consolidated LOS which will replace the three separate LOS from the former Councils. Council plans to undertake community consultation before adopting the LOS.

Table 3-1: Hilltops Council consolidated LOS – water supply

Description	Unit	Level of Service
Service Provision		
Connection time for a new service in serviced areas (90% of the time)	days	10
Availability of Supply		
Supply in accordance with Council design standards.	L/s (throughout system)	0.15 typically
Fire Fighting:		
Compliance with the Building Code of Australia and NSW Fire Brigade requirements (for all residential, commercial, and industrial areas)	% of residential area served	95
Pressure (residential area): Not LOS		
- Min. pressure when delivering 6 L/min	Metres head	12
- Max. static pressure	Metres head	90
- Positive pressure		
- When fighting a fire for 4 hours during peak demand periods		
Restriction in Drought		
Consumption Restrictions in Droughts*	% of normal usage	Does not exceed 10%
Duration of Restriction*	% of time	does not exceed 5%
*Harden and Young bulk customers are subject to the GWCC water restrictions		
Demand Management		
Minimise wastage of water	N/A	Implement a Demand Management Strategy
Supply Interruptions to Consumers		
Temporary supply arrangements during interruptions		Where possible
Planned: *(95% of time)*		
- Notice given to domestic customers	Days	7
- Notice given to commercial customers	Days	7
- Notice given to major industrial customers	Days	14

Description	Unit	Level of Service
Unplanned:		
- Maximum duration	Hours	8
- Frequency	No./ year per customer	1
Response Times		
(Defined as time to have staff onsite to commence rectification after notification of problem)		
Supply Failure (all customers):		
Priority 1: Failure to maintain continuity or quality of supply to a large number of customers or to a critical user at critical time		
- During working hours	Minutes	30
- Out of working hours	Minutes	45
Priority 2: Failure to maintain continuity or quality of supply to a small number of customers or to a non-critical user at non-critical time		
- During working hours	Minutes	45
- Out of working hours	Minutes	60
Priority 3: Failure to maintain continuity or quality of supply to a single customer		
- During working hours	Minutes	60
- Out of working hours	Minutes	90
Priority 4: Minor problem or complaint		
- During working hours	Working Days	Within a week
- Out of working hours	Working Days	
Customer Complaints:		
Personal / Oral	Working Days	1
Written	Working Days	7
Note: Times apply for 95% of occasions		
Customer Complaints		
Water Quality complaints (bulk supply)	No./1000 connections	5
Water Quality complaints (treated supply)	No./1000 connections	15
Service complaints	No./1000 connections	20
Billing and account	No./1000 connections	5
Other	No./1000 connections	5

Description	Unit	Level of Service
Water Quality		
Number of boil water alerts	Alerts/year	Nil
Physico-chemical Parameters		
Number of taste and odour complaints	Complaints/year	To be discussed with the community
Discoloured Water complaints	Complaints/year	To be discussed with the community

Note: Special Customers: Certain customers may have special needs by virtue of specific health, commercial or industrial circumstances. Specific levels of service will be negotiated with these customers.

Table 3-2: Hilltops Council consolidated LOS – sewerage

Description	Unit	Level of Service
Availability of Service		
- Extent of areas serviced	Service area	90% within the defined service area
System Failures		
Category One:		
- Failure due to rainfall and deficient capacity (overflows) Suggested: Zero overflows for rainfall events less than 1-in-5 year 24-hour event (based on Public Works Sewer Modelling, Young).	No./100km	3
Category Two:		
- Failures due to pump or other breakdown including power failure.	No./100km	1
Category Three:		
- Failures due to main blockages and collapses	No./100km	70
Response Times for System Failures		
(Defined as the maximum time to have staff on site to commence rectification)		
Priority One:		
(Major spill, significant environmental or health impact, or affecting large number of consumers i.e., a major main).		
- Response time during working hours	Minutes	30
- Response time for after hours	Minutes	45
Priority Two:		

Description	Unit	Level of Service
(Moderate spill, some environmental or health impact, or affecting small number of consumers i.e., other mains).		
- Response time during working hours	Minutes	45
- Response time for after hours	Minutes	60
Priority Three:		
(Minor spill, little environmental or health impact, or affecting a couple of consumers)		
- Response time during working hours	Minutes	60
- Response time for after hours	Minutes	90
Response Times for Complaints		
General complaints and inquiries:		
Written complaints	Working days	7
Oral complaints	Working days	1
Note: times for 95% of complaints		
Complaints		
Sewer chokes	No./1000 connections	30
Billing and account	No./1000 connections	5
Service	No./1000 connections	5
Odour Complaints		
Treatment works	No./1000 connections	1
Pumping Stations	No./1000 connections	0

HC has purchased a new CRM system which is integrated into TechOne.

4. Harden and Young bulk water supply schemes

HC purchases bulk potable water from Goldenfields Water County Council (GWCC) to supply the towns of Young, Harden-Murrumburrah and several smaller communities in the former Harden LGA.

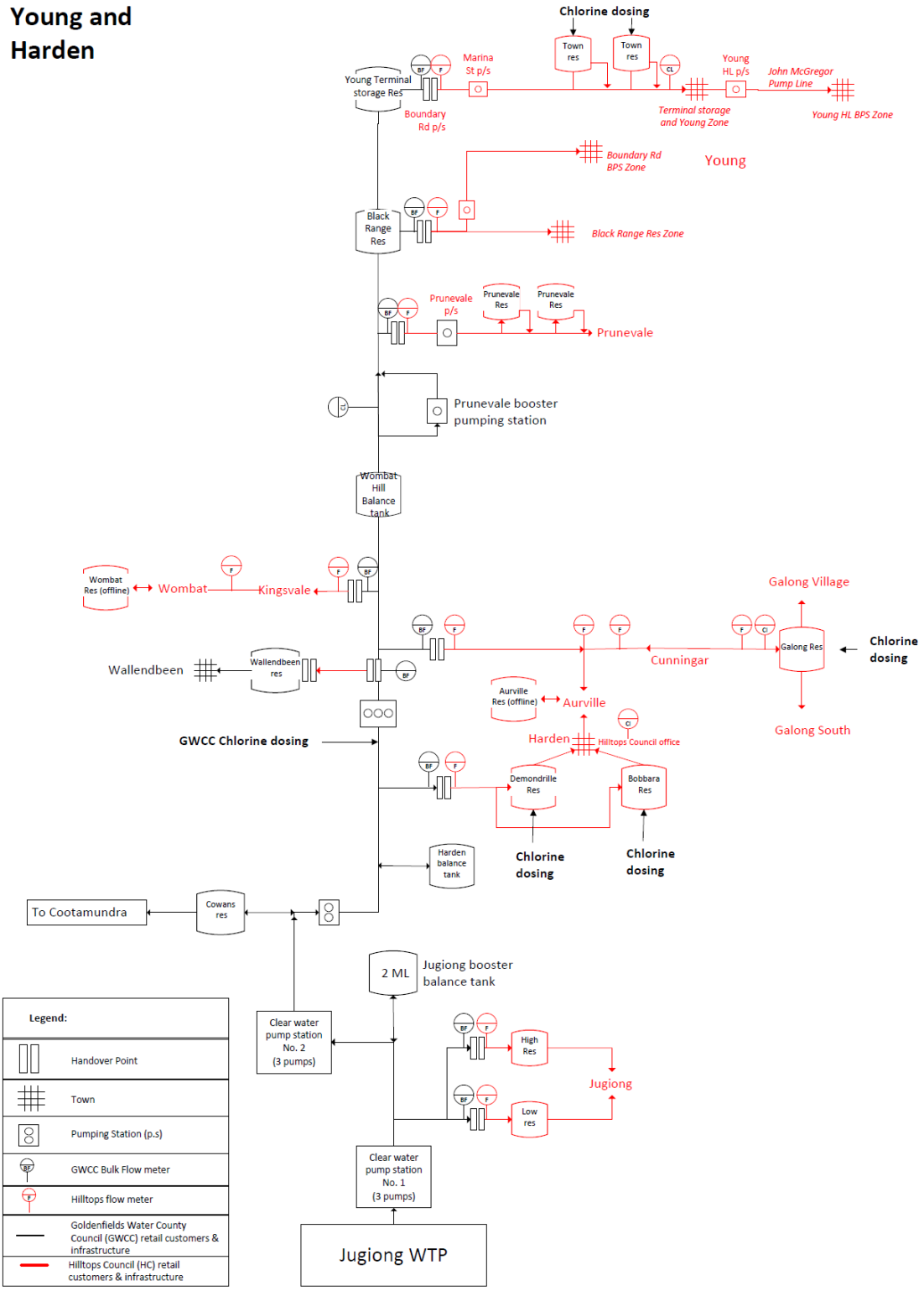

Figure 4.1: Goldenfields Water Supply System

4.1 Harden water supply distribution network

HC is responsible for the maintenance and operation of all assets located after the GWCC bulk meters at each offtake. HC is responsible to ensure the water quality past the bulk meters meets the requirements of the Australian Drinking Water Guidelines (ADWG).

4.1.1 Supply areas

Jugiong

GWCC supplies potable water to the Jugiong High-Level and Low-Level concrete reservoirs from where it gravitates to the Jugiong township and surrounding areas, servicing approximately 150 rural and residential customers.

Harden-Murrumburrah Township

GWCC delivers potable water to Harden-Murrumburrah township via the Harden offtake point feeding both the Demondrille and Bobbara St reservoirs. Water is re-chlorinated in both these reservoirs and gravitated to the town of Harden-Murrumburrah, servicing approximately 2,200 customers. The Demondrille reservoir zone covers the west side of town (Murrumburrah) while the Bobbara zone covers the east side of town (Harden).

Nubba

North of Harden-Murrumburrah, an offtake called “Wallendbeen offtake” supplies the locality of Nubba (HC customers). Water is distributed via the offtake through HC pipes which are pressured from the GWCC pump system. There is no reservoir, pumps or re-chlorination on the HC line, but there is a reservoir located at Wallendbeen which supplies the customers of Cootamundra-Gundagai Regional Council.

Aurville, Cunningar and Galong

North of Harden, an offtake called “Galong offtake” supplies the locality of Aurville, Cunningar, and Galong. The Galong offtake supplies the area of Aurville to the north of Harden, which can also be supplied from the Harden System if necessary. The Aurville Reservoir is currently offline.

The Galong Rising Main continues from Aurville through Cunningar to Galong Reservoir. Water is re-chlorinated in the Galong Reservoir from where it gravitates to the village of Galong. An offtake before the Galong Reservoir supplies rural properties in Galong South.

Kingsvale and Wombat

Half-way between Harden-Murrumburrah and Young, an offtake from the GWCC trunk main supplies the localities of Kingsvale and Wombat, which can also store water in the Wombat Reservoir. The Wombat Reservoir is currently offline and only used for programmed works at this stage due to its inadequate location in the network causing water quality and water pressure issues when in use.

Prunevale

South of Young, an offtake from the GWCC trunk main supplies the locality of Prunevale, after being pumped and stored in the two Prunevale Reservoirs.

4.1.2 Historical water consumption

The unit demands per residential connection estimated for the Harden water supply areas are provided in Table 4-1.

Table 4-1: Unit demand per active residential connection at Harden

Water Supply Area	Average year demand (kL/yr)	Dry year demand (kL/yr)	Average day demand (kL/day)	Peak day demand (kL/day)	Peak day to average day ratio
Aurville	180	215	0.5	1.7	3.5
Aurville 2	293	346	0.8	2.7	3.4
Galong South	350	410	1.0	3.1	3.2
Galong Supply Line [1]	4,298	5,272	11.8	47.1	4.0
Galong Supply Line (Cunningar)	198	219	0.5	1.3	2.4
Galong Village	158	175	0.4	1.1	2.4
Harden Murrumburrah Town	200	231	0.5	1.7	3.1
Harden/ Murrumburrah Rural	484	536	1.3	3.2	2.4
Jugiong Village	261	350	0.7	3.9	5.5
Kingsvale/ Wombat	227	299	0.6	3.2	5.2
Nubba	339	412	0.9	3.5	3.8
Prunevale	364	487	1.0	5.5	5.5
Wombat Village	172	205	0.5	1.7	3.5

4.1.3 Growth

The projected distribution of population by water supply areas is given in Table 4-2.

Table 4-2: Population growth distribution in the Harden water supply areas

Water Supply Area	2017	2022	2027	2032	2037	2042	2047
Harden-Murrumburrah							
Aurville	43	45	46	48	50	52	54
Aurville 2	82	84	87	91	95	99	102
Harden-Murrumburrah Town	1,844	1,837	1,840	1,844	1,858	1,873	1,888
Harden Murrumburrah Rural	24	31	41	51	62	72	83
Harden-Murrumburrah Total	**1,994**	**1,996**	**2,015**	**2,034**	**2,064**	**2,096**	**2,127**
Rural Harden							
Galong South	9	9	9	9	9	9	9
Galong Supply Line	2	2	2	2	2	2	2
Galong Supply Line (Cunningar)	17	17	16	16	16	16	16
Galong Village	98	97	96	96	96	95	95
Jugiong Village	119	117	116	115	114	114	113
Kingsvale	23	24	25	25	26	27	27
Nubba	9	9	9	9	9	9	9
Prunevale	7	7	7	7	7	7	7

Water Supply Area	2017	2022	2027	2032	2037	2042	2047
Wombat Village	94	99	104	110	115	119	124
Unserved	937	924	912	905	901	896	891
Total Rural Harden	**1,316**	**1,305**	**1,296**	**1,294**	**1,294**	**1,293**	**1,293**
Total	**3,310**	**3,301**	**3,311**	**3,328**	**3,358**	**3,389**	**3,420**

Jugiong has seen an increase in tourism and commercial interest over recent years which accounts for a large proportion of visitors to Hilltops, with tourism increasing with both day-trippers and overnight visitors. Despite this, the number of people "living" in town is likely to stay the same due to flooding and land constraints.

4.1.4 Water supply system issues

The issues with the Harden water supply system, are outlined in Table 4-3.

Table 4-3: Harden water supply system issues

Issue Type	Target for Compliance	Issue
Performance	Chlorine Residual	Council has advised that there are recurring low chlorine issues for the users along the line to Wombat near Kingsvale.
Levels of Service	Reliability (Wombat)	Due to hydraulic conditions, the Wombat reservoir cannot contribute to the town supply. Hence there is no back-up supply in the event of a failure of the Goldenfields supply.
	Chlorine residual	There have been instances of low chlorine residuals in the town of Wombat and on the Kingsvale to Wombat pipeline. This could be because of the water age.
	Reliability (Jugiong)	The Jugiong Reservoirs are estimated to have storage sufficient to supply peak day demands for 3 hours each when supply is interrupted. This may impact the reliability of the system.
	Discoloured water	The 2017 drinking water quality risk assessment undertaken by Atom Consulting identified high turbidity (>2 NTU) routinely seen in the Harden reticulation. There was a large spike in dirty water complaints in 2016 with 58 complaints being recorded compared to 13 in 2015. No sampling is currently undertaken at the GWCC offtake, so it is difficult to determine the source of the high turbidity.

The issue of low chlorine residual along the trunk main will be considered and addressed in the Goldenfields Water Strategic Plan.

Discoloured water

One source of the discoloured water may be the cast iron mains in Harden. Council has been undertaking an extensive mains replacement program which is scheduled to continue for the next five years.

4.2 Young water supply distribution network

4.2.1 Supply areas

At the end of GWCC distribution trunk main, potable water is supplied to Young via the Black Range and Young Terminal Storage reservoirs owned by GWCC.

Only a small portion to the South of Young receives water directly from Black Range Reservoir. These areas are: Normoyle Crescent, Thornell Road, Back Creek Road (partial), Normans Road, Windermere Street, Settlers Place, Gold Circuit, Tadros Avenue and Bailes Crescent.

From the Young Terminal Storage water is reticulated to approximately 75% of the consumers prior to entering the McGregor Reservoirs, which are also referred to as “Town Reservoirs” as these are the only reservoirs owned by HC in the Young town area.

The Town Reservoirs are two connected reservoirs with a combined capacity of 10 ML. Council owns and operates a chlorine booster facility at the Town Reservoirs to maintain disinfection residual in the reticulation.

There are also two high level areas supplied by the North Young and Back Creek booster pumping station.

HC Minor Customers Connected to GWCC Main

Between the Jugiong WTP and the bulk meters that mark the boundary between the GWCC-owned pipeline and the HC-owned pipeline, there are more than 300 HC customers connected directly to GWCC distribution main. The minor customers are located mostly in rural non-serviced areas. HC owns the water meters to these properties but does not own the pipeline to which they are connected.

The distribution system, showing the service area boundary of the Young water supply scheme, is provided in Figure 4.2.

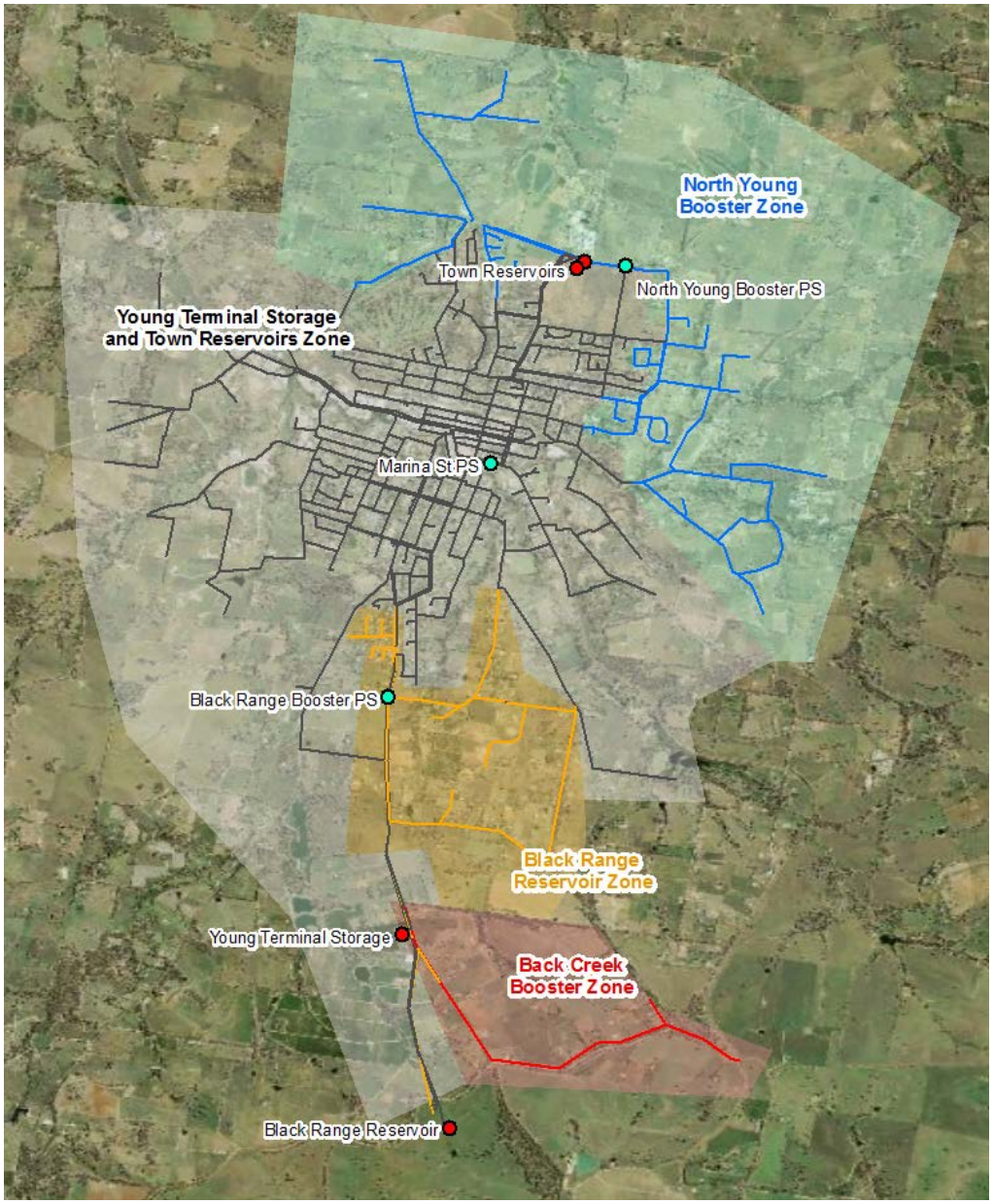

Figure 4.2: Young water distribution system showing the service area boundary

4.2.2 Historical water consumption

The unit demands per residential connection estimated for the Young water supply area are provided in Table 4-4.

Table 4-4: Unit demand per active residential connection for Young

Scheme	Average year demand (kL/yr)	Dry year demand (kL/yr)	Average day demand (kL/day)	Peak day demand (kL/day)	Peak day to average day ratio
Young – Town	175	194	0.48	1.17	2.4
Young – Rural	269	298	0.74	1.80	2.4

4.2.3 Growth

The population projections for the Young water supply reservoir zones are given in Table 4-5.

Table 4-5: Projected number of occupied dwellings per town

Young	2017	2022	2027	2032	2037	2042	2047
Black Range Booster Zone	131	130	129	129	129	128	128
Black Range Res Zone	628	622	619	616	615	613	612
Young Res Zone	6,512	6,534	6,593	6,672	6,747	6,825	6,906
Young HL Booster Zone	1,524	1,810	2,126	2,446	2,770	3,106	3,453
Total Water Supply Young	**8,795**	**9,096**	**9,467**	**9,862**	**10,261**	**10,673**	**11,099**

4.3 Water supply system issues

The issues with the Young water supply system, are outlined in Table 4-6.

Table 4-6: Young water supply system issues

Issue Type	Target for Compliance	Issue
Performance	Chlorine residual	There were many instances (30% of samples) of low free chlorine levels in the reticulation at Young and Total Coliforms exceeded the ADWG value in 19% of all samples. The Young Terminal Storage (owned by GWCC) must be kept at 90% capacity to provide sufficient supply pressure to town. This can lead to aged water and depleted chlorine residual. The options may be to: • Review the pipework arrangement • Install chlorine dosing stations • Reduce the effective reservoir capacity.
	Chlorine residual	Back Range Reservoir was identified as an area with recurring low chlorine residuals.
	Reliability	The Young Terminal Storage, which is owned by GWCC, supplies water to the town of Young. The reservoir (32 ML capacity) must be kept at 90% capacity to provide sufficient supply pressure. This means that if the supply to the Young Terminal Storage was interrupted, the reservoir has only 3.2 ML of useable storage. which would provide 9 hours supply on a peak day at 2017 demands reducing to 8 hours at 2047 demands. This may impact on the reliability of the system.

The issues of chlorine residual and reliability at the Young Terminal storage, will be considered and addressed in Goldenfields Water's Strategic Plan.

5. Boorowa water supply scheme

The Boorowa water supply scheme supplies treated water to the town of Boorowa.

5.1 Water Source

The Boorowa water supply scheme sources raw water from the Boorowa Dam located approximately 1 km west of Boorowa near the confluence of Boorowa River and Castles Creek. An intake structure withdraws raw water from the Dam and a pumping station transfers the water to the Boorowa WTP which is owned and operated by HC.

There are two bores that serve as backup water supply, particularly during severe drought periods or high turbidity events. Bore 2 has a better water quality than Bore 1 and is currently used as the main backup water supply source. Bore 1 acts as a standby source for the town due to its high level of naturally occurring fluoride, iron, and total dissolved solids (TDS).

Details of the water access licences held by Council are provided in Table 5-1.

Table 5-1: Council owned Water Access Licenses

Licence Number	Water Sharing Plan	Water Source	Category	Entitlement (ML/year)	Nominated Works Approval
WAL37757 *reference no. 70AL615900*	Lachlan Unregulated and Alluvial Water Sources	Boorowa River and Hovells Creek Water Source	Local Water Utility	340	70CA615898 1 x 80 mm centrifugal pump 1 x Dam
WAL29055 *reference no. 70AL610151*	Lachlan fold belt Murray Darling Basin (other) management zone	Lachlan fold belt Murray Darling Basin groundwater source	Local Water Utility	50	70CA610152 3 x Bores
WAL31579 *reference no. 70AL610768*	Lachlan Unregulated and Alluvial Water Sources	Boorowa River and Hovells Creek Water Source	Unregulated River – Irrigation only	30	70CA610769 1 x 50 mm centrifugal pump

5.2 Water Treatment and Distribution

The Boorowa WTP has the following process units:

- Powdered activated carbon (PAC) for taste and odour removal – currently not used
- Two 3.4 ML sedimentation lagoons
- Two gravity mono-media sand filters
- Chlorine for disinfection

There is no fluoridation at the WTP, however NSW Health has approved an exemption because less than 20% of customers drink the water in town.

Treated water from the WTP is pumped to a 0.9 ML reservoir from where water gravitates to the town through approximately 25 km of reticulation piping.

The distribution network, showing the service area of the Boorowa water supply scheme is shown in Figure 5.1.

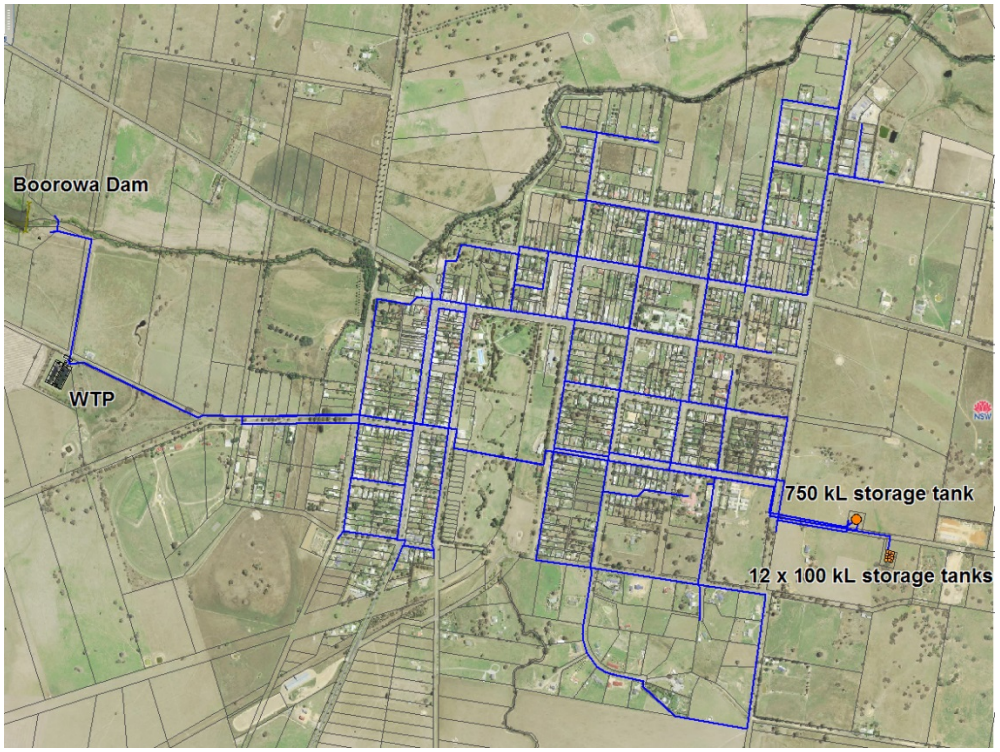

Figure 5.1: Boorowa water supply scheme showing the service area boundary

Historical water consumption

The unit demand per active residential connection for the Boorowa water supply scheme is given in Table 5-2.

Table 5-2: Unit demand per active residential connection at Boorowa

Category	Average year demand (kL/year)	Dry year demand (kL/year)	Average day demand (kL/day)	Peak day demand (kL/day)	Peak day to average day ratio
Boorowa (Pre-Drought Management Plan adoption- Low Restriction)	183	203	0.50	1.23	2.4
Boorowa (Post-Drought Management Plan adoption- High Restriction)	113	125	0.31	0.76	2.4

5.3 Growth

The forecast 30-year population for the Boorowa water supply scheme is provided in Table 5-3.

Table 5-3: Forecast population for the Boorowa water supply

	2022	2027	2032	2037	2042	2047
Forecast population	1,322	1,350	1,380	1,413	1,446	1,480

5.4 Boorowa water supply system issues

The issues with the Boorowa water supply system are outlined in Table 5-4.

Table 5-4: Boorowa water supply system issues

Issue Type	Target for Compliance	Issue
Regulatory	Fluoridation of Public Water Supplies	The Boorowa water supply is not fluoridated however NSW Health has approved an exemption because less than 20% of the customers drink the water
	Health Based Targets (HBTs)	Potential Issue: If the HBTs are introduced in the future, a UV disinfection system would need to be added to the WTP to provide the necessary log reduction for protozoa.
Water Security	Headworks	The secure yield of the Boorowa Weir water source is lower than the current unrestricted dry year demands, and the town has been on Level 3 and 4 restrictions during past droughts.
Level of Service	WTP capacity	Depending on the development of emerging industries in Boorowa, the clear water pump capacity is expected to be exceeded around 2034. Additional storage for the new industries should be considered.
	Reliability	The bore water supply is not a reliable alternate source due to the water quality issues from bore 1 and the potential for bore 1 water to contaminate bore 2 due to potential hydraulic connectivity.
		The Boorowa treated water storage capacity of 0.9 ML is less than half the peak day demand. Construction of a new 2 ML storage has been proposed.
	Taste and odour	It has been reported that only 18% of the consumers drink the water at Boorowa due to its high hardness and dissolved solids. The current WTP process is not able to reduce hardness and dissolved solids.
Performance	WTP	Boorowa WTP is not designed to reduce hardness, TDS, and chloride. The water produced regularly exceeds ADWG aesthetic guideline values for these parameters.
		There is not enough contact time for the PAC to be effective. The PAC dosing point needs to be located closer to the intake to provide the required contact time. The system is not in use currently.
		At Boorowa WTP, filter backwash water is currently returned to the sedimentation pond. This increases the risk of recycling protozoa that is removed by the filters, within the system. UV disinfection of the filter backwash water return stream could be considered.
	Chlorine residual	There were a number of instances of low free chlorine levels in the reticulation and Total Coliforms exceeded the ADWG value in 4% of all samples.

5.5 Options assessment

5.5.1 Water security

The Boorowa Drought Security Scoping Study determined the optimised water supply solution for Boorowa. Phase 1 of the study analysed and compared a long list of 10 options for securing Boorowa's water supply. In the Phase 1 options assessment the Multi Criteria Assessment (MCA) provided the highest scores to the following options:

- Option 4 – Off-stream storage and upgrade WTP
- Option 10 – GWCC Pipeline – Galong Offtake via Cunningar Road

Phase 2 of the study focussed on these two options. Option 4 was split into three sub options (4a, 4b and 4c), depending on the level of treatment provided at the WTP.

- Option 4a – Treatment upgrade meeting health-based targets (HBTs) only.
- Option 4b – Treatment upgrades meeting HBTs and hardness guideline.
- Option 4c – Treatment upgrades meeting HBTs and full aesthetic requirements (hardness, TDS, chloride etc).

The 30-year present value cost analysis and the multicriteria assessment of the options are provided in Table 5-5.

Table 5-5: Present value cost analysis for Boorowa water security options

Option	30-year present value ($M)
4a	31.3
4b	33.9
4c	37.3
10	38.3

Table 5-6: Multi-Criteria assessment of options

Criteria	Weighting	Option 4a	Option 4b	Option 4c	Option 10
Security of Supply	20%	9	9	9	10
Water Quality Reliability	20%	3	4	7	10
Operational Flexibility (Growth)	10%	6	6	6	8
Operational Risk	15%	5	5	2	9
Constructability	10%	5	5	4	8
Project Delivery Risks (time)	10%	5	5	4	8
Heritage and Environment	10%	7	7	6	7
Approval Timing and Risk	5%	7	7	6	6
Total MCA Score	**100%**	**5.8**	**6.0**	**5.8**	**8.8**

All four options were taken forward into the scenarios.

6. Boorowa sewerage scheme

6.1 Background

Sewage collection and distribution

The Boorowa collection system comprises approximately 23 km of sewer mains that service 98% of Boorowa Township. Four sewage pumping stations (SPS) pump sewage to the gravity catchment of the sewage treatment plant (STP). The service area boundary of the sewerage scheme is shown in Figure 6-1.

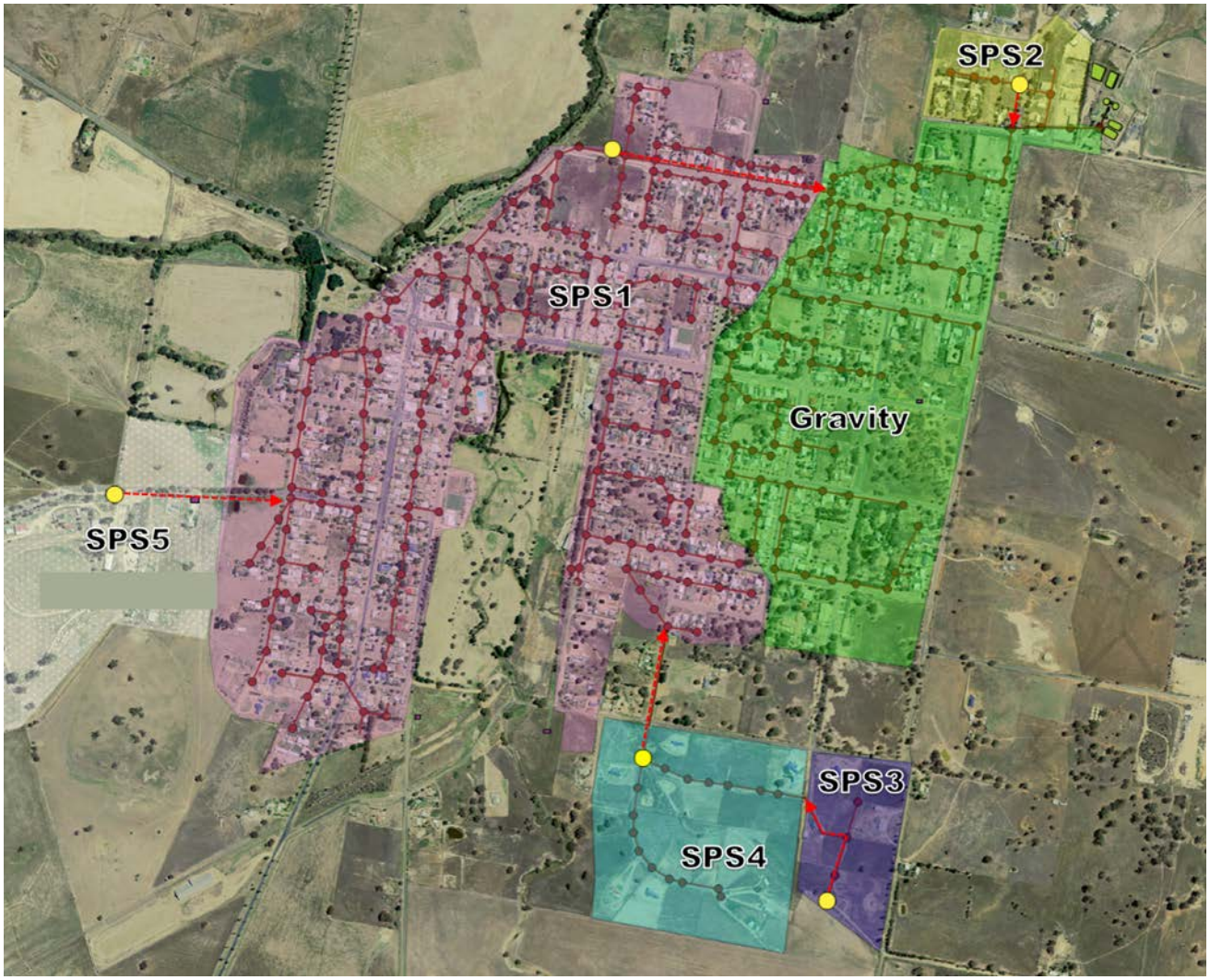

Figure 6-1: Boorowa sewerage scheme service area boundary

Sewage treatment and effluent management

The Boorowa STP is a 4,000 EP capacity plant. STP effluent is discharged into the Boorowa River through an irrigation channel permissible under the EPA License Number 1678 for the STP. There is no effluent reuse.

The sludge stabilising and thickening system comprises two anaerobic digesters and two sludge lagoons. Sludge is removed and transported to Council's landfill site for disposal.

6.2 Growth

The 30-year forecast population growth for the Boorowa sewerage scheme at a sewer catchment level, is provided in Table 6-1.

Table 6-1: 30-year forecast population growth for the Boorowa sewerage scheme

	2017	2022	2027	2032	2037	2042	2047
SPS1	713	717	721	726	731	736	741
SPS2	21	21	21	21	21	21	21
SPS3	16	16	16	16	16	16	16
SPS4	57	57	57	57	57	57	57
SPS5 (new)	12	12	12	12	12	12	12
Gravity	486	511	535	560	588	617	645
Total	**1,292**	**1,322**	**1,350**	**1,380**	**1,413**	**1,446**	**1,480**

6.3 Sewerage scheme issues

The issues with the Boorowa sewerage scheme are outlined in Table 6-2.

Table 6-2: Boorowa sewerage scheme issues

Issue Type	Target for Compliance	Issue
Regulatory	EPA License	The EPA licence for Boorowa STP specifies monitoring of flow and pollutants at the outlet to Boorowa River via irrigation channel. However, because of evaporation and infiltration in the “irrigation channel” there is rarely any discharge to the river and therefore the flow is measured at the inlet works. The EPA licence conditions may need to be revised.
Performance	STP	One of the trickling filters is not in operation. Any failure to the operating trickling filter unit or dosing siphon will result in the failure of the treatment plant.
Asset Management	Asset renewal	Boorowa STP is very old has many operational and WHS issues which need to be addressed, to ensure satisfactory operation.

From a performance and condition assessment, the following issues were identified for the Boorowa STP:

- The primary treatment, trickling filter, and sludge digestor assets will reach the end of their useful life in 15 to 20 years.
- The assessment shows that the maturation ponds do not have enough capacity to achieve the recommended 20 days hydraulic retention time at the current load of 1,586 EP.
- The primary treatment, trickling filter, and sludge digestor assets will reach the end of their useful life in 15 to 20 years.

6.4 Assessed options

Immediate works

Additional maturation pond capacity should be constructed to achieve the recommended 20 days hydraulic retention time. It is recommended to construct a 0.8 Ha, 1.2 m deep maturation pond next to the existing ponds, which will bring the total maturation pond capacity up to 2,000 EP.

STP upgrade options

As the estimated 30-year load is not expected to exceed the design capacity of the existing plant, a capacity upgrade is not necessary. It is estimated that the current plant will reach the end of its useful life in around ten years, at which point an upgrade of the existing STP will be required. An upgrade of the STP is expected to lead to a revision of the EPA licence.

The following options are considered for the upgrade of the Boorowa STP:

Boorowa STP Option 1: Upgrade to oxidation pond system with effluent disposal by evaporation. This will consist of:

- Construction of 2 x 2,000 EP capacity oxidation ponds (each pond approximately 1.0 Ha in crest area, and 12 ML volume at TWL)
- Connection of oxidation pond to existing inlet works and maturation ponds
- Construction of a 20 Ha evaporation pond (approximately 100 ML volume at TWL) to dispose of effluent

Boorowa STP Option 2: Upgrade to oxidation pond system with effluent disposal by agricultural irrigation. This will consist of:

- Construction of 2 x 2,000 EP capacity oxidation ponds (each pond approximately 1.0 Ha in crest area, and 12 ML volume at TWL)
- Connection of oxidation pond to existing inlet works and maturation ponds
- Construction of a 69 ML effluent storage pond (approximately 2.2 Ha in crest area) contain effluent during periods of low irrigation demand for full reuse
- 15 Ha of non-food crop irrigated area, located on farm areas nearby. These will require an effluent transfer system and irrigation equipment

Boorowa STP Option 3: Upgrade to activated sludge system with effluent disposal by irrigation of public open spaces and river discharge. This will consist of:

- Construction of an IDEA tank (2,000 EP) with top dimension of 34 m (L) x 19 m (W)
- Connection of IDEA tank to existing inlet works
- The existing maturation ponds are no longer used for disinfection
- Construction of new UV disinfection facilities to disinfect effluent prior to environmental discharge
- Continued use of existing sludge lagoons
- Construction of a new amenity building
- Construction of alum dosing unit for phosphorus removal (only for use when effluent is being discharged to the river)
- Installation of SCADA, telemetry system
- Installation of pontoon surface aerators and associated switchboard

- Option for effluent reuse scheme for irrigation of public open spaces – this will involve construction of new chlorination facilities, a 1.2 ML covered storage tank and associated pumping stations and pipelines and valves

Options 2 and 3 have been shortlisted for the development of the IWCM Scenarios.

7. Harden sewerage scheme

7.1 Background

Sewage collection and transfer

The Harden sewage collection system comprises approximately 35 km of gravity sewer pipeline. All sewage is transferred to the STP by gravity. The service area boundary of the Harden sewerage scheme is shown in Figure 7-1.

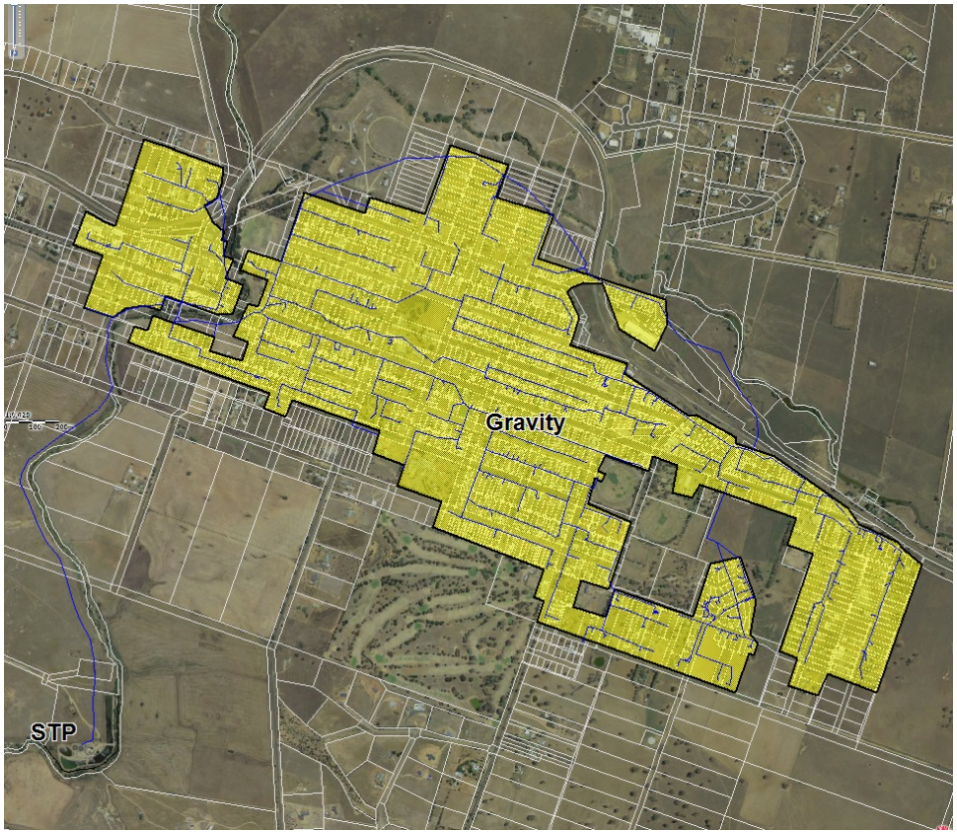

Figure 7-1: Harden sewerage scheme with service area boundary

Sewage treatment and effluent management

The Harden STP is a trickling filter plant constructed in 1935 with a design capacity of 4,000 EP.

Treated effluent is pumped through a rising main to a treated effluent reservoir in town which is a disused railway dam, in-ground brick and concrete construction. Effluent is used to irrigate either Harden Golf Course or Sporting Ovals (McLean Oval and Station Street Oval). There is a separate pumping station for transfer to each end use.

In times of extended wet weather, treated effluent is discharged to Murrimboola Creek. During warmer months effluent in the tertiary pond is sometimes supplemented with fresh water from nearby Murrimboola Creek.

Sludge is treated and thickened by anaerobic digesters, then dried in sludge drying beds to achieve a stabilised product. Sludge is periodically removed and transported to landfill.

7.2 Growth

Based on Council's nominated growth rate, the thirty-year population projections, at a sewer catchment level, are given Table 7-1.

Table 7-1: Population projections for Harden sewerage scheme

	2017	2022	2027	2032	2037	2042	2047
Gravity	1,844	1,837	1,840	1,844	1,858	1,873	1,888
Total	**1,844**	**1,837**	**1,840**	**1,844**	**1,858**	**1,873**	**1,888**

7.1 Sewerage scheme issues

The issues with the Harden sewerage system are outlined in Table 7-2.

Table 7-2: Harden sewerage scheme issues

Issue Type	Target for Compliance	Issue
Regulatory	EPA Licence	Harden STP is regularly exceeding its licensed discharge volume of 300kL/day at either point 1 or point 2. This occurs as all the effluent in a day is discharged either at Point 1 or Point 2 and not both points. Council is therefore interested in increasing the allowed discharge volume to 600kL/day at each point in their EPA license.
	WHS	Work Health and Safety issues related to access, and operation and maintenance have been identified including corroded covers and handrails.
Performance	Sewage Treatment Plant	There have been continuous exceedances of total suspended solids and pH due to algal blooms in the maturation pond. This may be due to a long detention time in the ponds due to the plant operating significantly below design capacity.
Best Practice	Section 60 approval	Effluent from the Harden STP is reused for watering Harden Golf Course or Sporting Ovals Council does not have a Recycled Water Management System or Section 60 approval for the off-site effluent reuse.

7.2 Assessed options

As the forecast 30-year load is not expected to exceed the design capacity of the STP, a capacity upgrade is not necessary. An upgrade of the STP is expected to lead to a revision of the EPA licence, and a requirement from DPE Water that Council obtained Section 60 approval for the Harden reuse scheme.

The following options are considered for the upgrade of the Harden STP:

Harden STP Option 1: Upgrade to oxidation pond system with effluent disposal by evaporation. This option will consist of:

- Construction of 2 x 2,800 EP capacity oxidation ponds (each pond approximately 1.2 Ha in crest area, and 15 ML volume at TWL)
- Connection of oxidation pond to existing inlet works and maturation ponds
- Construction of a 28 Ha evaporation pond (approximately 130 ML volume at TWL) to dispose of effluent

Harden STP Option 2: Upgrade to oxidation pond system with effluent disposal by agricultural irrigation. This will consist of:

- Construction of 2 x 2,800 EP capacity oxidation ponds (each pond approximately 1.2 Ha in crest area, and 15 ML volume at TWL)
- Connection of oxidation pond to existing inlet works and maturation ponds
- Construction of a 76 ML effluent storage pond (approximately 2.4 Ha in crest area) contain effluent during periods of low irrigation demand for full reuse
- 20 Ha of non-food crop irrigated area located on farm areas nearby. These will require an effluent transfer system and irrigation equipment

Harden STP Option 3: Upgrade to activated sludge system with effluent disposal by irrigation of public open spaces and river discharge. This will consist of:

- Construction of an IDEA tank (2,800 EP) with top dimension of 39 m (L) x 21 m (W)
- Connection of IDEA tank to existing inlet works
- The existing maturation ponds are no longer used for disinfection.
- Construction of new UV disinfection facilities to disinfect effluent prior to environmental discharge or reuse in the existing Harden reuse scheme. A new chlorination system is also constructed for use in reuse scheme.
- The existing 3.4 ML effluent storage in-ground tank is covered to prevent contamination
- Convert existing Pond 1 to 2 x sludge lagoons with effective volume of 1,100 m^3 each
- Construction of a new amenity building
- Construction of alum dosing unit for phosphorus removal (only for use when effluent is being discharged to the river)
- Installation of SCADA, telemetry system
- Installation of pontoon surface aerators and associated switchboard

Harden STP Option 4: Undertake remediation works to extend life of existing STP. This will consist of:

- Immediate remediation of the Imhoff tanks, primary sedimentation tanks, trickling filter and humus tanks.
- Removal of lids from the existing anaerobic digestors
- Construction of new 2,800 EP sludge drying beds
- Continued use of Harden reuse scheme, with weekly monitoring of E. Coli
- Construction of a new STP after 10 years

Options 2, 3 and 4 have been shortlisted for the development of the IWCM Scenarios.

8. Young sewerage scheme

8.1 Background

Sewage collection and distribution

The Young sewage collection system comprises approximately 80 km of gravity pipelines and 3 km of rising mains. Five sewage pumping stations (SPS) serve approximately 3% of the properties in Young, with the remaining 97% of properties gravitating directly to the STP. The service area boundary of the Young sewerage scheme is shown in Figure 8-1.

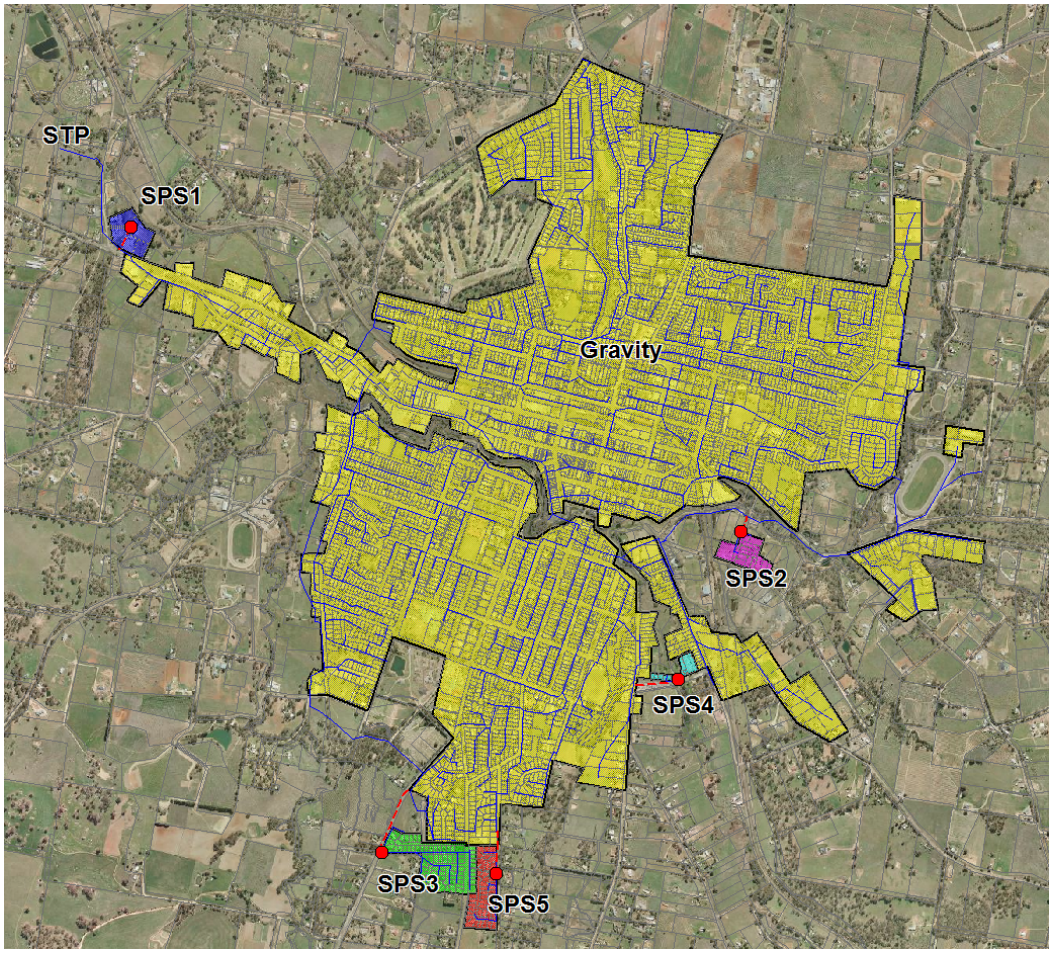

Figure 8-1: Young sewerage scheme with service area boundary

Sewage treatment

The Young STP comprises an Intermittently Decanted Extended Aeration (IDEA) activated sludge system with UV disinfection. The STP has a design capacity of 12,000 EP.

Disinfected effluent is stored in a reclaimed water storage tank. Reclaimed water is pumped to the Golf Course for reuse, or through a separate rising main to Miller Henry (Burrangong) Oval or onsite reuse. Typically, 100 ML/yr of effluent is reused.

If the effluent storage tank is full or not in use, effluent can overflow from the storage/balance pond or be diverted after the UV system to a weir overflow structure which diverts to a maturation pond or Burrangong Creek. Discharge to Burrangong Creek is licensed under EPA Licence Number 1624. Council has shown interest in expanding the recycled water scheme to supply to an additional 17 urban open spaces (Stage 2 of RWMP, shown in Figure 8.2)

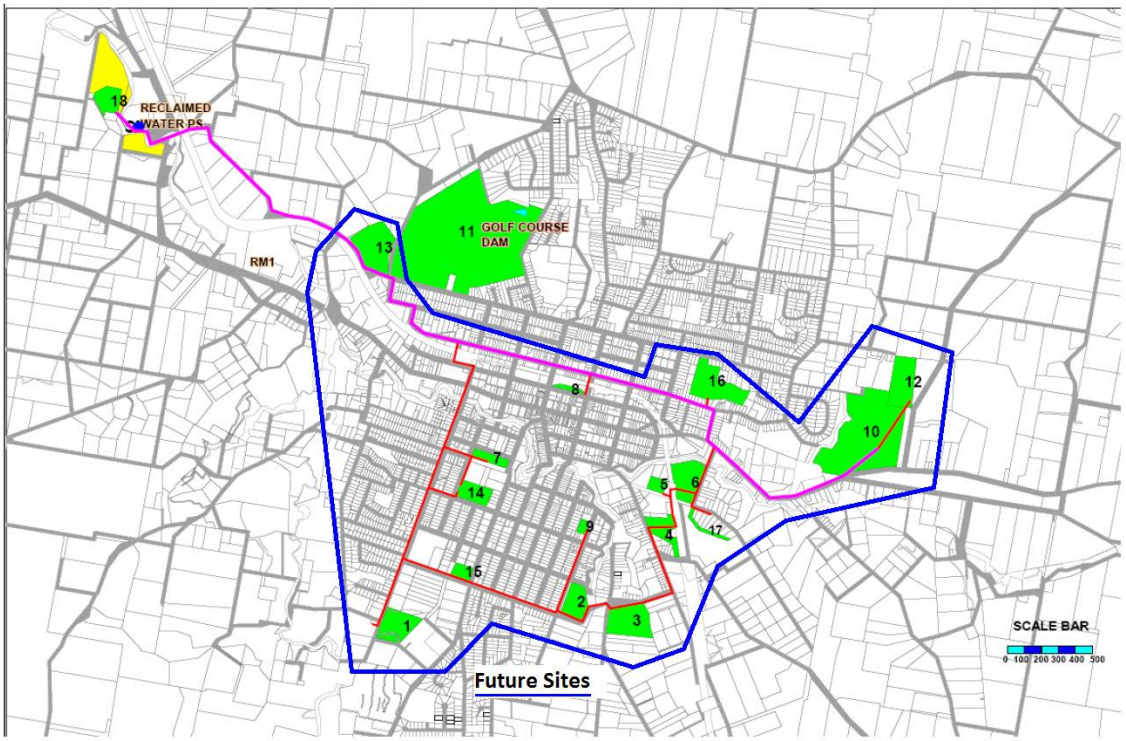

Figure 8.2: Current and future effluent reuse sites

Biosolids Management

The sludge stabilising and thickening system comprises three sludge lagoons (providing at least six months of storage) with supernatant pits and a common floating pontoon pump/mixer. Dewatered biosolids cake is conveyed into trucks for transport to Council's landfill site for disposal.

8.2 Growth

The 30-year forecast population growth for the Young sewerage scheme is provided in Table 8-1.

Table 8-1: Forecast population growth for the Young sewerage scheme

	2017	2022	2027	2032	2037	2042	2047
SPS1	0	0	0	0	0	0	0
SPS2	19	19	19	19	19	19	19
SPS3	164	218	286	360	435	513	593
SPS4	65	65	65	65	65	65	65
SPS5	96	96	96	96	96	96	96
Gravity	6,889	7,104	7,378	7,673	7,973	8,284	8,606
Total	**7,233**	**7,501**	**7,845**	**8,213**	**8,589**	**8,977**	**9,379**

8.3 Sewerage scheme issues

The issues with the Young sewerage scheme are outlined in Table 8-2.

Table 8-2: Young sewerage scheme issues

Issue Type	Target for Compliance	Issue
Regulatory	EPA licence	Faecal coliform limits in the effluent have been exceeded due algae build up on the UV lamps reducing its efficiency. There are two main reasons for the algal build-up: • Sludge carryover from the balance tank, • Long detention times in the balance tank. Effluent needs to be continuously transferred from the balance tank. In the long-term a cover for the effluent balance tank may be considered.
Levels of Service	Response time	The emergency storage volume at SPS3 is less than an hour at ADWF. This may not be sufficient to cover the response times during emergency.
Sewer Catchment Performance	Odour/ Septicity	Young SPS1 is estimated to be at medium risk of odour/septicity issues. Further monitoring is recommended.
	SPS capacity	SPS3 is estimated to currently be running six hours per day @ADWF, and this is expected to increase due to development in the catchment. The pump size may also not be adequate to pump wet weather flows. Young sewerage scheme collection system modelling (done by Public works) also identified this pump was undersized.
Best Practice	Section 60 approval	Effluent from the Young STP is reused on-site and for watering Young Golf Course and Burrangong Oval. Council does not have a Recycled Water Management Plan or Section 60 approval for the off-site effluent reuse.

9. Unserviced Communities

The villages and rural properties outside of the towns of Young, Harden/Murrumburrah and Boorowa are all unsewered and use On-Site Sewage Management Systems (OSSMS). Council estimates there are a minimum of 5,000 septic tanks across in the Shire.

Koorawatha and Wombat

The assessment of the towns of Koorawatha and Wombat identified dwelling density issues where several small properties in proximity may not provide enough land for septic effluent disposal. Council have also identified this issue which is expected to increase with additional dwelling growth. Council's minimum lot size in villages varies from 2000 m^2 to no minimum.

Murringo, Bendick Murell and Rye Park

The assessment of the towns of Murringo, Bendick Murell and Rye Park identified many small lot sizes, however these small lots are typically bordering large areas of land which could provide space for septic effluent disposal, albeit on land that does not necessarily belong to the owner of the septic system. Soil in these villages is imperfectly or poorly drained, which could lead to effluent pooling if soil is saturated, creating a public health hazard. Murringo is located in a slight valley, and septic effluent is expected to drain in the direction of Murringo Creek, putting it at risk of contamination, especially from properties that are less than 100 m from the creek.

Jugiong

The assessment of the town of Jugiong identified dwelling density issues similar to that in Wombat, and two properties very close to the Murrumbidgee River upstream of the GWCC operated Jugiong WTP. Council have indicated that there is an ongoing and compounding OSSMS issue relating to existing residential and commercial premises and potential commercial development which is located within the Murrumbidgee floodplain.

The assessment evaluated the options of improving the performance of the on-site sewage management systems to comply with Section 68 of the Local Government Act or providing a reticulated sewerage scheme with centralised sewage treatment for these villages.

10. Asset and Financial Review

10.1 Asset Condition

Public Works undertook a condition assessment of the above-ground assets of the water supply and sewerage schemes. The assets rated as 4 – poor and 5 – very poor are listed in Table 10-1, Table 10-2 and Table 10-3. Council's agreed LOS acceptable condition rating is Level 3.

Table 10-1: Young water supply asset condition ratings

Location	Asset	Rating
North Young Water Pumping Station	Switchboard	5
	Instrumentation	4
	Power supply	4
Back Creek Road Water Pumping Station	Switchboard	5
	Instrumentation	4
	Power supply	4
Marina St Water Pumping Station	Instrumentation	4

Table 10-2: Harden water supply asset condition ratings

Location	Asset	Rating
Cunningar Rural PS Rating	Pipework and valves	4
	Switchboard	5
	VSD Control (ABB)	5
	Power supply	4
Aurville Rural PS Rating	Motorised valve actuator	4
Galong Reservoir	Chlorination system	4
	Motorised valve actuator	4
Demondrille Reservoir	Concrete structure	4
	Motorised valve actuator	4
Prunevale Reservoir	Concrete structure	4
Jugiong High Level Reservoir	Concrete structure	4
	Switchboard	5
	Automatic control	4
	Instrumentation	4
Jugiong Low Level Reservoir	Switchboard	5
	Automatic control	4
	Instrumentation	4
Harden STP	All Treatment Process Units (except for Spiral type screen system)	5
	All components of effluent reuse scheme	5
	Pipework and valves, building structures and fencing	5

Location	Asset	Rating
	Roads and drainage	4
	Switchboard, electrical instrumentation, and automatic control systems	5
	Electrical installations, telemetry, power supply and antenna	4

Table 10-3: Boorowa water supply asset condition rating

Location	Asset	Rating
Boorowa Raw Water PS	Switchboard	5
Boorowa WTP	Roads & Drains	4
	WTP Switchboard and Bore pump stations 1 & 2 switchboards	4
	Electrical instrumentation	4
Boorowa STP	All Treatment Process Units (except for Spiral type screen system)	4
	Roads and drainage	4
	Switchboard and site power outlet	5
	Compliance with standards and regulations	5

The condition ratings of the water mains are listed in Table 10-4. CCTV inspection cannot be performed due to pipe size, access and water contamination issue; therefore, the asset condition is identified based on age, number of breaks and number of dirty water complaints.

Table 10-4: Asset condition of in-ground water supply system assets

Area	Results of the asset condition assessments	Asset Material Type
Young	8.7% is Cond 5 72.6% is Cond 4 2.5% is Cond 3 7.8% is Cond 2 8.4% is Cond 1	17% is AC 6% is PVC 6% is CI 71% is Unknown
Harden	8.9% is Cond 5 6.0% is Cond 4 53.1% is Cond 3 21.4% is Cond 2 10.6% is Cond 1	58% is AC 21% is PVC 19% is CI 1% is GAL 1% is other/unknown
Boorowa	11.8% is Cond 5 8.4% is Cond 4 28.4% is Cond 3	50% is AC 36% is PVC 14% is DICL

Area	Results of the asset condition assessments	Asset Material Type
	14.9% is Cond 2 36.5% is Cond 1	

The condition ratings of the sewer mains are given and Table 10-5. Condition ratings were undertaken using CCTV inspection.

Table 10-5: Asset condition of in-ground sewerage system assets

Area	Asset Category	Results of the asset condition assessments	Asset Material Type
Young	Sewer Mains – total network length is 81.31km	4.2% is Cond 5 3.8% is Cond 4 3.6% is Cond 3 5.6% is Cond 2 28.7% is Cond 1	5% is AC 2% is DICL 33% is PVC 15% is HDPE/PE 35% is GRC/URC 10% is VC/CONC **2% has been relined**
Harden	Sewer Mains- total network length is 34.03km	1.6% is Cond 5 7.1% is Cond 4 46.6% is Cond 3 14.7% is Cond 2 22.7% is Cond 1	5% is AC 47% is PVC/uPVC 48% is VC/CONC **7% has been relined**
Boorowa	Sewer Mains- total network length is 22.63km	10.1% is Cond 5 0.6% is Cond 4 2.1% is Cond 3 2.4% is Cond 2 18.7% is Cond 1	86% is AC/Conc 4% is PVC 5% is HDPE/PE 5% is Unknown **16% has been relined**

11. Scenarios

Table 11-1 and Table 11-2 show the bundled scenarios segregated for the water supply and sewerage schemes. The issues that are being addressed by each option are also listed.

Table 11-1: Shire Wide water supply scenarios – infrastructure needs and staging

Target for Compliance	Issue	Option	Scenario					
			1	**1a**	**2**	**3**	**4**	**4a**
Boorowa water supply								
Water security	The forecast 30-year unrestricted demand exceeds the secure yield of the water source	Construct a pipeline to supply water from GWCC	✓ 2023	✓ 2023	-	-		
		Construct an off-stream storage to meet water security requirements	-	-	✓ 2023	✓ 2023	✓ 2023	✓ 2023
Water quality	The Boorowa WTP process will not be able to produce water that meets the future Health Based Targets (HBTs)	Construct a pipeline to supply water from GWCC	✓ 2023	✓ 2023	-	-	-	-
		Upgrade the WTP to meet the HBTs	-	-	✓ 2023	✓ 2023	✓ 2023	✓ 2023
	Only 18% of the customers in Boorowa drink the water due to high hardness and dissolved solids	Construct a pipeline to supply water from GWCC – address hardness and total dissolved solids	✓ 2023	✓ 2023	-	-		
		Upgrade the WTP to address hardness	-	-	-	✓ 2023	-	-
		Upgrade WTP to address hardness and all aesthetic parameters	-	-	-	-	✓ 2023	✓ 2023

Target for Compliance	Issue	Option	Scenario					
			1	**1a**	**2**	**3**	**4**	**4a**
Levels of service	The reservoir storage at Boorowa is half the peak day demand and will not be able to maintain supply in the event of an interruption	Construct a new 900 kL potable water reservoir at Boorowa	✓ 2023	✓ 2023	✓ 2023	✓ 2023	✓ 2023	✓ 2023
Non-revenue water	High system leakage/losses	Install smart meters in the distribution system to collect information (allowance for 10 meters)	✓ 2023	✓ 2023	✓ 2023	✓ 2023	✓ 2023	✓ 2023
Harden water supply								
Levels of service	The Bobbara Street reservoir (built around 1930/40s) is near the end of life	Construct a new reservoir	✓ 2035	✓ 2035	✓ 2035	✓ 2035	✓ 2035	✓ 2035
Non-revenue water	High system leakage/losses	Install smart meters in the distribution system to collect information (allowance for 10 meters)	✓ 2023	✓ 2023	✓ 2023	✓ 2023	✓ 2023	✓ 2023

Table 11-2: Shire Wide sewerage scenarios – infrastructure needs and staging

Target for Compliance	Issue	Option	Scenario 1	1a	2	3	4	4a
Boorowa sewerage scheme								
Performance	Maturation pond does not have sufficient capacity to provide 20 days hydraulic retention time	Construct additional maturation pond	✓ 2025	✓ 2025	✓ 2025	✓ 2025	✓ 2025	✓ 2025
Condition	Sewage treatment plant will reach the end of design life in 20 years	Construct new activated sludge plant with effluent discharge and reuse for irrigation of public open spaces	-	✓ 2047	✓ 2047	-	-	✓ 2047
		Construct new oxidation pond plant with effluent evaporation and reuse for agricultural irrigation.	✓ 2047	-	-	✓ 2047	✓ 2047	-
Harden sewerage scheme								
Condition	Significant renewals are required for the sewage treatment plant to achieve the residual life of 20 years	Construct a new activated sludge plant at end of life with effluent discharge and reuse for irrigation of public open spaces	New STP in 2041	-	-	-	New STP in 2041	-
		Avoid renewals and construct a new activated sludge plant with effluent discharge and reuse for irrigation of public open spaces	-	New STP in 2027	New STP in 2027	-	-	New STP in 2027

Target for Compliance	Issue	Option	Scenario					
			1	1a	2	3	4	4a
		Avoid renewals and construct a new oxidation pond plant with effluent evaporation and reuse for agricultural irrigation.	-	-	-	New STP in 2027	-	-
Unserviced areas								
Jugiong	Houses have small lot sizes, are in the flood plain, and are upstream of the Jugiong WTP intake	Provide a reticulated sewerage scheme with oxidation ponds and effluent disposal by evaporation	✓ 2048	✓ 2048	✓ 2048	✓ 2048	✓ 2048	✓ 2048

11.1 Present Value Analysis of Scenarios

The details of net present value cost estimate for the scenarios are provided in Appendix A.

11.1.1 Water supply service

Table 11-3 presents the summary of the estimated total cost of capital outlay and the present value of the capital, and the operating and maintenance (O&M) cost estimates over the 30 years of the water supply service in each IWCM Scenario.

Table 11-3: Capital and present value costs summary – Water supply scenarios

Scenario	Total Capital Cost $K (over 30 years)	Present Value of capital cost $K @7%	Present value of opex @7%	Total present value $K @7%
Scenario 1 & 1a	44,207	38,626	7,234	45,860
Scenario 2	36,987	28,986	3,147	32,133
Scenario 3	39,531	30,797	4,014	34,810
Scenario 4 & 4a	43,015	33,114	5,211	38,325

11.1.2 Sewerage service

Table 11-4 presents the summary of the estimated total cost of capital outlay and the present value of the capital, and the operating and maintenance (O&M) cost estimates over the 30 years of the sewerage service in each IWCM Scenario.

Table 11-4: Capital and present value costs summary – Sewerage scenarios

Scenario	Total Capital Cost $K (over 30 years)	Present Value of capital cost $K @7%	Present value of opex @7%	Total present value $K @7%
Scenario 1	20,427	5,616	391	6,007
Scenario 1a, 2 & 4a	26,441	12,190	1,395	13,585
Scenario 3	16,860	8,219	233	8,451
Scenario 4	20,427	5,616	391	6,007

11.1.3 Avoided costs

The Scenarios will result in avoided operating and maintenance costs due to the following:

- avoided renewal costs for the Boorowa WTP
- avoided renewal costs for the Harden STP.

The avoided operating and maintenance costs associated with existing infrastructure for each scenario are presented in Table 11-5.

Table 11-5: Summary of avoided costs

Scenario	Avoided costs – water supply ($K)	Avoided costs – sewerage ($K)	Present value of avoided cost (@7%) ($K)
Scenario 1	12,302	810	8,383
Scenario 1a	12,302	2,242	9,722
Scenario 2	0	2,242	1,525
Scenario 3	0	2,242	1,525
Scenario 4	0	810	187
Scenario 4a	0	2,242	1,525

11.1.4 Scenario costs

A present value analysis of each scenario, including avoided costs, at annual real discount rates of 10%, 7% and 4% has been undertaken in accordance with Topic 11 of the IWCM Check List. Results for the 7% discount rate have been presented in Table 11-6

Table 11-6: Present value costs of Scenarios including avoided costs

Scenario	Present Value of capex & opex cost $K @7%	Present Value of avoided costs $K @7%	Total present value $K @7%
Scenario 1	51,866	8,383	43,483
Scenario 1a	59,445	9,722	49,723
Scenario 2	45,719	1,525	44,194
Scenario 3	43,262	1,525	41,737
Scenario 4	44,331	187	44,145
Scenario 4a	51,910	1,525	50,385

11.1.5 Typical Residential Bill Analysis of Scenarios

As part of the assessment of scenarios, approximate annual Typical Residential Bills (TRBs) for the Council's water supply and sewerage services have been estimated by developing water and sewer fund financial models. The financial models were developed using DPE Water's FINMOD 4 financial modelling software. Approximate TRBs are expected to be within about 10% of the final TRBs that will be calculated in the Financial Plan for the adopted IWCM Strategy.

The financial models for IWCM scenarios have been built upon the base line scenario which corresponds to the Council's 'business-as-usual' 30-year asset renewal plans. The estimated capital costs of the IWCM initiatives for each of the scenarios have then been incorporated to the baseline capital works program for the purpose of analysis.

The 30-year capital works for the IWCM scenarios and the 'baseline' scenario program for water supply and sewerage are compared in Figure 11-1 and Figure 11-2 respectively. The operation, maintenance, and administration (OMA) cost estimates for each scenario including additional expenses for IWCM initiatives and the recommended management system improvement measures are compared in Figure 11-3 and Figure 11-4.

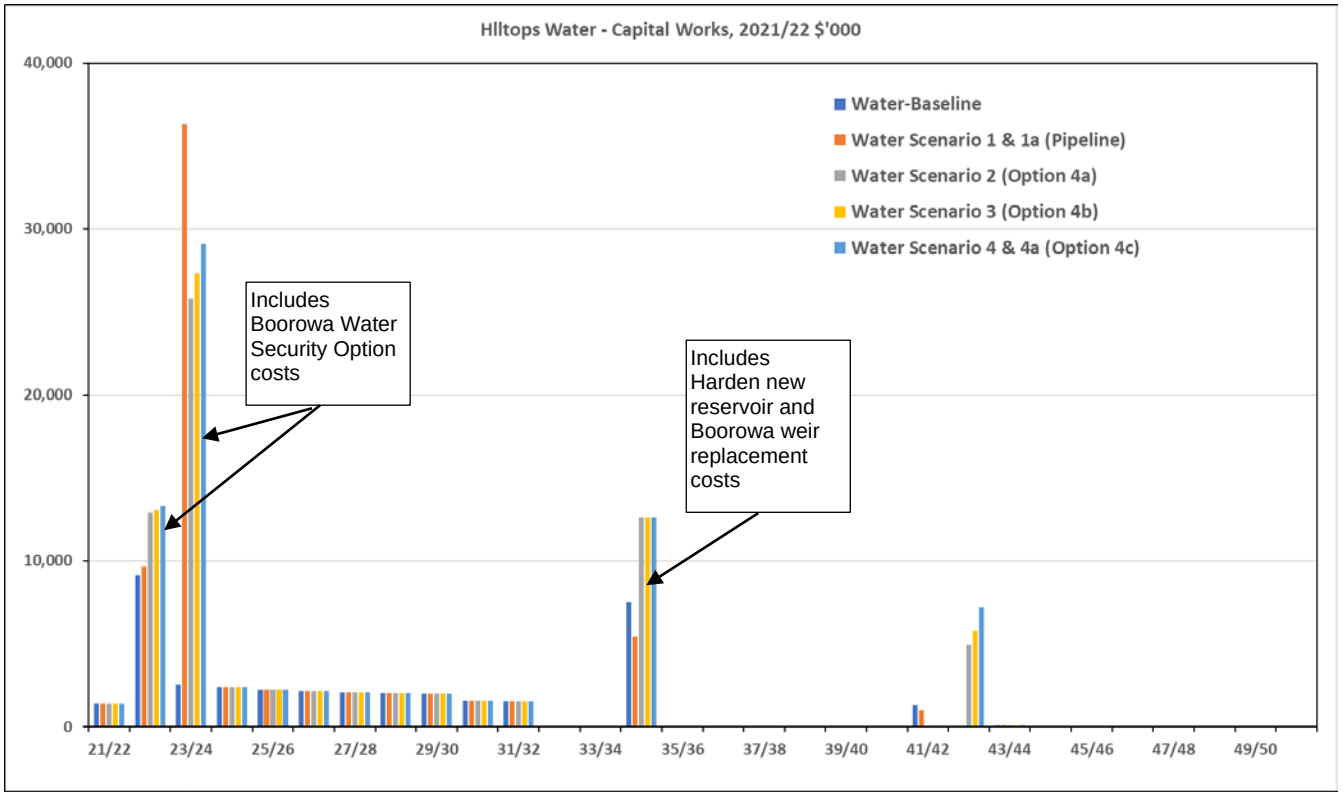

Figure 11-1: Comparison of 30-year Capital Works Programs – Water Supply

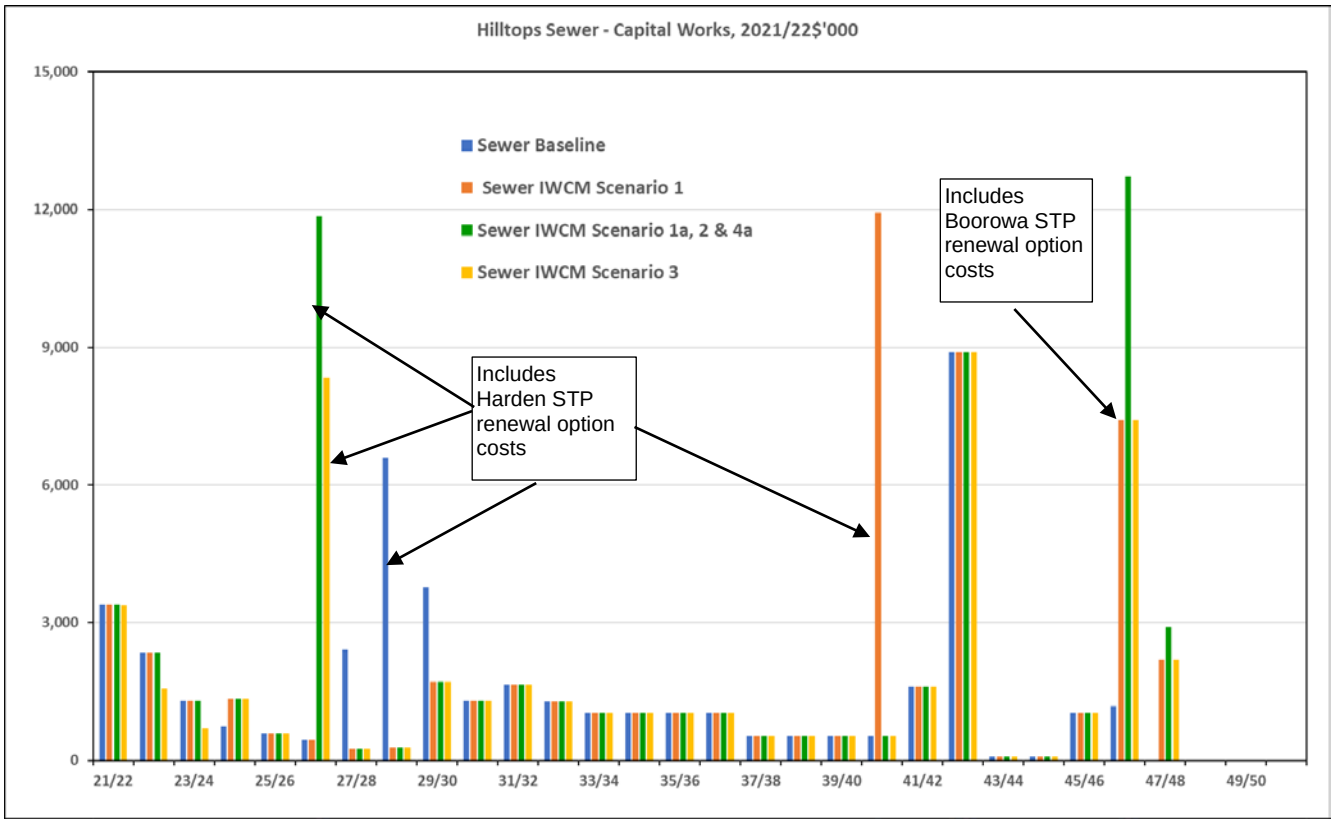

Figure 11-2: Comparison of 30-year Capital Works Programs – Sewerage

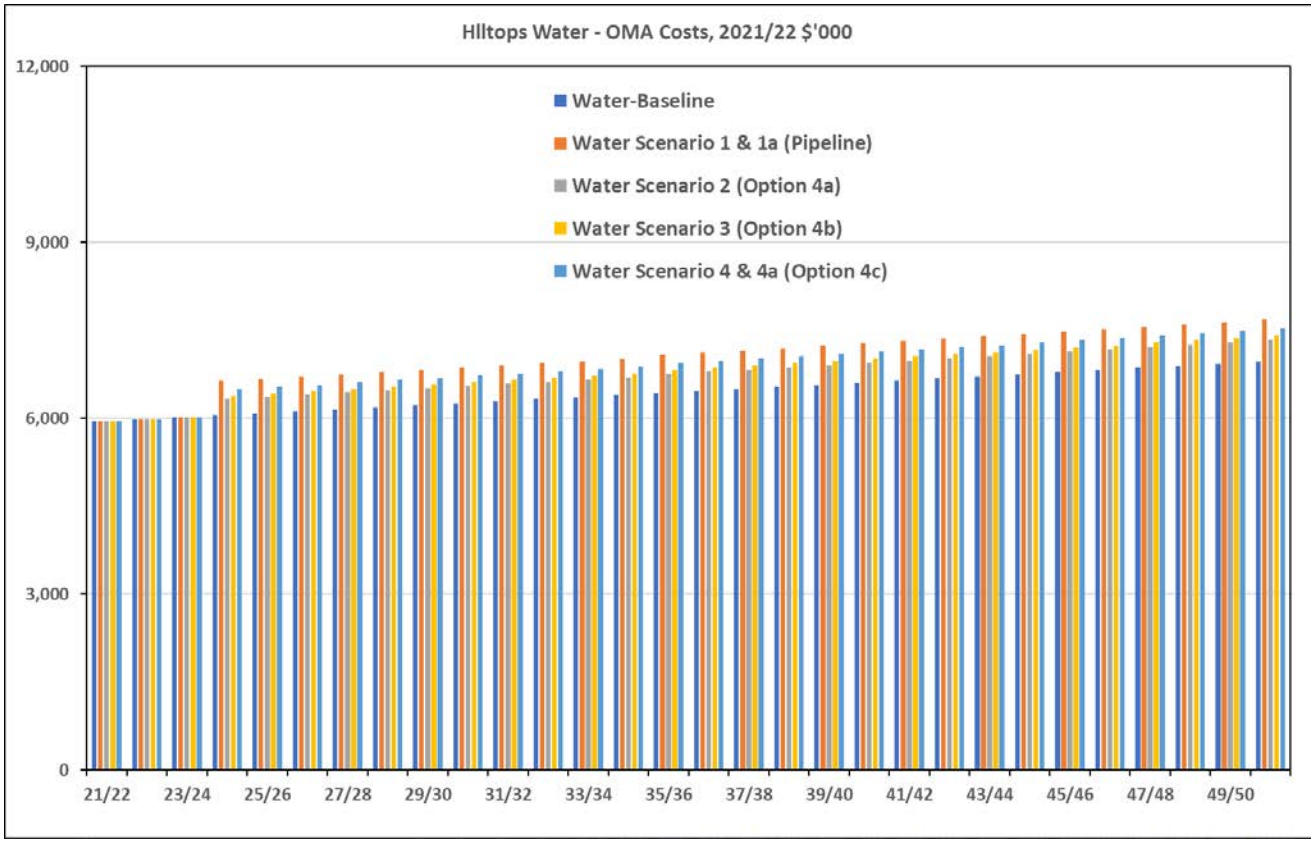

Figure 11-3: Comparison of 30-year OMA Costs – Water Supply

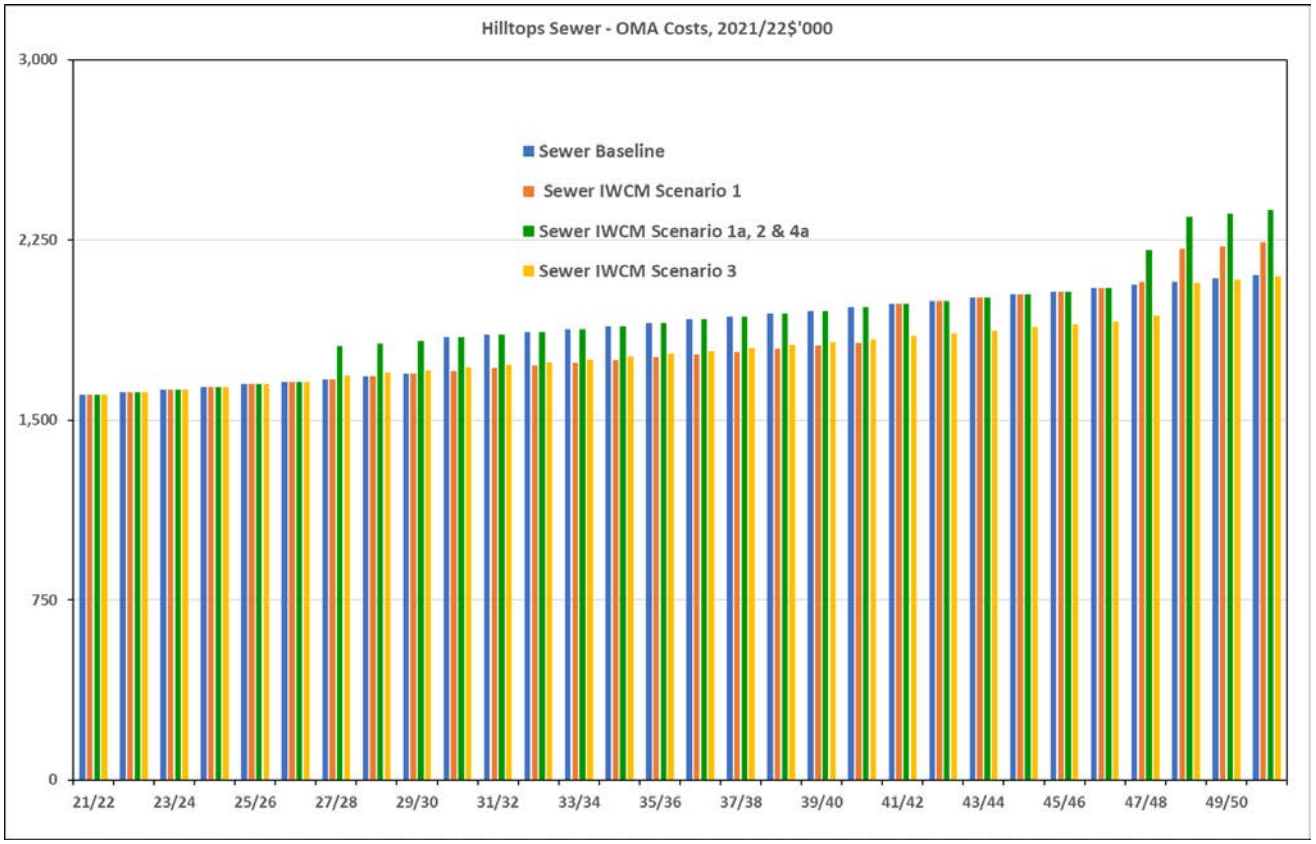

Figure 11-4: Comparison of 30-year OMA Costs – Sewerage

11.1.6 Water Supply TRB Forecasts

The water fund financial model has been developed with reference to the historic input details based on Council's 2019-20 and 2020-21 water income and financial position statements submitted as part of the financial data returns to the Office of Local Government.

Typical residential water bills for 2021-22 based on the adopted water tariff structure for the Council areas of Boorowa, Harden and Young for 2021-22 are shown below.

- TRB for Boorowa: $1,012 p.a.
- TRB for Harden: $888 p.a.
- TRB for Young: $874 p.a.

A weighted average TRB for the consolidated Hilltops water fund has been estimated as $875 p.a. for 2021-22 assuming uniform tariff structure across all the three service areas of Boorowa, Harden and Young.

For modelling purposes, two levels of government grant/ subsidy at 50% and 90% for the Boorowa water security option capital works under the scenarios have been considered. The TRBs required from 2022/23 onwards for the scenarios are presented Table 11-7 and the forecast TRBs for each of the IWCM scenarios over the 30-year forecast period are compared in Figure 11-6 and Figure 11-5.

Table 11-7: TRB Forecasts for Scenarios – Water Supply

Scenario	Forecast TRB p.a. in 2021/22$ for Boorowa water security option grant/ subsidy at	
	50%	90%
BAU Baseline	875	875
Scenario 1 & 1a – Pipeline	1,035	915
Scenario 2 – Option 4a	975	905
Scenario 3 – Option 4b	985	910
Scenario 4 & 4a– Option 4c	1,005	920

Also, at the forecast levels of TRBs, after due consideration of government grant/ subsidy, new loans will be required for all the scenarios. The forecast new loan requirements associated with each scenario is shown in Figure 11-7.

At the forecast level of TRBs, a minimum level of cash and investment of $3 Million can be maintained in the water fund throughout the forecast period.

The financial modelling forecasts presented in this report is intended as a means for comparing the IWCM scenarios to support the selection of a preferred scenario. Further financial modelling will be carried out after selection of preferred scenario and required adjustments made in keeping with Council's internal financial planning processes.

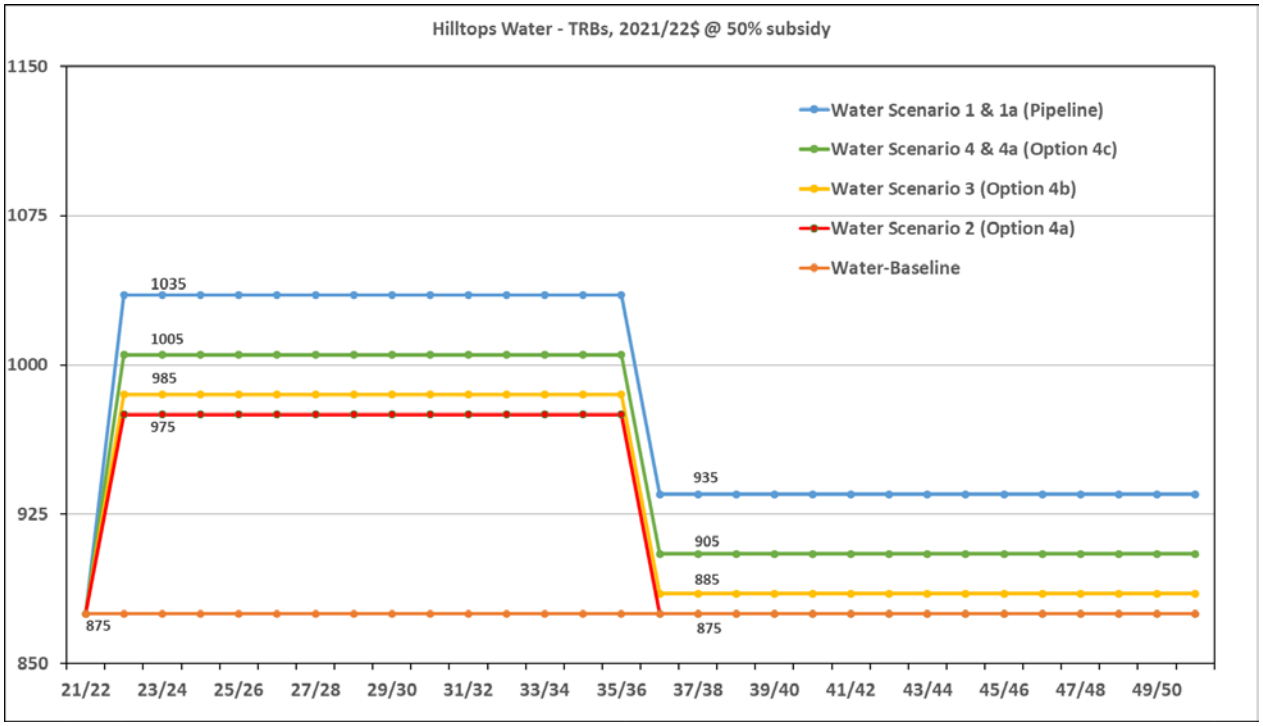

Figure 11-5: TRB Forecasts for IWCM Scenarios @ 50% Subsidy – Water Supply

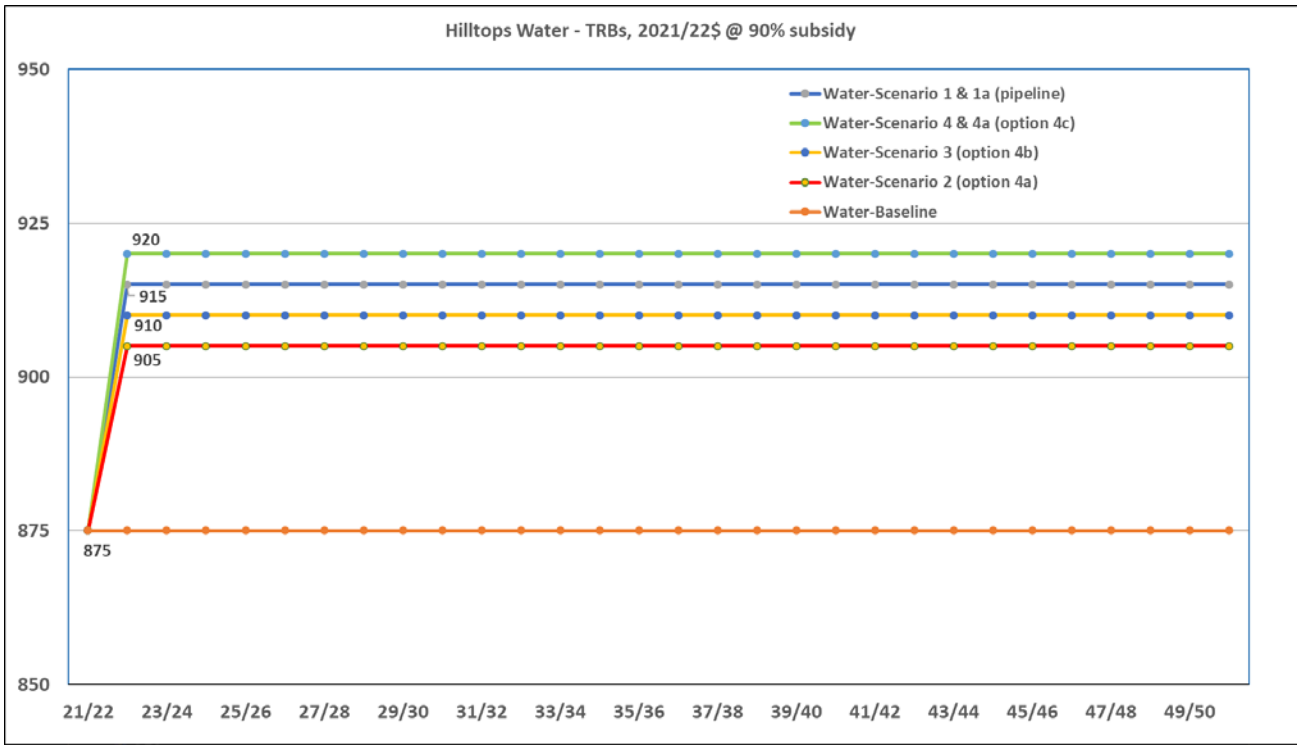

Figure 11-6: TRB Forecasts for IWCM Scenarios @ 90% Subsidy – Water Supply

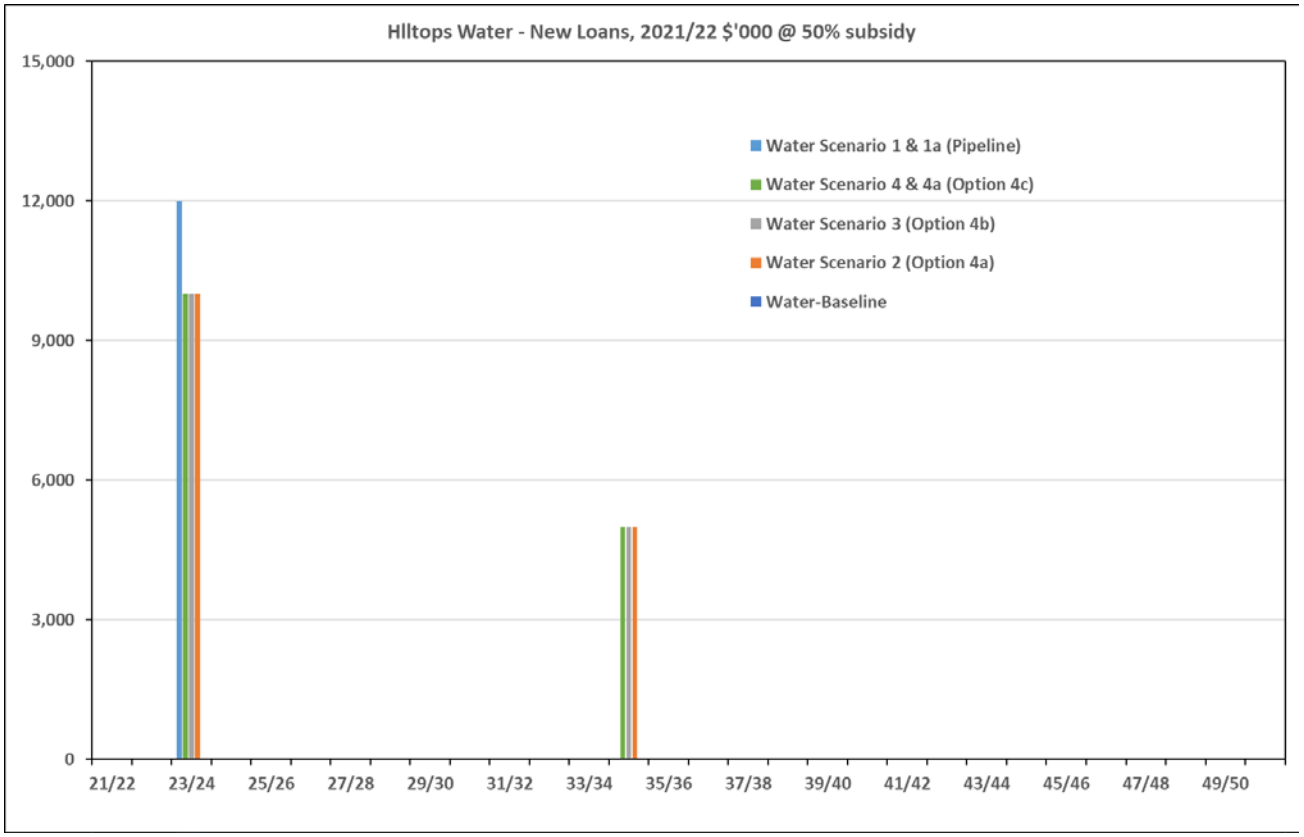

Figure 11-7: New Loan Forecast for IWCM Scenarios @ 50% subsidy – Water Supply

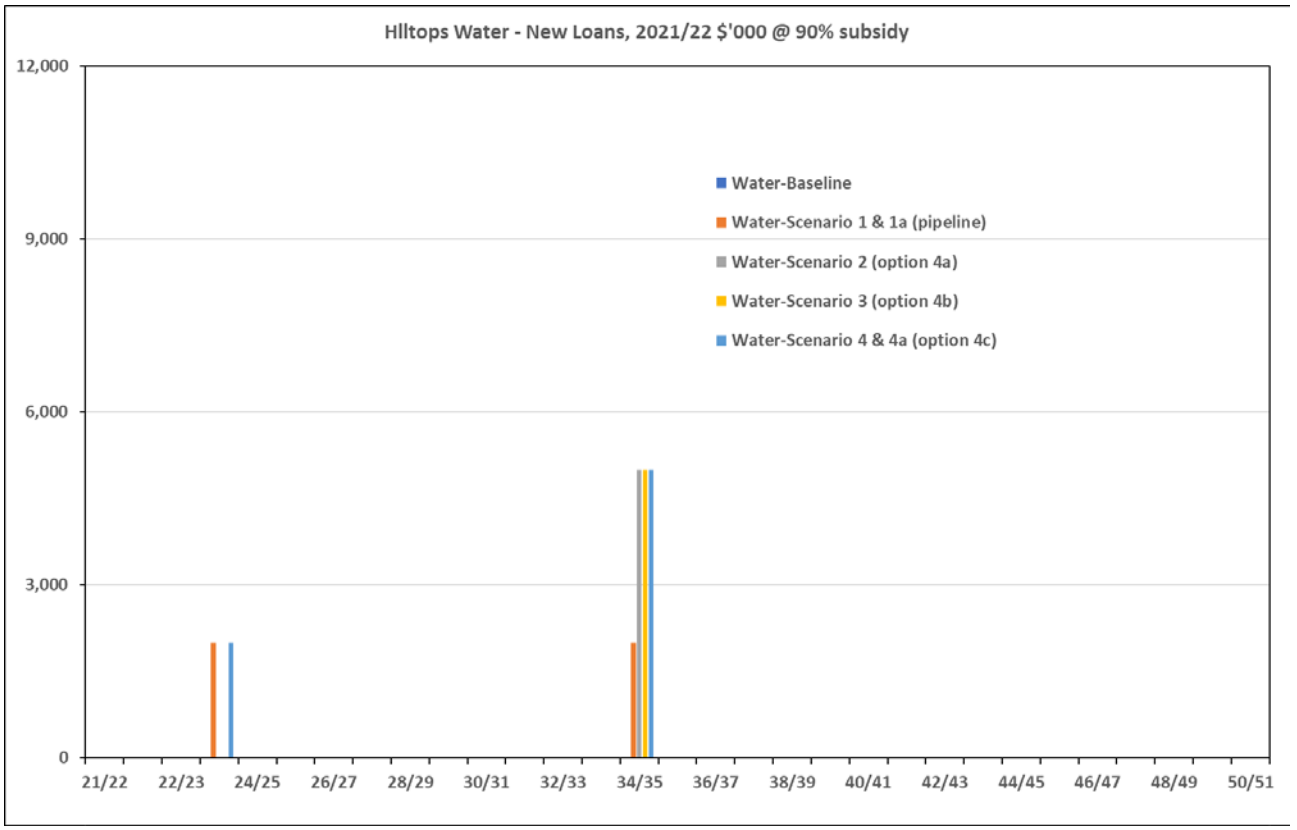

Figure 11-8: New Loan Forecast for IWCM Scenarios @ 90% subsidy – Water Supply

11.1.7 Sewerage TRB Forecasts

The sewer fund financial model has been developed with reference to the historic input details based on Council's 2019-20 and 2020-21 sewer income and financial position statements submitted as part of the financial data returns to the Office of Local Government.

The financial models considered availability of 50% grant for the new Harden STP renewal and upgrade option capital works for all the IWCM scenarios. Typical residential sewer bills for 2021-22 based on the adopted sewerage tariff structure for the Council areas of Boorowa, Harden and Young for 2021-22 are shown below.

- TRB for Boorowa: $796 p.a.
- TRB for Harden: $789 p.a.
- TRB for Young: $776 p.a.

A weighted average TRB for the consolidated Hilltops sewer fund has been estimated as $774 p.a. for 2021-22 and the forecast TRBs for each of the IWCM scenarios are compared Figure 11-9. The model forecasts demonstrate that Council can maintain the current (2021-22) residential sewerage charges of $774 p.a. across all the three service areas of Boorowa, Harden and Young for all the forecast years, and there is no impact on typical residential bills for sewerage due to any of IWCM scenarios compared to the baseline scenario.

At the forecast level of TRB and with due consideration of the government grant/subsidy at both the 50% and 90% for the Harden STP upgrade works, no new loans will be required to fund any of the planned capital works for all the scenarios including the baseline. Also, a minimum level of cash and investment of $4 Million can be maintained in the sewer fund throughout the forecast period.

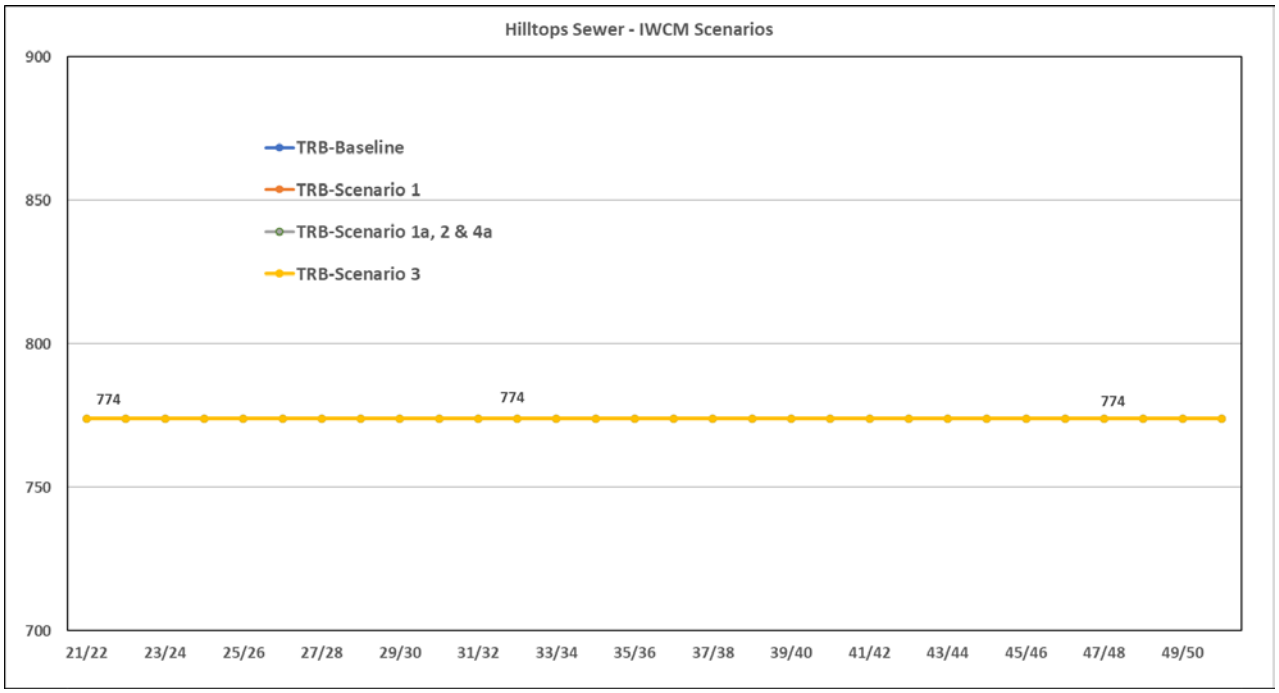

Figure 11-9: Comparison of TRB Forecasts for IWCM Scenarios – Sewerage

The financial modelling forecasts presented in this report are intended as a means for comparing the IWCM scenarios to support the selection of a preferred scenario. Further financial modelling will be carried out after selection of preferred scenario and required adjustments made in keeping with Council's internal financial planning processes.

11.1.8 Triple Bottom Line Assessment of Scenarios

A total of six environmental and social targets have been used to score the Scenarios as to how they address the Issues. The targets were based on selected social and environmental objectives. Suitable weightings were assigned to the targets. The targets and their objectives are shown in Table 11-8.

Table 11-8: Social and Environmental Performance Targets and Objectives

	Objective	Key performance Targets	Weighting
Environmental	Maintain and enhance the health of waterways	Improve quality of STP effluent discharged to the	0.3
		Increase in reuse/recycling of wastewater	0.3
		Protect and improve local environmental flows	0.2
	Drive energy efficiency	Reduce carbon footprint	0.2
		(1) Total weighted environmental score	1
Social	Increase in facilities and provision of high	Presentation and usability of parks, gardens, reserves,	0.2
	Provide best practice water cycle management	Ensure all towns have access to secure potable water supply that meets industry best practice	0.3
		Ensure all towns have access to high quality potable water supply that meets industry best practice	0.5

The environmental and social scoring for all the scenarios is provided in Appendix B. The outcome of the environmental and social scoring for each Scenario across the targets is shown in Table 11-9.

Table 11-9: Summary of TBL Score for Scenarios

Scenario	Environmental Score	Social Score	Environmental and Social Score (ESS)
Scenario 1	3.0	4.4	7.4
Scenario 1a	4.4	5.0	9.4
Scenario 2	4.0	3.0	7.0
Scenario 3	2.4	3.0	5.4
Scenario 4	2.4	4.4	6.8
Scenario 4a	3.4	5.0	8.4

Table 11-10 presents the ranking of the IWCM Scenarios following the DPIE Water ranking methodology.

Table 11-10: TBL scores and ranking of scenarios

Scenario	Total PV ($M) – Water and Sewer	ESS	ESS/NPV	Rank
Scenario 1	43.483	7.4	0.17	**2**
Scenario 1a	49.723	9.4	0.19	**1**
Scenario 2	44.194	7.0	0.16	**4**
Scenario 3	41.737	5.4	0.13	**6**
Scenario 4	44.145	6.8	0.15	**5**
Scenario 4a	50.385	8.4	0.17	**2**

12. The recommended scenario

Council has selected IWCM Scenario 1a (water supply scenario 1 and sewerage scenario 2) as the recommended scenario for the IWCM Strategy. The works required for the preferred water supply and sewerage scenarios, are listed below.

Water supply works

Boorowa water security

Construct a pipeline to supply Boorowa service area from Goldenfields Water

Harden water supply

Construct a new Western reservoir to replace Bobbara Street reservoir

Non-revenue water

Install smart meters in the Boorowa and Harden distribution system to collect information that will enable identification of the system where losses are occurring.

Sewerage works

Boorowa sewerage scheme

Construct additional maturation pond to provide 20 days detention time (2025)

Construct a new activated sludge plant to replace the existing plant at end of life (2046)

Harden sewerage scheme

Construct a new activated sludge sewage treatment plant and maintain existing reuse (2027)

Young sewerage scheme

Augment SPS3 to meet increased sewer loads due to growth (2025)

Prepare a recycled water management system and obtain Section 60 approval for the effluent reuse scheme

Unserviced areas

Provide a reticulated sewerage scheme with treatment at Jugiong (2048)

13. Total Asset Management Plan

The total asset management plan (TAMP) provides the details of proposed capital works and recurrent operations, maintenance, and management (OMA) expenditure over a 30-year planning horizon and is essential for managing infrastructure assets to meet the levels of service in the most cost-effective manner for the present as well as the future customers.

A TAMP provides vital inputs for Council to develop their long-term funding strategies by linking to a long-term financial plan which identifies funds required to implement capital and recurrent expenditure at affordable levels of customer charges.

13.1 Capital Works

The recommended IWCM strategy enables Council to develop a schedule of capital works into the future to satisfy the forecast service demands in terms of growth, improved levels of service and renewal and replacement of existing assets.

Growth works	Works required to increase the capacity of facilities, to service new release areas, subdivisions, etc.
Improved level of service works (ILOS), including backlog works	Works to provide better public health and environmental standards, better service, higher reliability, or an extension of services to currently unserviced existing development. Works in this category may be eligible for Government grants.
Asset renewal	Renewal and replacement of existing assets which have reached the end of their effective economic service life due to age, condition, or performance.

The recommended IWCM strategy develops the growth and ILOS capital works over the planning horizon based on the preferred options to address the identified IWCM issues. Additionally, anticipating the need and timing for asset renewal and replacement is critically important to ensure that funding is available to carry out the identified renewal/ replacement works in a timely manner.

13.1.1 Asset Renewal

Identification of the timing and costs of renewal work requirements for water supply and sewerage assets has been undertaken adopting the following methodology in line with the IPWEA Practice Note 7, V3, 2016:

- Collation of the water and sewer assets/ facilities and components recorded for each of the asset/ facility from the Council's asset database/ asset registers. Council has been using a spreadsheet-based asset register to maintain and manage the records of sewerage assets.
- Labelling of components of assets with different useful lives as civil, mechanical, electrical and telemetry/instrumentation components. This is in line with the Australian Accounting Standards (AAS 16 and AASB116) that require assets comprised of significant parts with different useful lives to be depreciated separately (referred to as "componentisation') to enable a meaningful and accurate timing and costs of future renewals.
- Updating the current replacement costs of the assets/ components based on the latest revaluation records to the 2021-22 financial year using the relevant Construction Cost Index (CCI) prescribed by the NSW Reference Rates Manual – Valuation of water supply, sewerage, and stormwater assets (2021 update)
- Assessment of the condition of all the above-ground water supply and sewerage assets based on a visual inspection to assign a condition rating in accordance with the physical condition rating classification recommended by the NSW Office of Local Government, further refined in line with the IPWEA's Practice Note 7 (March 2016).

- Estimation of 'condition adjusted' remaining useful lives as a % of adopted useful lives of components listed in the asset registers. Where condition rating details of asset component levels are unavailable (underground assets), age based remaining useful lives have been considered.
- Prioritisation of renewal of assets that are considered critical by adjusting the estimated remaining useful lives for 'criticality' of the assets/ facilities in consideration of the consequences of asset failure. The assets/ facilities with severe consequences of failure as identified by the Council have been assigned higher criticality ratings, and have been prioritised for earlier renewal to avoid probable major failures to service provision
- Following the adjustment to the remaining useful life for asset criticality, the scheme/ facility-wise timing and costs (in terms of current replacement cost - CRC) for asset renewal for the first 30-years starting 2020/21 has been collated.
- The collated 30-year asset renewal works have been further reviewed to align with the Council adopted 10-year capital budget, and to disaggregate the lumped-up renewal requirements with a view to spread-out and moderate the renewal capital funding requirements.

The details of asset condition and criticality rating classifications and the ratings assigned to Council's above-ground sewerage assets are provided in Table 10-1.

The renewal works schedule including assets with the end of remaining useful lives falling within the IWCM planning horizon, have been included in the 30-year water supply and sewerage capital works programs of the preferred scenarios. Details of 30-year capital works program are shown in Figure 13-1 and Figure 13-2.

13.1.2 Recurrent Costs

Administration/ Management costs	Reflects true overheads associated with providing a service. Any cross subsidies with the General Fund should be eliminated or explicitly disclosed in the Annual Accounts.
Operations and Maintenance (O&M) costs	It is assumed that the current level of costs shown in the Financial Statements reflects a realistic level of expenditure for the current schemes. The projections assume costs increase in proportion to growth.
Additional OMA costs	Additional costs are included where specific activities have been identified for future years. This includes new initiatives, plus additional costs associated with new capital works identified as part of the adopted IWCM scenario.

Additional recurrent OMA expenditure identified and included are as follows:

- Administration – No additional costs - as estimated and adopted by Council.
- Engineering and supervision – No additional cost - as estimated and adopted by Council.
- Operation and maintenance expenses – For the water fund financial model, additional OM costs for the Boorowa pipeline, bulk water purchase from GWCC and Harden new western reservoir included. For the sewer fund financial model, additional OM costs for proposed new STPs for Boorowa, Harden and Jugiong sewerage scheme have been included.
- Energy costs – as estimated and adopted by Council.
- Chemical costs – as estimated and adopted by Council.
- Other expenses – as estimated by Council.
- Other revenue, grants, and contributions – as estimated by Council.

Summary of 30-year OMA cost forecasts for water supply and sewerage services are presented in Figure 13-3 and Figure 13-4.

Figure 13-1: 30-year Water Capital Works Schedule - IWCM Scenario1 (Recommended)

CAPITAL WORKS IN 2022 ($'000)					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
Asset Items/ Components	**SUBSIDY**	**ILOS**	**GROWTH**	**RENEW**	**Total**	**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**	**2042/43**	**2043/44**	**2044/45**	**2045/46**	**2046/47**	**2047/48**	**2048/49**	**2049/50**	**2050/51**
Water Mains - Boorowa																																		
Mains renewal / replacement				100%	-																													
600002 - BWA - Water Mains - Capital				100%	**2,383**	250	245	243	240	236	233	230	227	224	130	125																		
Water Mains - Harden																																		
Mains renewal / replacement				100%	-																													
600012 - HDN - Water Mains - Replace Burley Griffin Way				100%	**1,457**	20	1,437																											
600074 - HDN - Galong Water Mains PRV Upgrade				100%	**28**				28																									
600094 - HDN Water Main Extension Racecourse RFS Job (Loan Funded)				100%	**330**	330																												
600281 - HDN Water Mains Replacement Program				100%	**5,794**	67	1,443	609	512	557	596	547	523	510	218	212																		
Water Mains - Young																																		
Mains renewal / replacement				100%	-																													
106860 - YNG - Water Mains - Capital Renewals				100%	**2,613**	131	380	296	298	300	204	208	207	201	196	191																		
600239 - Young Water Main Renewals				100%	**11,157**	300	4,093	828	808	788	769	750	732	714	696	679																		
Water PS - Boorowa																																		
Pump Station				100%	-																													
Pump Station / RWPA / Res				100%	-																													
Water PS - Harden																																		
Water Pumping Stations				100%	**118**													68		50														
Water PS - Young																																		
Water Pumping Stations				100%	**56**																					30			26					
Other				100%	**1**																					1								
WTP - Boorowa																																		
600006 - BWA - Water Treatment Plant - Capital				100%	**170**	78	92	-	-	-	-	-	-	-	-	-																		
Storage - Boorowa																																		
Reservoir				100%	-																													
Storage - Harden																																		
Reservoir				100%	-																													
600017 - HDN - Water Reservoirs Capital				100%	**563**		563																											
600073 - HDN - Galong Water Reservoirs Duplication				100%	**165**		165																											
600075 - HDN - Wombat Water Reservoirs Capital				100%	**181**		19	162																										
Storage - Young																																		
Tank 1 - Coating & Roof				100%	-																													
Other - Boorowa																																		
Bores				100%	-																													
Weir				100%	-																													
100004 - BWA Project Water Security				100%	**214**	21	193																											
600005 - BWA - Water Meters Replacement Program - Capital				100%	**156**	14	14	14	14	14	15	15	15	15	12	14																		
600362 - BWA - Network Infrastructure Renewal Works				100%	**1,800**	115	111	128	206	111	108	99	96	94	92	86			343				16			994		117	78						
IWCM - Boorowa Water Security - GWCC Pipeline	50%	95%	5%		**35,237**		510	33,733																										
IWCM - NRW reduction - Install smart meters		100%			**15**			15																										
Other - Harden																																		
600015 - HDN - Water Meters Replacement Program - Capital				100%	**159**	14	14	14	14	14	15	15	15	15	14	14																		
600059 - HDN - Water Telemetry & Instrumentation - Capital				100%	**125**		125																											
IWCM - New Western Reservoir (replacing Bobbra st reservoir)		100%			**5,091**														5,091															
IWCM - NRW reduction - Install smart meters		100%			**15**			15																										
Other - Young																																		
106890 - YNG - Water Meters Replacement Program				100%	**644**	57	56	56	56	57	57	57	57	58	67	66																		
600363 - YNG - Network Infrastructure Renewal Works				100%	**1,830**		203	199	194	190	185	180	176	172	168	163																		
GRAND TOTAL					**70,301**	**1,397**	**9,664**	**36,313**	**2,372**	**2,267**	**2,182**	**2,100**	**2,047**	**2,002**	**1,593**	**1,551**	**0**	**68**	**5,434**	**50**	**0**	**0**	**16**	**0**	**0**	**994**	**31**	**117**	**78**	**26**	**0**	**0**	**0**	**0**	**0**

Figure 13-2: 30-year Sewerage Capital Works Schedule - IWCM Scenario2 (Recommended)

CAPITAL WORKS IN 2022 ($'000)					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
Asset Items/ Components	**SUBSIDY**	**ILOS**	**GROWTH**	**RENEW**	**Total**	**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**	**2042/43**	**2043/44**	**2044/45**	**2045/46**	**2046/47**	**2047/48**	**2048/49**	**2049/50**	**2050/51**
Sewer Mains - Boorowa																																		
Mains renewal / replacement				100%	**4,878**	150	150	150	150	9	9	9	9	1,060	1,060	1,060	1,060																		
600022 - BWA - Sewer mains - Capital				100%	**607**			168			156			145		138																		
600076 - BWA - Sewer Mains smoke testing				100%	**94**		24		70																									
106940 - BWA Showground Sewerage				100%	**28**				28																									
600063 - BWA - Sewer Manhole refurbish				100%	**98**		24			25			25			23																		
Sewer Mains - Harden																																		
Mains renewal / replacement				100%	**7,548**									132	132	132	132	991	991	991	991	446	446	446	446					635	635				
600029 - HDN - Sewer Mains Renewal				100%	**1,155**		293	286			289			287																				
600064 - HDN Sewer manhole refurbishment				100%	**108**		27			27			28			26																		
600065 - HDN Smoke Testing				100%	**274**		49		139			86																						
Sewer Mains - Young																																		
Mains renewal / replacement				100%	**1,956**	24	24	24	24	-				72	72	72	72	36	36	36	36	86	86	86	86	85	85	85	85	372	372				
600093 - YNG Sewer Main Renewal Work (Loan Funded)				100%	**3,174**	3,174																												
600067 - YNG Sewer Manhole Refurbishment				100%	**1,396**		468			522			210			195																		
600070 - YNG Smoke Testing and Defect Rectification				100%	**447**		80		281			86																						
Sewage PS - Boorowa																																		
Electrical				100%	**201**												22														179				
Mechanical				100%	**103**																				103										
Pump Well				100%	**30**																								30						
Pumps				100%	**157**			71																	85										
Sewage PS - Harden																																		
Bobbara St - Reclaimed water reservoir, mains and PS				100%	**1,330**																				1,330										
Sewage PS - Young				100%																														
Electrical				100%	**92**	32						28			32																				
Mechanical				100%	**30**									15	8					7														
Pump Set				100%	**7**											7																			
IWCM - Augment SPS3 to meet growth			100%		**100**				100																									
STP - Boorowa																																		
Electrical Works				100%	**-**																													
Inlet Works				100%	**8**								8																					
Site Facilities Refurbishment				100%	**-**																													
600388 - Boorowa STP Process Upgrade				100%	**19**		19																											
IWCM - Addl. Maturation pond		100%			**500**				500																									
IWCM - New ASP based STP at end of design life		50%	10%	40%	**11,541**																								11,541					
STP - Harden				100%																														
Harden STP				100%	**-**	-	-														-							-							
600032 - HDN - Sewerage Treatment - Capital		100%			**195**	19	175																											
600389 - Harden STP Remediation Works				100%	**1,237**	-	625	612																											
IWCM - Construction of a new STP - Activated Sludge	50%	100%			**12,100**						11,400																					700		
IWCM - Construction of Jugiong sewerage scheme		100%			**2,200**																											2,200		
STP - Young																																		
Reuse				100%	**2,410**																				2,410									
Treatment				100%	**6,396**																				6,396									
600068 - YNG Septic Receival				100%	**340**		340																											
600078 - YNG STP -CCTV and Security Upgrade				100%	**166**		58		56			52																						
GRAND TOTAL					**60,925**	**3,400**	**2,357**	**1,311**	**1,347**	**583**	**11,854**	**261**	**280**	**1,712**	**1,305**	**1,654**	**1,287**	**1,027**	**1,027**	**1,034**	**1,027**	**532**	**532**	**532**	**532**	**1,604**	**8,891**	**85**	**85**	**1,036**	**12,726**	**2,900**	**0**	**0**	**0**

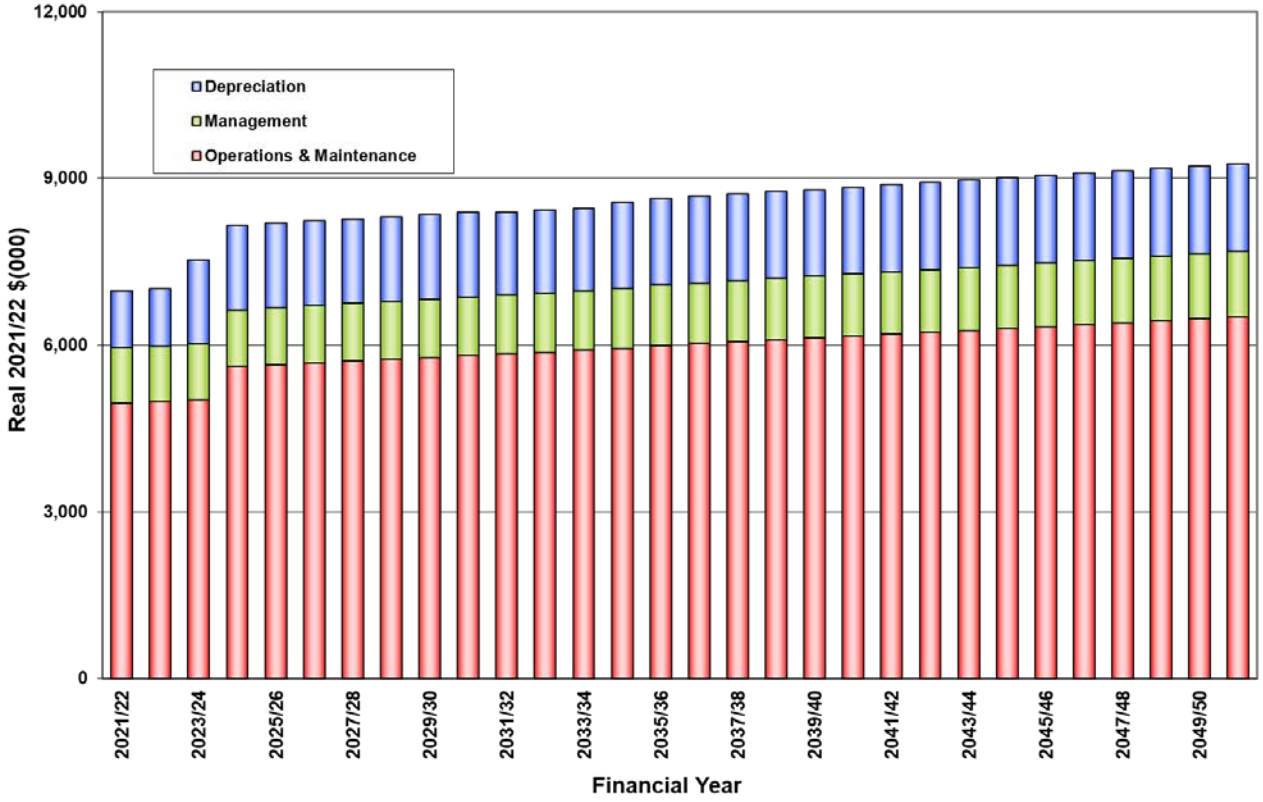

Figure 13-3: 30-year Recurrent O&M Summary – Water Supply ($'000)

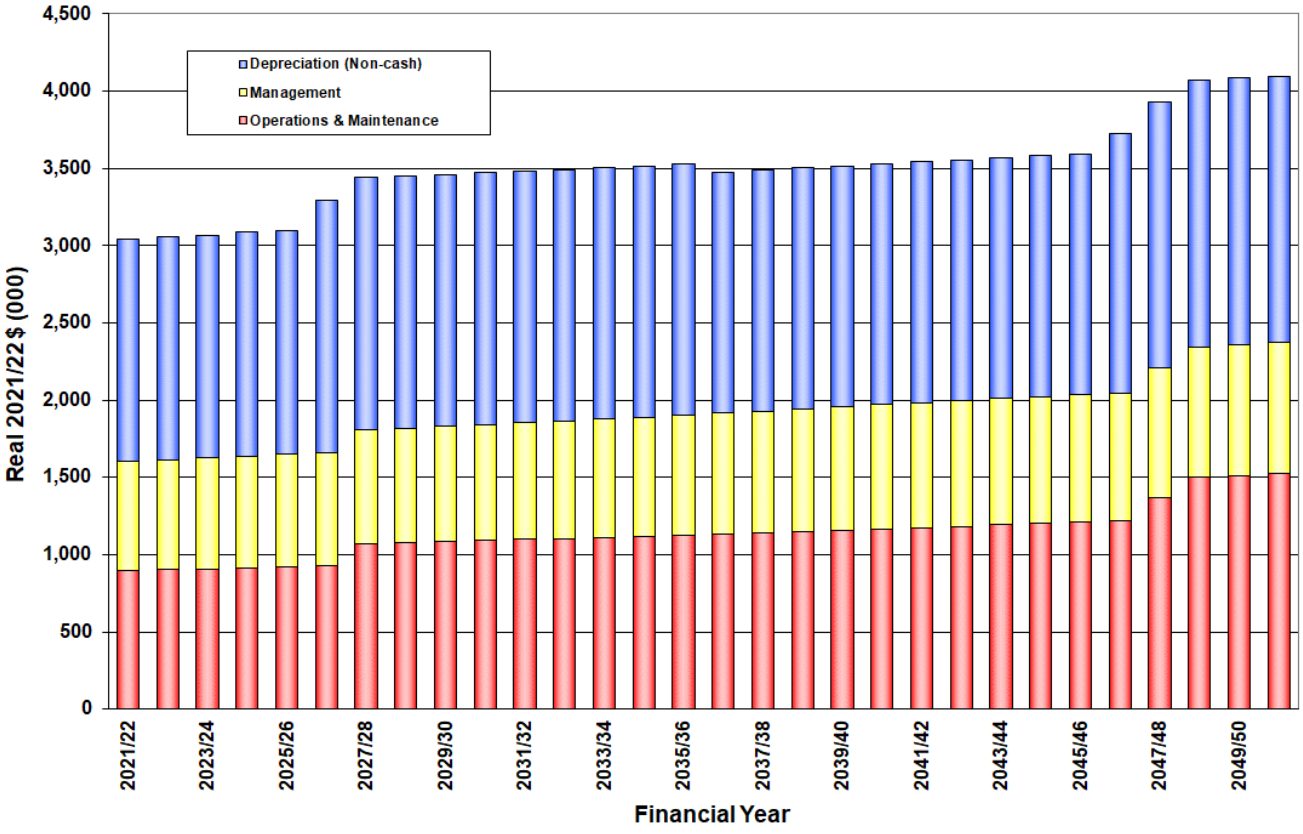

Figure 13-4: 30-year Recurrent O&M Summary – Sewerage ($'000)

14. Financial Plan

14.1 Overview

This section presents the details of long-term financial plans for sewerage services for preferred IWCM scenario (scenario 1). The overall goal of financial planning is to determine the lowest, sustainable price path for the sewerage services on which to base Council's tariff structure. The details of assumptions, input data and output financial projections for the adopted IWCM capital works and growth are presented in this plan. The plan also presents the sensitivity of financial projections to possible changes in key model variables.

14.2 Financial Modelling Methodology

FINMOD 4.0, the software developed by DPE Water was used to develop the water and sewer fund financial models. The financial models have been developed for a 30-year planning horizon.

A stable level of annual residential charges for water supply and sewerage services has been achieved using Finmod by optimising the long-term funding strategy in meeting the demands of the capital works programs and day-to-day operations, while ensuring a minimum level of cash liquidity. For a particular Level of Service (LOS), FINMOD enables examination of the financial models for a range of funding options to determine the best mix of borrowing and internal funding.

The financial model balances the forecast income and expenditure for each service delivery option over the projected modelling period.

Figure 14-1 illustrates the main elements which affect the financial modelling.

The goals of the financial modelling task are to:

- optimise the long-term funding strategy
- meet the demands of the capital works programme and other life cycle costs of the system assets
- ensure a minimum level of cash liquidity; and
- provide a forecast of the typical residential annual charges over the long- term.

The long-term financial plans demonstrate the sustainability of future actions and also demonstrate the sensitivity of model outcomes to some of the key assumptions made.

Funding is usually achieved from a mix of borrowing and direct revenue and can also be offset by receiving Government grants and subsidies where available.

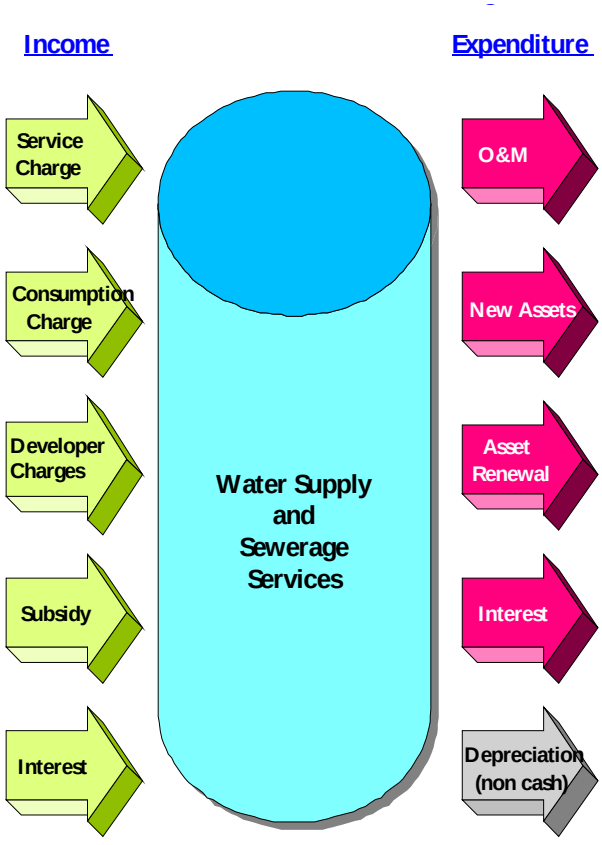

Figure 14-1 – Elements of Financial Modelling

Renewal programs would usually be funded from revenue, and some cash would be accumulated in anticipation of major projects, in order to reduce the need for borrowing. DPE Water encourages the use of long-term loans because they support the idea of intergenerational equity and reduce the requirement of raising funds from existing customers in the short term.

If the resulting annual charges are considered unacceptable or unaffordable, some input variables, such as levels of service, can be adjusted to arrive at a satisfactory projection of annual charges. For example, to reduce the level of annual charges, Council may delay some of the capital works, may increase developer charges, or may take long-term or structured loans. Council's charging and pricing policies will also take into account corporate policies, approach to risk and the acceptability of charges to the community. Some of these risks are evident from the sensitivities presented in this plan.

While the preferred model reflects the expected performance of the systems, it does not give any indication of the sensitivity of the proposed solutions should the basic assumptions used prove significantly different in practice.

For that reason, a sensitivity analysis is carried out if it is perceived that a variable may change significantly in the future. The value of a sensitivity analysis is that it shows:

- The sensitivity of the results to assumptions (uncontrollable variables); and
- The impact of changing controllable variables.

The DPE Water Guidelines suggest that several sensitivities should be carried out to test the robustness of the forecasts. With regards to controllable variables, such as type of loan structure, and level of developer charges, the model enables Council to make decisions to establish the most appropriate management policies.

With uncontrollable variables, Council is at the mercy of change. The downside risk of increased interest rates, or lower than forecast growth rates, or rise in energy costs, may be significant.

Council's charging and pricing policies will also take into account corporate policies, approach to risk and the acceptability of charges to the community. Some of these risks are evident from the sensitivities presented in this section.

On-going Review

Over time, changes in model variables can have a significant impact on the model's accuracy, and this has implications for forward planning. It is recommended that the financial model be reviewed annually, and the financial planning be revisited regularly, preferably on a 3-yearly basis. If Council has an active capital works programme that requires grant or subsidy, annual updates are recommended by DPE Water.

14.3 Financial Model Inputs

Several variables and assumptions have been used in the development of the base case of the water and sewer fund financial models (Appendix C and Appendix D) and are summarised in Table 14-1 and Table 14-2. All costs and revenues in the input data (and the model outcomes) are in 2021-22 dollars unless stated otherwise.

The model assumptions are based on a representative view of the impact of a number of factors. They have been grouped into the following five main policy areas and are discussed below:

1. Charges
2. Revenues and Expenditures
3. Service Provision
4. Funding Capital Works
5. Performance Measures

Table 14-1: Key Input Parameters – Water Fund Financial Model

Data Type	Input Data/ Assumption
Historical Data	Hilltops Council consolidated water fund income statements and financial position statements from the Financial Data Return for 2019-20 and 2020-21.
Financial Data	Average annual long-term inflation rate: 2.5% p.a. Annual Investment Interest Rate: 5.5% p.a. (default) – 4.5% p.a. adopted Annual Borrowing Interest Rate: 6.5% p.a. (default) – 6.5% p.a. adopted
Demographic Base Data (2020-21)	**Total no. of Residential Assessments: 6,188** (Young: 4,101; Harden: 1,404; Boorowa: 683) **Total no. of Non-Residential Assessments: 1,247** (Young: 689; Harden: 508; Boorowa: 50) **Pensioner Assessments: 1,519 (24.52%)** (Young: 915; Harden: 411; Boorowa: 178) Assessment Growth Rate – As forecast for IWCM strategy development At the adopted levels of growth rate, an average 44 new customers per year across the Council's service areas have been estimated to be connecting to water supply services during the forecast period.
Opening Balances (as of June 2021)	Outstanding Loan: 3.227 Million Total Cash and Investments: $17.165 Million Minimum cash and investment (for modelling): $4 Million Term of new loans: 20 years
Revenue Splits	From 2021-22 onwards – 63%: 37% (Residential: Non-residential)
Current Charges (2021-22)	**Young:** Access Charge: $327 p.a. (20mm meter size) Usage Charge: $3.42 per KL - For all consumption TRB for 2021/22: $874 p.a. (Av. Res. water consumption:160 KL/a) **Harden:** Access Charge: $460 p.a. (20mm meter size) Usage Charge: $2.76 per KL - For all consumption TRB for 2021/22: $890 p.a. (Av. Res. water consumption:156 KL/a) **Boorowa:** Access Charge: $673 p.a. (20mm meter size) Usage Charge: $2.71 per KL - For 268 KL/year or less $5.42 per KL - Above 268 KL/year TRB for 2021/22: $1,010 p.a. (Av. Res. water consumption:125 KL/a) **Hilltops Council TRB: $875 p.a. (weighted average)**
	Sec.64 Developer Charges for Water Supply: Boorowa: $8,735/ET; Young: $3,888/ET; Harden: Nil.

* - For larger than 20 mm meter size water connections, the annual access charges increase by the square of the proportion of larger meter sizes to 20 mm.

Table 14-2: Key Input Parameters – Sewer Fund Financial Model

Data Type	Input Data/ Assumption
Historical Data	Hilltops Council consolidated sewer fund income statements and financial position statements from the Financial Data Return for 2019-20 and 2020-21.
Financial Data	Average annual long-term inflation rate: 2.5% p.a. Annual Investment Interest Rate: 5.5% p.a. (default) – 4.5% p.a. adopted Annual Borrowing Interest Rate: 6.5% p.a. (default) – 6.5% p.a. adopted
Demographic Base Data (2020-21)	**Total no. of Residential Assessments: 4,946** (Young: 3,346; Harden: 917; Boorowa: 683) **Total no. of Non-Residential Assessments: 694** (Young: 505; Harden: 139; Boorowa: 50) **Pensioner Assessments: 1,284 (26.04%)** (Young: 824; Harden: 293; Boorowa: 167) Assessment Growth Rate – As forecast for IWCM strategy development At the adopted levels of growth rate, an average 44 new customers per year across the Council's service areas have been estimated to be connecting to sewerage services during forecast period.
Opening Balances (as of June 2021)	Outstanding Loan: $9.702 Million Total Cash and Investments: $ 6.776 Million Minimum cash and investment (for modelling): $4.0 Million Term of new loans: 20 years
Revenue Splits	From 2021/22 onwards – 81%: 19% (Residential: Non-residential)
Current Charges (2021-22)	**Young:** Residential Annual Charge - Occupied: $776 p.a. (20mm meter size) Residential Annual Charge – Vacant: $582 p.a. (75%) **Harden:** Residential Annual Charge - Occupied: $789 p.a. (20mm meter size) Residential Annual Charge – Vacant: $301 p.a. (38%) **Boorowa:** Residential Annual Charge - Occupied: $796 p.a. (20mm meter size) Residential Annual Charge – Vacant: $796 p.a. (100%) **Hilltops Council TRB: $774 p.a. (weighted average)**
	Sec.64 Developer Charges for Sewerage: Boorowa: $612/ET; Young: $4,697/ET; Harden: Nil.

* - For larger than 20 mm meter size non-residential water connections, the annual sewerage access charges increase by the square of the proportion of larger meter sizes to 20 mm.

14.3.1 Charges

Charging Structure

The projection of typical residential bills (TRBs) for water supply and sewerage are made in real (2021-22) dollars and, where feasible, a stable price path in real terms is maintained to demonstrate the lowest long-term price path achieved based on assumptions. The forecast TRBs are maintained at constant level in real terms, unless where an increase is required for long-term financial viability and should be increased in line with the CPI (consumer price index) on an annual basis.

Typical residential bills calculated by the financial model will be higher than the average bills because the model considers account revenue losses due to vacant and/or unoccupied tenements and pensioner rebates. Council can use this information in fixing its service pricing tariffs. The tariff structure is to be reviewed at least every 5 years and indexed in the interim.

Developer Charges

Council's Sec.64 developer charges (2021-22) for the new developments are as shown below. The financial model forecasts are based on the assumption that Council will be continuing to levy developer charges at the same level (but for adjustments for CPI) during the forecast period.

Service Area	Water Supply ($/ET)	Sewerage ($/ET)
Boorowa	8,735	612
Harden	Nil	Nil
Young	3,888	4,697

Cash and Investments

Minimum cash levels of $ 4.0 Million each water and sewer funds have been considered, as opted by the Council.

14.3.2 Revenues and Expenditures

Inflation

Average long-term inflation rate of 2.5% p.a. for general and capital works financial activities has been adopted for both the water supply and sewerage financial models.

Interest Rates

The interest rates adopted in this analysis are 6.50% p.a. for all new borrowing from 2022-23 onwards and 4.5% p.a. for all investments.

Capital Works

The capital work expenses form a significant component of the inputs. The capital works program adopted for financial modelling includes all the capital works for the preferred IWCM Scenario (scenario 1a) as incorporated in the 30-year Total Asset Management Plan (refer to Section 13.1).

Recurrent Costs

The financial model considers a number of ongoing recurrent costs from historic input details. By default, the model increases historical operation and maintenance expenses pro-rata assessment growth. This has been overridden where Council has provided revised estimates, for example, where the IWCM action plan requires new initiatives, or where new works require additional operating resources as described in Section 13.1.2.

14.3.3 Service Provision

Growth Projections

The assessment growth forecast for the IWCM strategy development has been used for the financial forecasts. At the adopted levels of growth rate, an average 44 new customers per year across the Council's service areas have been estimated to be connecting to water supply and sewerage services during the forecast period.

In line with Council's adopted development policy, the forecast growth is to occur in Boorowa and Young only.

Expected life of assets

The default average life of the system assets is based on the weighted average of long-lived structures and shorter-lived mechanical plant. These average lives are currently estimated by Council as 70 years.

Depreciation is a non-cash expense, which is dependent upon asset lives. The age of assets directly affects the level of future asset renewal works, which are part of the capital works program.

14.3.4 Funding Capital Works

Some, or all, capital works can be funded directly from accumulated cash reserves. To overcome intergenerational equity issues, it is considered to be a good practice to fully fund renewal programs out of internally generated cash (where practicable) and to borrow only for full or partial funding of new capital acquisitions.

Funds which are surplus to requirements can be used to further reduce or eliminate borrowing requirements, and to reduce interest payments.

Loans are taken out as required also to maintain the adopted minimum cash levels for the water and sewer funds.

Subsidies/Grants for Capital Works

Financial assistance in the form of grants for capital works may be received under various funding programs by the State and Federal Governments such as the Restart NSW or the National Stronger Regions Fund (NSRF). The Program's guidelines, published by the Department of Planning and Environment, Infrastructure NSW and Commonwealth Department of Infrastructure and Regional Development, define the extent of the available grants/ subsidies.

The financial model for the water fund considered that 50% grant funding will be available for the Boorowa pipeline capital works, and the sewer fund has considered availability of 50% grant can be secured for the Harden STP upgrade.

14.3.5 Performance Measures

Council will annually review and report the performance of the water and sewer funds as required under the strategic planning processes of the Regulatory and Assurance Framework for Local Water Utilities, July 2022.

14.4 Assumptions and Limitations of the Model

The projections of the financial models are mainly based on the previous two years historical financial records. Allowance is made for new initiatives, future rate forecasts, and maintenance of sustainable Levels of Service (LOS) as identified and adopted by Council.

The Total Asset Management Plan (refer to Section 14) shows the long-term capital, operational and maintenance expenditures used in the models for projecting the financial position over the next 30 years. Models will require updating as more accurate expenditure schedules become available.

The net operating results in the financial projections should be seen in light of the fact that the depreciation shown in the operating statement is not a cash item. The financial model manages the cash flow and keeps a running tally of the cumulative depreciation so that Council can appreciate the potential future liability for maintaining the value in the system and the LOS. By planning ahead and making optimum use of existing assets, a more cost effective and efficient service should result.

Typical Residential Bills are used as the performance indicators representing overall revenue requirements from residential customers. This should not be confused with the pricing structure. Pricing, that is, the distribution of charges according to consumption or special customer groups, is the subject of a separate revenue planning exercise. Tariff structure for the services will need to take into account corporate policies, approach to risks such as lower than adopted growth rates, increase in interest rates, and the acceptability of charges to the community.

Financial model is not a substitute for regular annual budgeting (i.e., short-term financial planning). The model assumes that all expenses and income occur at the beginning of the year and therefore not suitable to track cash flow throughout the year. It is important, however, that the budgeting process is carried out within the framework of the forecasts made in the long-term financial plan.

14.5 Financial Model Outcomes – Water Supply

14.5.1 Projected Financial Position

All costs and revenues in the input data and the model outcomes are in 2021-22 dollars unless stated otherwise, and CPI should be applied to the forecasts accordingly. The financial projections should be reviewed annually with respect to material changes to the proposed capital works program and/or to any of the underlying assumptions.

The preferred IWCM scenario of Hilltops Council's consolidated water fund financial model considers a 50% NSW Government grant of ($16.265 Million) anticipated by Council for the estimated Boorowa pipeline project capital work costs. Accordingly, the Typical Residential Bill (TRB) forecasts determined by the model for the next 30 years is presented in Figure 14-2 below.

The model demonstrates that the current (2021-22) water supply TRB of $875 p.a. needs to be increased by $160 to $1,035 p.a. from 2022-23 and maintained at that level up to 2035/36. From 2036/37, water supply TRB can be decreased to $935 p.a. and maintained for the remaining 15 years of the forecast period with ongoing annual adjustments for CPI / inflation.

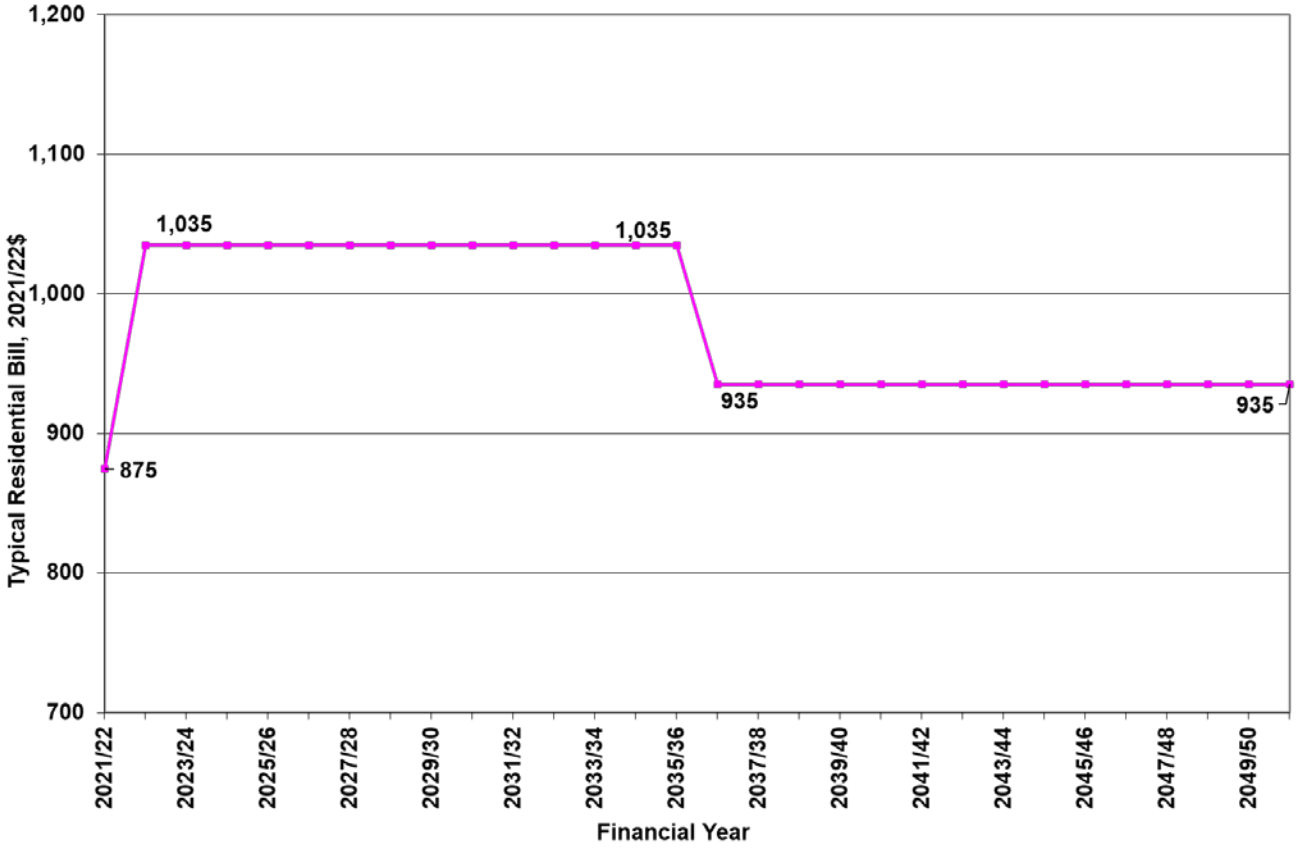

Figure 14-2: Typical Residential Bill for Water Supply

Council's water fund had outstanding borrowing of $3.227 Million as of 30 June 2021. The model forecasts demonstrate that, with the recommended price path, a new loan of $12 Million will be required to fund the Boorowa pipeline project. All other planned capital works for growth, improved levels of service and renewal/ replacement can be internally funded throughout the projection period and no other new loans will be required during the forecast period.

The projected level of charges is sufficient to maintain liquidity with a Council required minimum of $4 Million of cash and investments over the forecast period. The levels of cash and borrowing outstanding during the forecast period are presented in Figure 14-3.

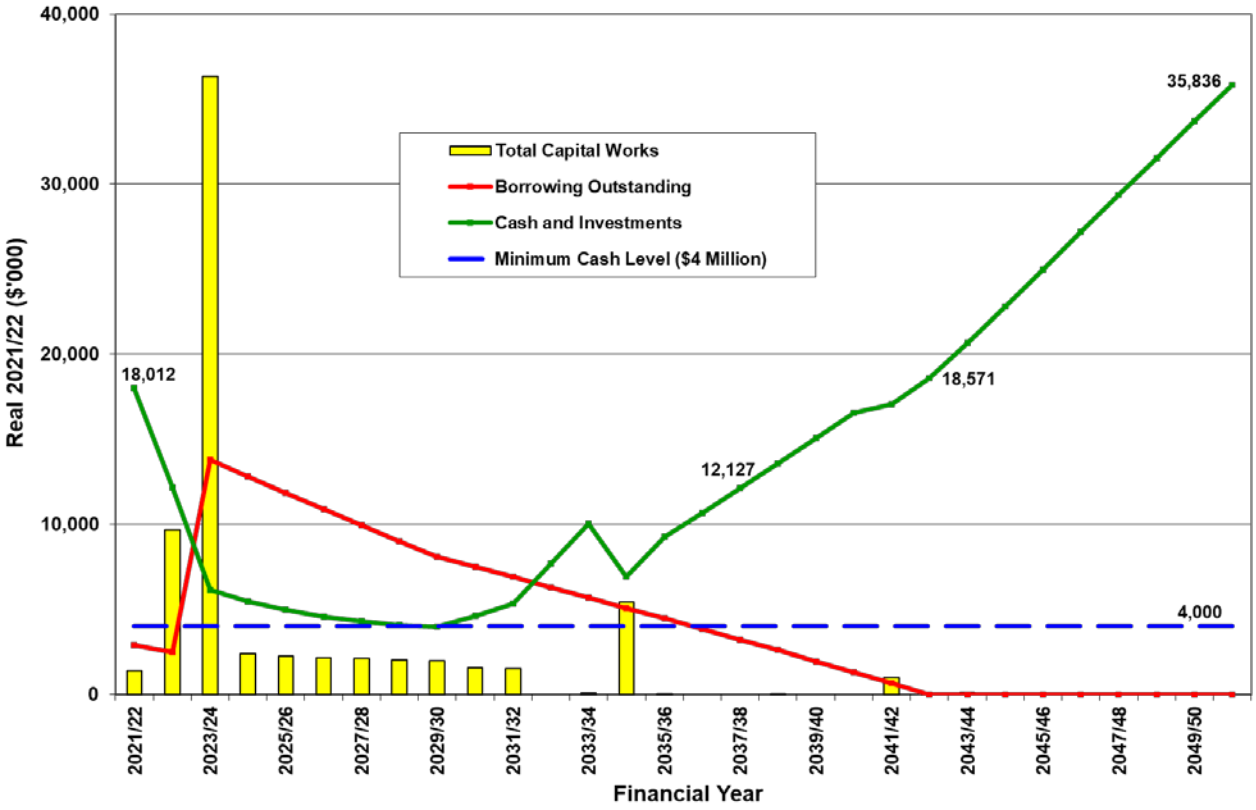

Figure 14-3: Cash & Borrowing Projections for Water Supply

Projected financial results for the water fund are presented in Table 14-5. Note that all the projected values are in current (2020-21) dollars and will require indexing for CPI future years. More detailed financial output statements are presented in Appendix E.

14.5.2 Sensitivity of Financial Projections – Water Supply

For the purpose of comparison of consolidated Hilltops Council water fund TRB forecasts with those of separate water funds for the pre-amalgamated Council areas, namely Boorowa, Harden and Young, separate financial models have been developed. The TRB forecast outcomes are compared in Table 14-3 and Figure 14-4. Additional details of separate water fund financial model forecasts for the Council areas are shown in Appendix G.

Table 14-3: Comparison of TRBs for Separate Water Funds

Water Fund	TRB from 2022/23 up to 2035/36	TRB from 2036/37 to 2050/51
Hilltops (consolidated)	1,035	935
Boorowa	2,610	1,960
Harden	890	890
Young	875	875

Water fund financial model forecasts were recast with an additional capital works of $ 8.0 Million for Young water supply capacity included in the Council's 2024-25 LTFP. This will provide Council with better control of water quality in line with best practices and to ensure that supply flow and pressure

can be maintained for customers during peak demand periods, both in the town reservoir supply zone as well as at higher elevations where they are reliant on or require new booster pumps for adequate pressure. The work is planned to be undertaken during 2029-31. The model forecasts confirmed that this additional capital cost will not affect the TRBs forecasts above.

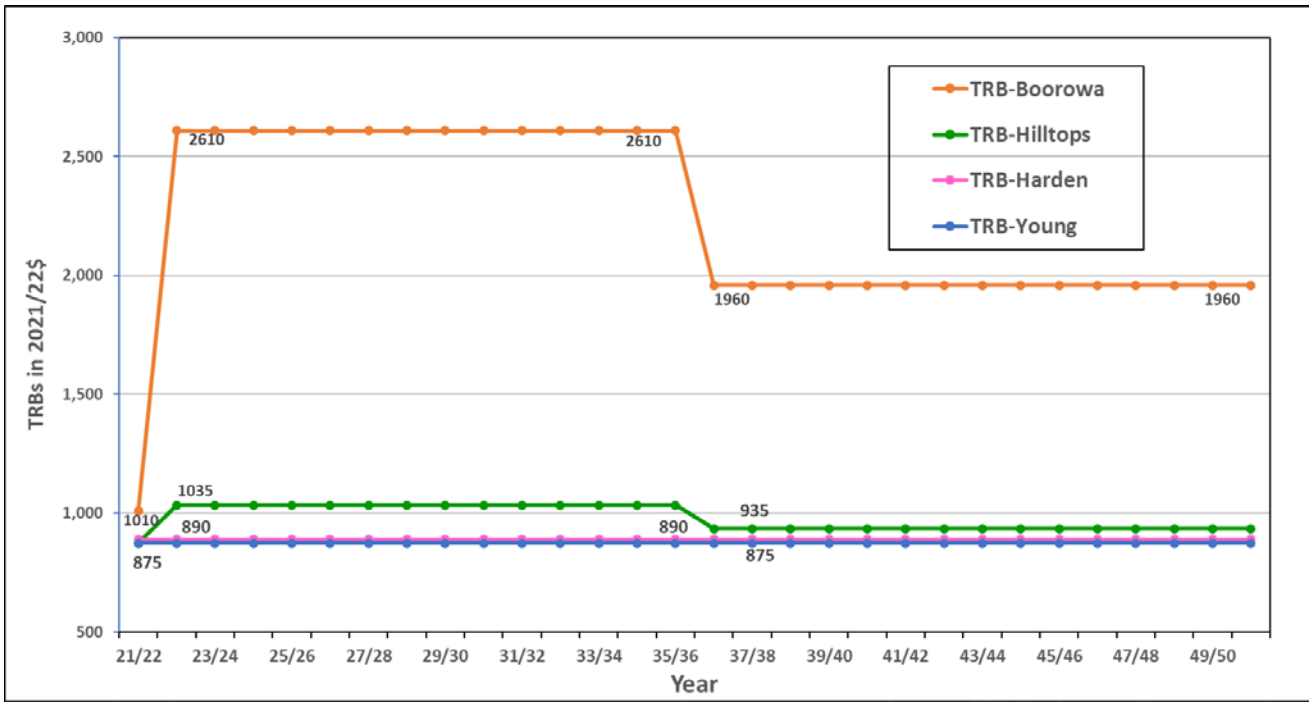

Figure 14-4: Comparison of TRBs for Separate Water Funds

Sensitivity of the consolidated water fund financial model forecasts for the preferred scenario were analysed for 'no grant', higher capital cost estimate and higher borrowing interest rate scenarios. The impacts of these variables on the water supply TRB forecasts, borrowing requirements and cash levels as summarised in Table 14-4 and in Figure 14-5 and Figure 14-7.

Table 14-4: Sensitivity Analysis – Water Fund

Sensitivity	Values of Variables for Analysis	Effect on TRB compared to the Preferred Scenario
No government grant/ subsidy	No grant instead of the anticipated 50% grant for the Boorowa pipeline project.	TRB will increase by $295 during the first 15 years, and the new loan required to fund Boorowa pipeline project will be $30 Million.
Capital cost estimates	Planned capital works costs increase by 20%	TRB will increase by $260 during the first 15 years, and the new loan required to fund Boorowa pipeline project will be $16 Million.
Borrowing and investment interest rates	Borrowing @ 9.0% p.a. instead of 6.5% p.a. Investment @ 6.5% p.a. instead of 4.5% p.a.	TRB will increase by $170 during the first 15 years, and the new loan required to fund Boorowa pipeline project will be $12.50 Million.

Table 14-5: Projected Financial Results – Water Fund

2021/22 ($'000)	Revenue and Expenses			Capital Transactions		Financial Position					System Assets			
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	Typical Residential Bills
2021/22	8,791	7,180	1,611	1,397	337	18,012	2,890	65,821	3,641	62,180	80,099	35,501	44,598	875
2022/23	10,826	7,214	3,613	9,665	334	12,161	2,486	68,307	3,241	65,066	80,610	27,352	53,258	1,035
2023/24	26,252	8,499	17,753	36,313	637	6,125	13,788	97,074	14,548	82,526	114,373	26,290	88,083	1,035
2024/25	10,139	9,075	1,064	2,372	645	5,479	12,806	97,193	13,571	83,622	114,373	25,406	88,966	1,035
2025/26	10,147	9,069	1,077	2,267	654	4,956	11,840	97,353	12,608	84,745	114,373	24,627	89,745	1,035
2026/27	10,177	9,061	1,115	2,182	666	4,556	10,886	97,565	11,658	85,907	114,373	23,934	90,439	1,035
2027/28	10,205	9,059	1,146	2,100	676	4,268	9,944	97,813	10,721	87,092	114,372	23,323	91,050	1,035
2028/29	10,241	9,054	1,187	2,047	687	4,069	9,014	98,099	9,796	88,303	114,373	22,764	91,609	1,035
2029/30	10,282	9,048	1,234	2,002	699	3,954	8,095	98,421	8,880	89,541	114,373	22,250	92,122	1,035
2030/31	10,345	9,051	1,294	1,593	402	4,612	7,496	98,955	8,285	90,670	114,373	22,147	92,226	1,035
2031/32	10,409	9,017	1,391	1,551	418	5,343	6,895	99,515	7,689	91,826	114,373	22,084	92,289	1,035
2032/33	10,512	9,018	1,495	0	435	7,694	6,292	99,733	7,089	92,644	114,373	23,572	90,800	1,035
2033/34	10,634	9,017	1,616	68	452	10,024	5,686	99,918	6,488	93,430	114,373	24,993	89,380	1,035
2034/35	10,634	9,089	1,545	5,434	471	6,913	5,076	101,370	5,883	95,487	119,464	26,211	93,253	1,035
2035/36	10,690	9,118	1,571	50	489	9,268	4,464	101,420	5,275	96,145	119,464	27,721	91,743	1,035
2036/37	9,779	9,120	659	0	510	10,684	3,845	100,695	4,661	96,034	119,464	29,281	90,182	935
2037/38	9,860	9,118	742	0	529	12,127	3,222	99,944	4,042	95,902	119,463	30,841	88,622	935
2038/39	9,941	9,118	823	16	551	13,578	2,593	99,171	3,417	95,754	119,464	32,386	87,078	935
2039/40	10,017	9,119	898	0	573	15,061	1,956	98,361	2,785	95,576	119,463	33,946	85,517	935
2040/41	10,097	9,119	978	0	596	16,566	1,312	97,524	2,146	95,378	119,463	35,506	83,957	935
2041/42	10,151	9,132	1,019	994	619	17,071	661	97,017	1,499	95,518	120,458	37,080	83,378	935
2042/43	10,219	9,131	1,088	31	644	18,571	1	96,130	844	95,286	120,458	38,623	81,835	935
2043/44	10,310	9,139	1,170	117	0	20,675	1	95,643	849	94,794	120,458	40,081	80,377	935
2044/45	10,397	9,181	1,216	78	0	22,810	1	95,082	853	94,229	120,458	41,577	78,881	935
2045/46	10,483	9,222	1,261	26	0	24,991	1	94,442	858	93,584	120,458	43,125	77,333	935
2046/47	10,566	9,264	1,302	0	0	27,184	1	93,732	862	92,870	120,458	44,699	75,759	935
2047/48	10,656	9,308	1,348	0	0	29,370	1	92,969	867	92,102	120,458	46,273	74,185	935
2048/49	10,737	9,348	1,388	0	0	31,541	1	92,152	871	91,281	120,458	47,846	72,612	935
2049/50	10,818	9,390	1,428	0	0	33,699	1	91,283	876	90,407	120,458	49,420	71,038	935
2050/51	10,893	9,433	1,460	0	0	35,836	0	90,360	881	89,479	120,458	50,994	69,464	935

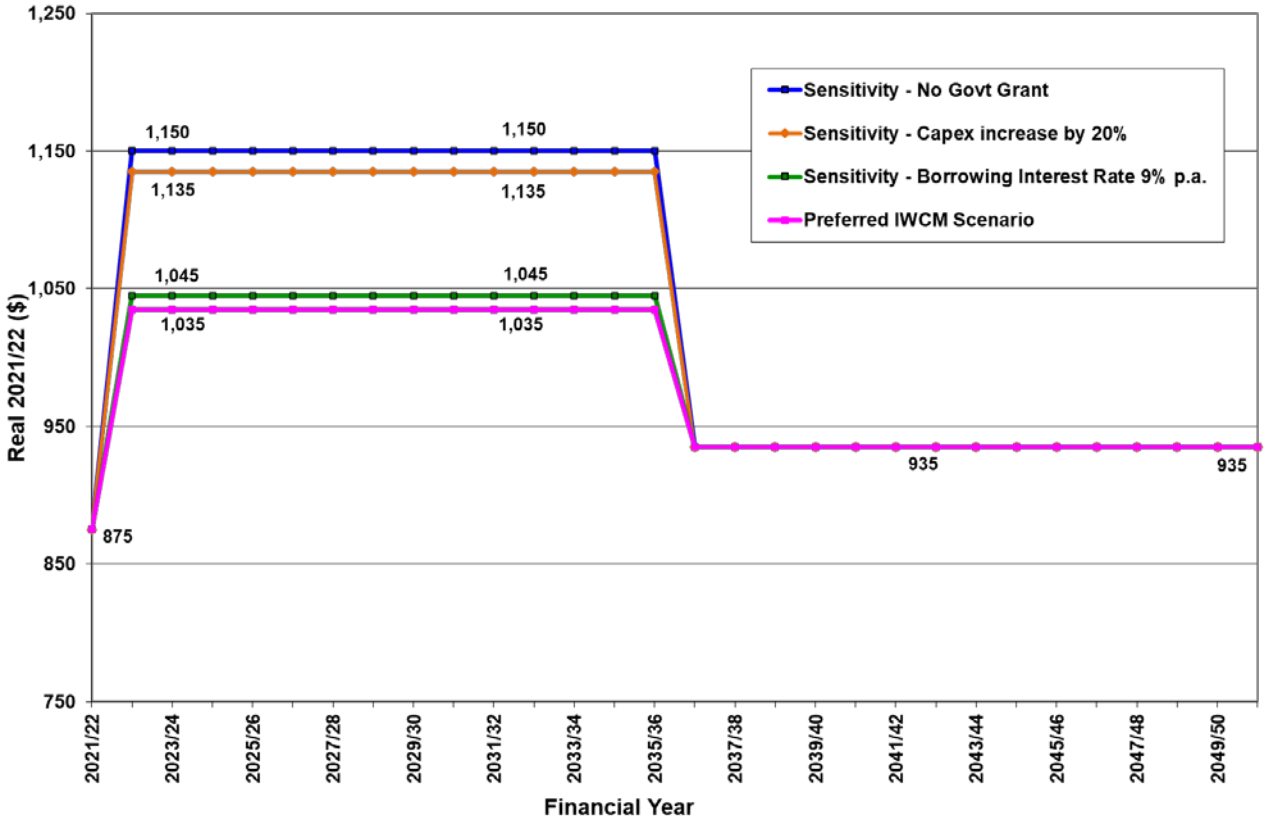

Figure 14-5: Sensitivity of TRB Forecast - Water Supply

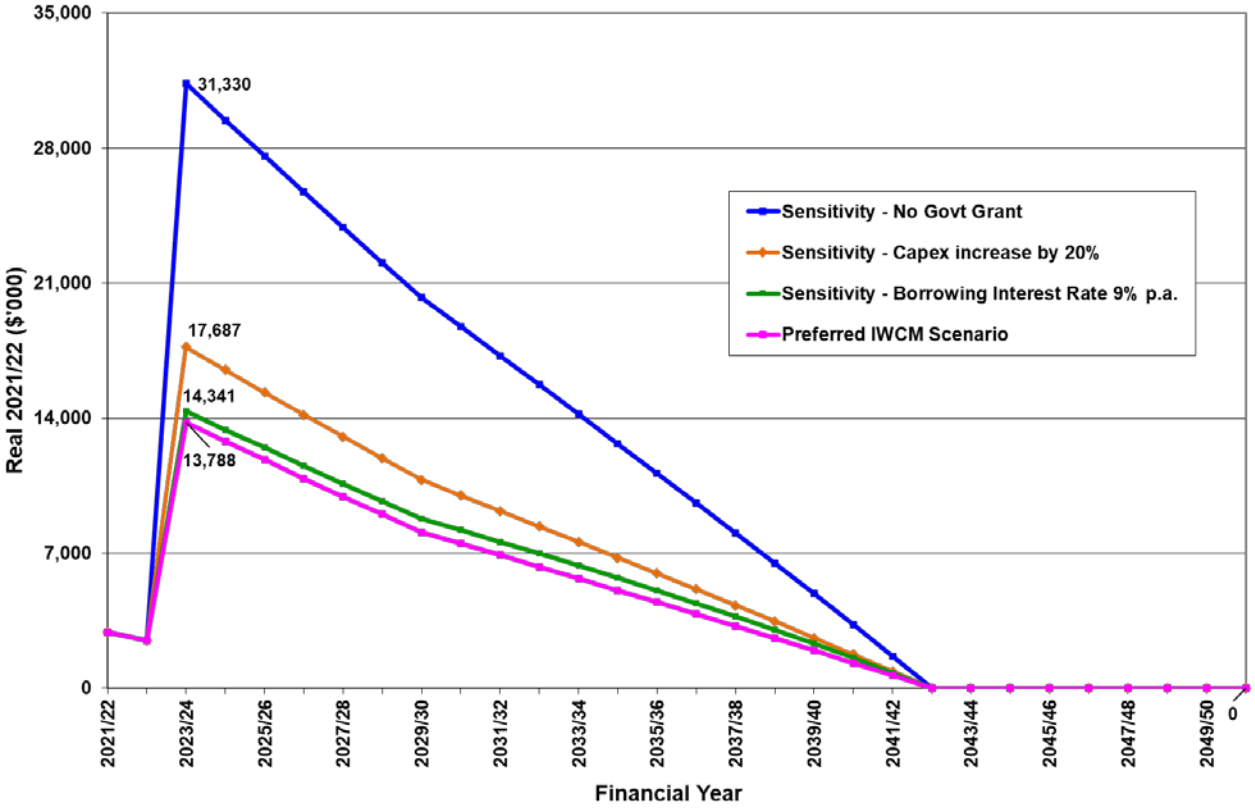

Figure 14-6: Sensitivity of Borrowing Outstanding Levels - Water Supply

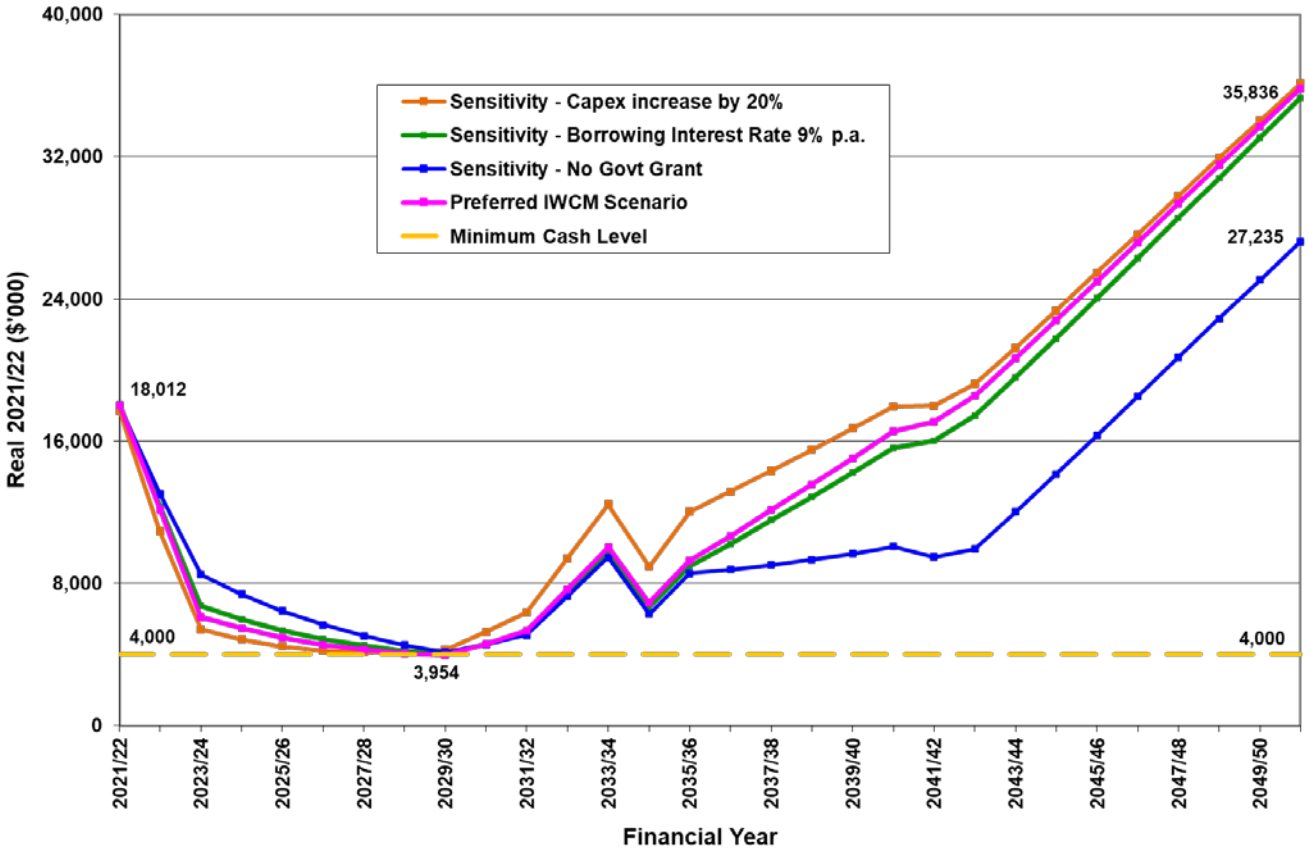

Figure 14-7: Sensitivity of Cash and Investment Levels - Water Supply

14.6 Financial Model Outcomes – Sewerage

14.6.1 Projected Financial Position

All costs and revenues in the input data and the model outcomes are in 2021-22 dollars unless stated otherwise, and CPI should be applied to the forecasts accordingly. The financial projections should be reviewed annually with respect to material changes to the proposed capital works program and/ or changes to any of the underlying assumptions.

The preferred IWCM scenario of the consolidated Hilltops Council sewer fund financial model has considered 50% government grant ($5.7 Million) for the Harden STP upgrade capital works. Accordingly, the TRB forecasts determined by the model for the next 30 years is presented in Figure 14-8.

The model forecasts show that the sewerage TRB can be maintained at the 2021-22 adopted level of $774 p.a. throughout the forecast period.

The projected level of charges is sufficient to maintain liquidity with a Council required minimum of $4.0 Million of cash and investments in the consolidated sewer fund over the forecast period.

There is an outstanding borrowing of $9.7 Million for sewer fund as of 30 June 2021. The model forecast shows that with the adopted price path and the minimum cash and investment levels, no new loans will be required, and all the planned capital works can be funded from internal revenue and cash reserves. The levels of cash and borrowing outstanding during the forecast period are presented in Figure 14-9.

Projected financial results for the consolidated sewer fund are presented in Table 14-6. More detailed financial output statements are presented in Appendix F.

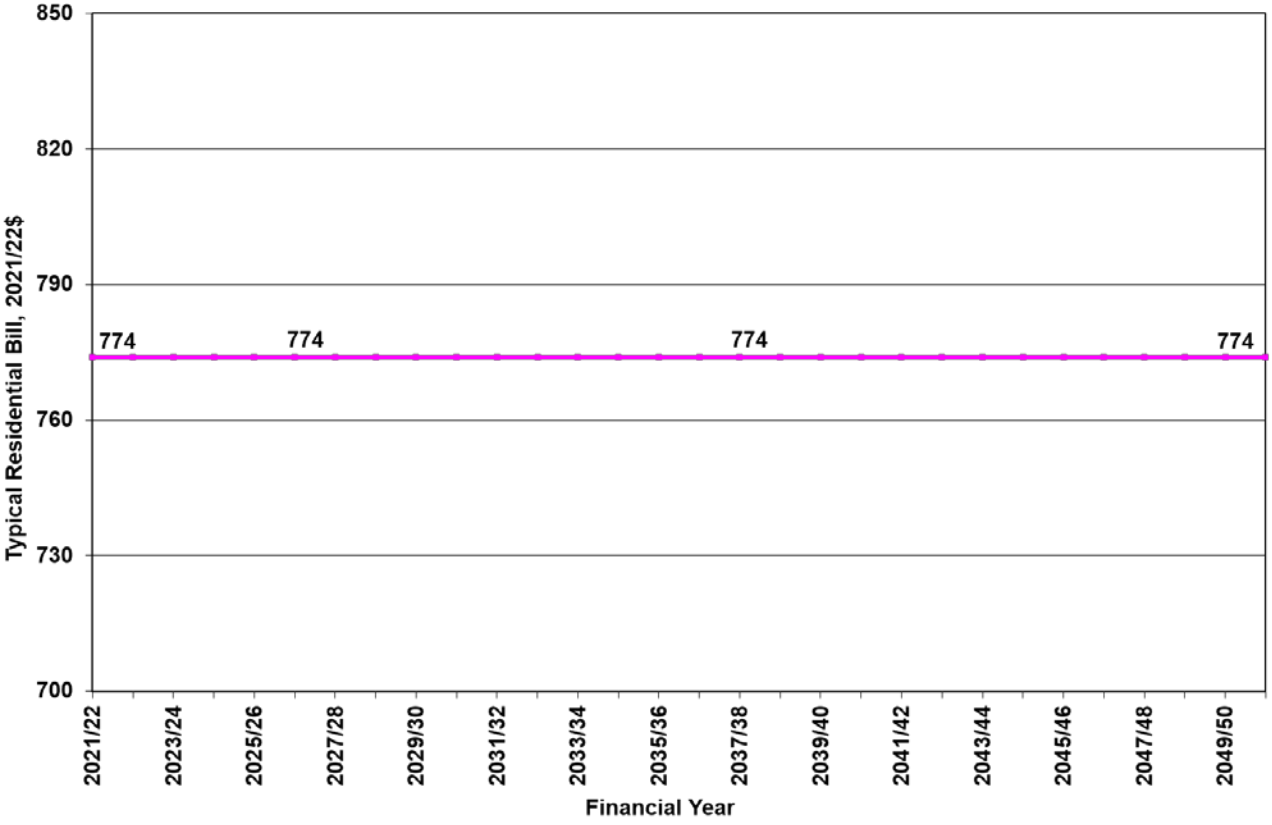

Figure 14-8: Typical Residential Bill for Sewerage

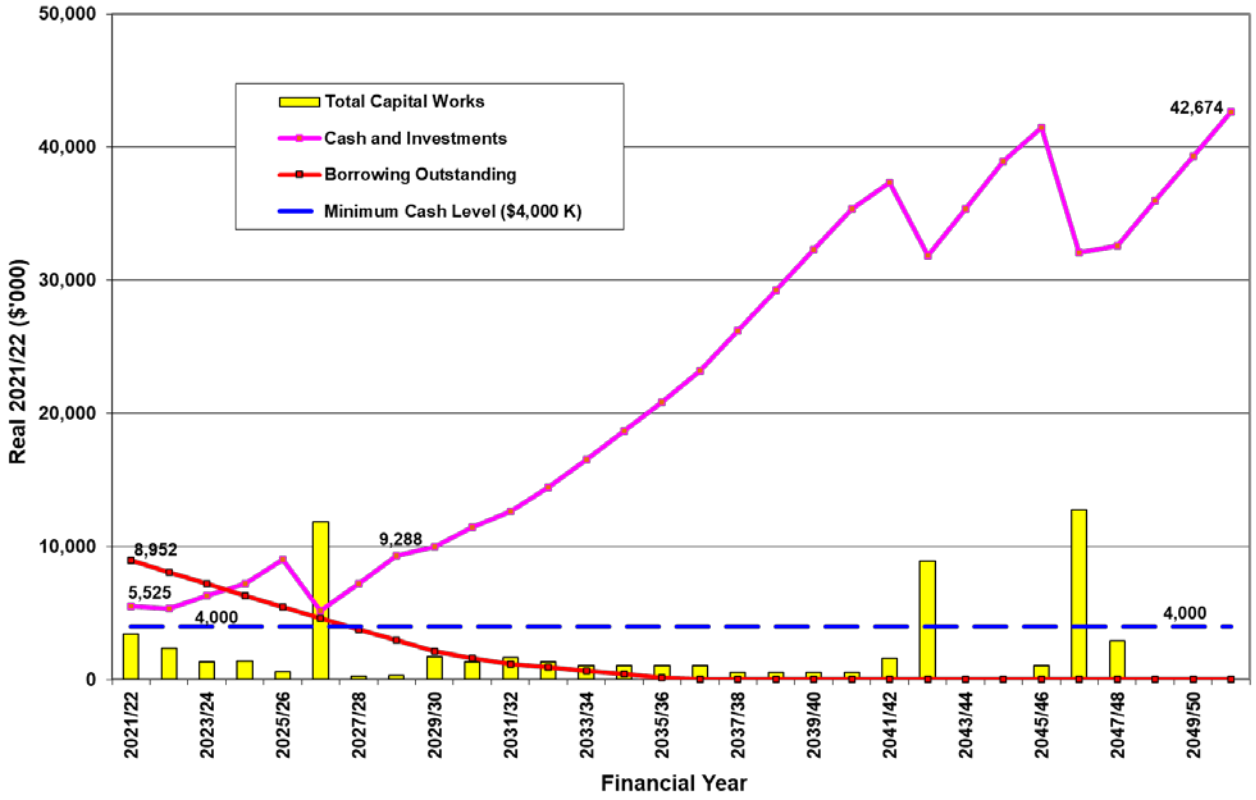

Figure 14-9: Cash & Borrowing Projections for Sewerage

Table 14-6: Projected Financial Results - Sewer Fund

2021/22 ($'000)	Revenue and Expenses			Capital Transactions		Financial Position					System Assets			
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	Typical Residential Bills
2021/22	4,907	3,421	1,486	3,400	750	5,525	8,952	55,139	9,124	46,015	77,379	29,949	47,430	774
2022/23	5,022	3,453	1,570	2,357	680	5,341	8,054	55,845	8,226	47,619	77,553	29,128	48,425	774
2023/24	5,067	3,430	1,637	1,311	686	6,267	7,171	56,620	7,344	49,276	77,553	29,178	48,375	774
2024/25	5,139	3,414	1,725	1,346	696	7,221	6,301	57,453	6,474	50,979	78,153	29,802	48,350	774
2025/26	5,217	3,391	1,826	583	704	9,007	5,443	58,360	5,619	52,741	78,153	30,590	47,562	774
2026/27	10,897	3,557	7,340	11,854	713	5,171	4,597	64,731	4,775	59,956	89,553	31,698	57,855	774
2027/28	5,204	3,669	1,535	261	723	7,205	3,762	65,381	3,942	61,439	89,553	32,998	56,555	774
2028/29	5,310	3,647	1,663	280	732	9,288	2,939	66,102	3,119	62,983	89,553	34,280	55,273	774
2029/30	5,385	3,624	1,761	1,712	742	9,972	2,125	66,862	2,307	64,555	89,552	34,129	55,423	774
2030/31	5,455	3,604	1,851	1,305	457	11,419	1,616	67,983	1,799	66,184	89,553	34,385	55,168	774
2031/32	5,525	3,586	1,940	1,654	407	12,619	1,169	69,208	1,354	67,854	89,553	34,291	55,261	774
2032/33	5,606	3,578	2,029	1,287	229	14,425	912	70,674	1,098	69,576	89,553	34,563	54,990	774
2033/34	5,695	3,574	2,121	1,027	236	16,531	654	72,182	841	71,341	89,553	35,097	54,457	774
2034/35	5,787	3,568	2,219	1,027	245	18,672	392	73,730	581	73,149	89,553	35,630	53,923	774
2035/36	5,881	3,566	2,316	1,034	253	20,842	130	75,314	319	74,995	89,553	36,156	53,397	774
2036/37	5,970	3,499	2,471	1,027	119	23,191	8	77,137	198	76,939	89,553	36,690	52,863	774
2037/38	6,077	3,500	2,577	532	7	26,195	0	79,121	192	78,929	89,552	37,718	51,835	774
2038/39	6,187	3,514	2,673	532	0	29,229	0	81,134	193	80,941	89,553	38,746	50,807	774
2039/40	6,290	3,527	2,763	532	0	32,279	0	83,164	194	82,970	89,553	39,774	49,779	774
2040/41	6,392	3,542	2,850	532	0	35,341	0	85,205	195	85,010	89,553	40,803	48,750	774
2041/42	6,467	3,554	2,913	1,604	0	37,320	0	87,235	197	87,038	89,553	40,760	48,793	774
2042/43	6,370	3,567	2,803	8,891	0	31,854	0	89,107	198	88,909	89,553	33,430	56,123	774
2043/44	6,436	3,581	2,855	85	0	35,378	0	91,163	200	90,963	89,553	34,905	54,648	774
2044/45	6,545	3,594	2,951	85	0	38,912	0	93,230	201	93,029	89,553	36,380	53,173	774
2045/46	6,626	3,608	3,018	1,036	0	41,476	0	95,277	202	95,075	89,553	36,904	52,649	774
2046/47	6,439	3,735	2,705	12,727	0	32,087	0	96,948	204	96,744	96,478	32,778	63,700	774
2047/48	6,448	3,943	2,505	2,900	0	32,604	0	98,649	205	98,444	99,378	34,502	64,876	774
2048/49	6,543	4,080	2,463	0	0	35,965	0	100,294	206	100,088	99,378	36,225	63,152	774
2049/50	6,635	4,095	2,540	0	0	39,322	0	101,935	208	101,727	99,378	37,950	61,428	774
2050/51	6,728	4,111	2,617	0	0	42,674	0	103,571	209	103,362	99,378	39,673	59,704	774

14.6.2 Sensitivity of Financial Projections - Sewerage

For the purpose of comparison of consolidated Hilltops Council sewer fund TRB forecasts with those of separate sewer funds for the pre-amalgamated Council areas, namely Boorowa, Harden and Young, separate financial models have been developed. The TRB forecasts are compared in Table 14-7 and Figure 14-10. Additional details of separate sewer fund financial model forecasts for the Council areas are shown in Appendix H.

Sewer fund financial model forecasts were recast with an additional capital works of $ 4.0 Million for Biosolids Management Infrastructure (septic receival) at the Young Sewage Treatment Plant included in the Council's 2024-25 LTFP. The work is planned to be undertaken during 2025-27 to address NSW Environment Protection Authority requirements. The work includes construction of civil infrastructure that will enable appropriate management of existing and future biosolids in terms of storage,

classification, reuse and disposal. The financial model forecasts confirmed that this additional capital cost will not affect the sewerage TRBs forecasts above

Table 14-7: Comparison of TRBs for Separate Sewer Funds

Sewer Fund	TRB in 2022/23	Required annual increase from 2023/24 to 2027/28	TRB from 2027/28 to 2050/51
Hilltops (consolidated)	774	Nil	774
Boorowa	800	25	900
Harden	793	70	1073
Young	780	Nil	780

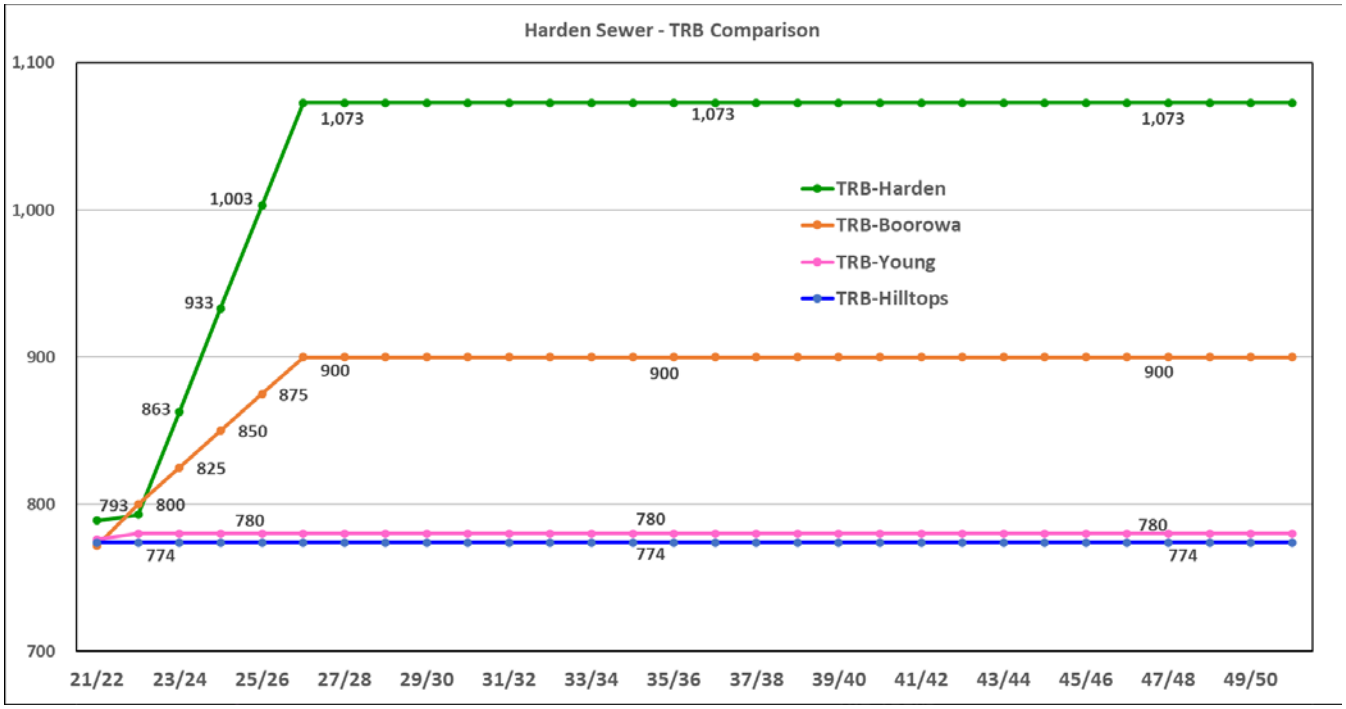

Figure 14-10: Comparison of TRBs for Separate Sewer Funds

Sensitivity of the consolidated sewer fund model forecasts were analysed for lower growth rates and the impact on the sewerage TRB forecasts as summarised in Table 14-8 and in Figure 14-11, and Figure 14-12.

Table 14-8: Sensitivity Analysis – Sewer Fund

Sensitivity	Values of Variables for Analysis	Effect on TRB compared to the Preferred Scenario
No government grant/ subsidy	No government grant/ subsidy for the Harden STP upgrade works (50% of the capital cost estimate)	No impact on TRB. $7.0 Million loan for Harden STP required.
Higher capital work costs	Estimated costs of capital works during the planning period increase by 20%	No impact on TRB. Slightly lower minimum cash for one year.

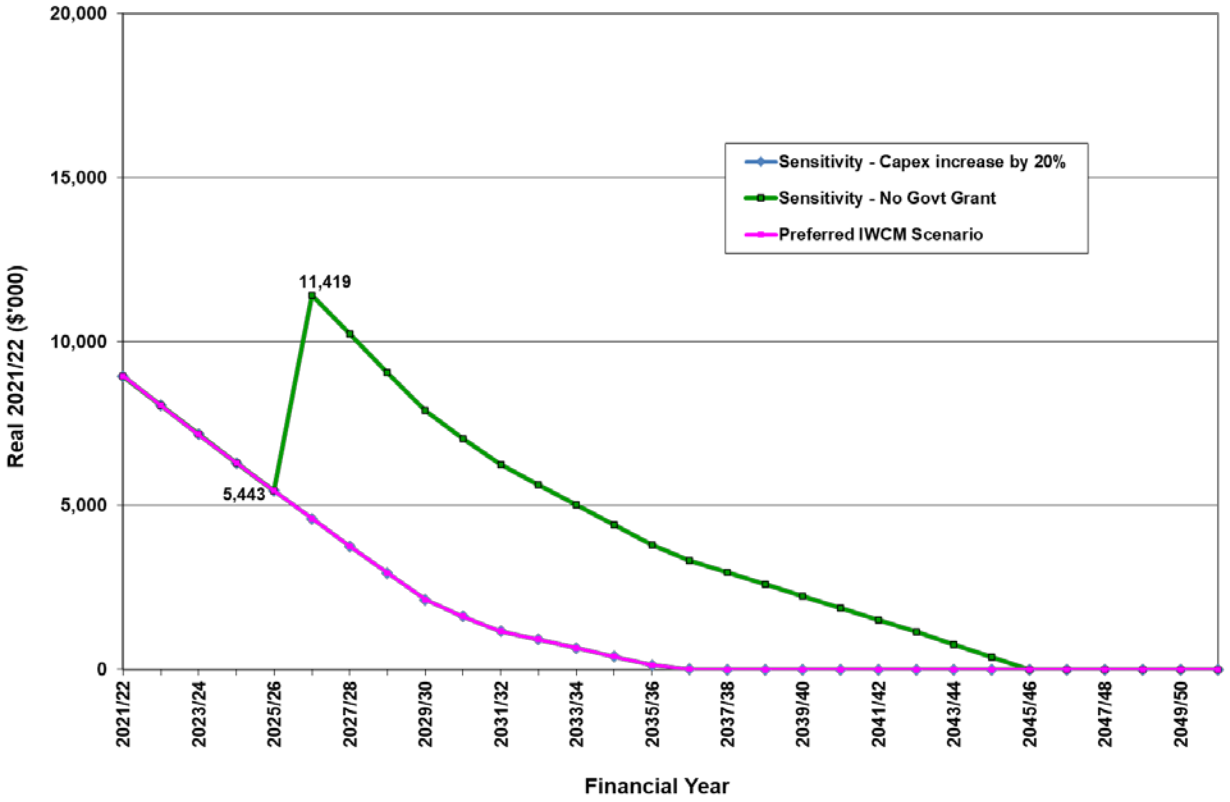

Figure 14-11: Sensitivity of Borrowing Levels for Sewerage

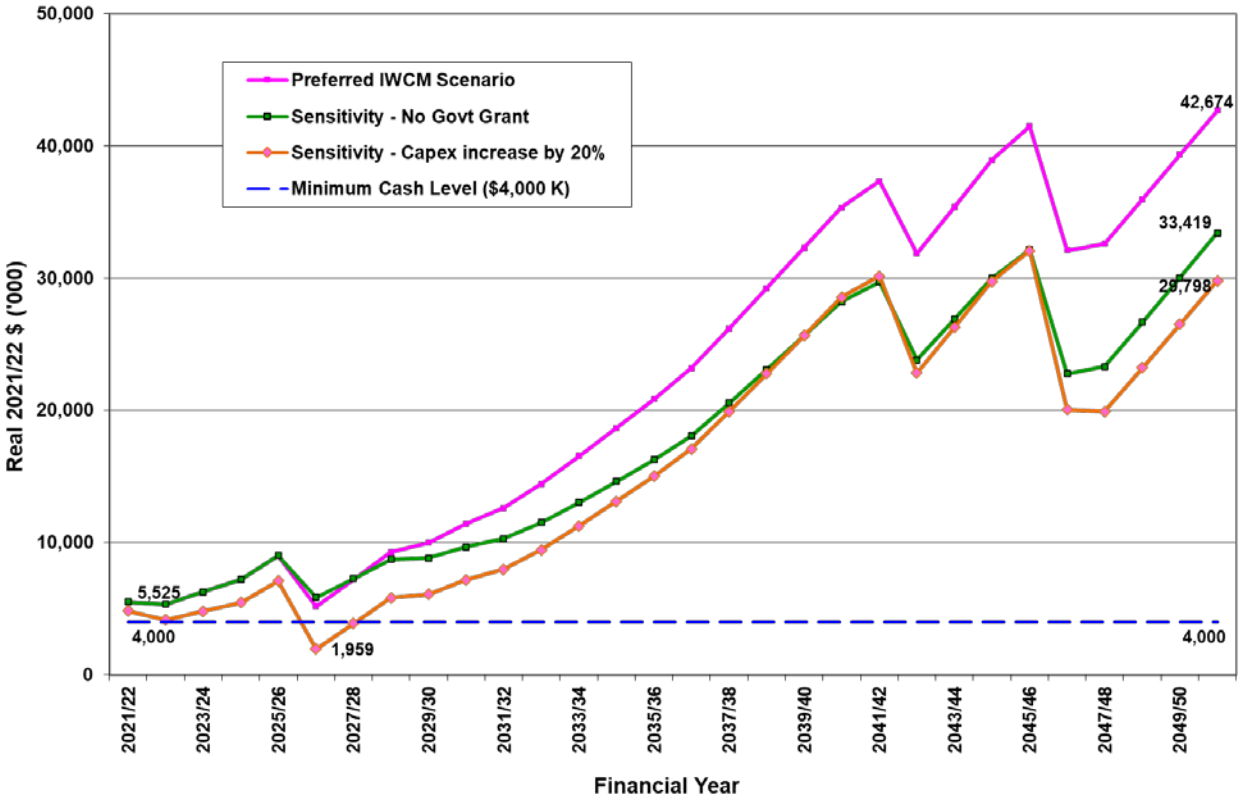

Figure 14-12: Sensitivity of Cash and Investment Levels for Sewerage

Appendices

Appendix A Present Value Cost Estimates for Scenarios

Scenario 1:

Scenario 1 (GWCC Pipeline)

Water Supply Service

ITEM	ILOS	Growth	DESCRIPTION	Qty	[UNIT]	AMT	PRESENT WORTH ($K)			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
	%	%			$K	$K	4%	7%	10%																														
1.0	**95%**	**5%**	**Boorowa water security - GWCC Pipeline**																																				
			Pipeline and easement		22049	$23,043	$22,165	$21,374	$20,703	$510	$22,049	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$994									
			Pumping station		493	$987	$931	$892	$856	$0	$493																												
			Chlorination		391	$391	$376	$365	$355	$0	$391																												
			Demolition of existing WTP		350	$350	$337	$327	$318		$350																												
			New Boorowa reservoir		769	$769	$740	$719	$699	$0	$769																												
			GWCC Network upgrades		793	$793	$762	$741	$721		$793																												
			Section 64 contributions		4077	$4,077	$3,920	$3,810	$3,706		$4,077																												
			Contingency (30%)		8677	$8,677	$8,343	$8,109	$7,888		$8,677																												
1.1			**Reduce NRW**																																				
			Install smart meters in distribution system to collect information (allowance for 10 meters)	10.00	1500	$15	$14	$14	$14		$15																												
2.0	**0%**	**100%**	**Harden water supply**																																				
2.0			New proposed Western reservoir (replaces Bobbara St res at EOL)	1	5091.0	$5,091	$3,180	$2,260	$1,622	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$5,091	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0				
2.1			**Reduce NRW**																																				
			Install smart meters in distribution system to collect information (allowance for 10 meters)	10.00	1500	$15	$14	$14	$14		$15																												
			TOTAL CAPITAL COST (including 30% contingency, 10% SID & 10% PM & CM)			**$44,207**	**$40,782**	**$38,626**	**$36,896**																														
2.0			**OPERATION AND MAINTENANCE COSTS**																																				
			Boorowa water supply - GWCC pipeline	1	$129.4	$4,020	$2,636	$2,000	$1,611	$266.2	$266.2	$129.4	$129.4	$129.4	$129.4	$129.4	$129.4	$129.4	$129.4	$129.4	$129.4	$129.4	$129.4	$129.4	$129.4	$129.4	$129.4	$129.4	$129.4	$129.4	$129.4	$129.4	$129.4	$129.4	$129.4	$129.4	$129.4	$129.4	$129.4
			New proposed Western reservoir (replaces Bobbara St res at EOL)	0.5%		$458	$201	$114	$67	$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	$25.5	$25.5	$25.5	$25.5	$25.5	$25.5	$25.5	$25.5	$25.5	$25.5	$25.5	$25.5	$25.5	$25.5	$25.5	$25.5
			Bulk water supply charges		446	$12,939	$7,286	$5,120	$3,801		$0	$446	$446	$446	$446	$446	$446	$446	$446	$446	$446	$446	$446	$446	$446	$446	$446	$446	$446	$446	$446	$446	$446	$446	$446	$446	$446	$446	$446
			TOTAL OPERATION & MAINTENANCE COSTS			**$17,418**	**$10,124**	**$7,234**	**$5,478**	**$266**	**$266**	**$576**	**$576**	**$576**	**$576**	**$576**	**$576**	**$576**	**$576**	**$576**	**$576**	**$576**	**$576**	**$601**	**$601**	**$601**	**$601**	**$601**	**$601**	**$601**	**$601**	**$601**	**$601**	**$601**	**$601**	**$601**	**$601**	**$601**	**$601**
			Avoided Costs																																				
			Avoided costs at current Boorowa water supply scheme		$5,120	$5,120	$4,923	$4,785	$4,654	$0	$5,120	$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
			Renewal of Boorowa Weir		$7,182	$7,182	$4,665	$3,412	$2,517	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$7,182																	
			TOTAL AVOIDED COSTS			**$12,302**	**$9,588**	**$8,197**	**$7,172**	**$0**	**$5,120**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$7,182**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
			TOTAL PRESENT VALUE			**$49,323**	**$41,317**	**$37,663**	**$35,203**																														

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Scenario 1

Sewerage Service

ITEM	ILOS	Growth	DESCRIPTION	Qty	[UNIT]	AMT	PRESENT WORTH ($K)			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
	%	%			4K	$K	4%	7%	10%																														
1.0	**0%**	**100%**	**Young sewerage scheme**																																				
			Augment SPS3 to meet growth	1	100	$100	$92	$87	$83	$0	$0	$100	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0									
2.0	**100%**	**0%**	**Harden sewerage scheme**																																				
			Remedial works (repairs to TF and new drying beds)	1																																			
			Construction of a new activated sludge STP	1	11,400	$11,400	$5,627	$3,373	$2,050	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$11,400	$0										
3.0	**100%**	**0%**	**Boorowa sewerage scheme**																																				
			Construct additional maturation pond to provide 20 days detention time	1	500	$500	$462	$437	$413	$0	$0	$500	$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
			Construct a new oxidation pond plant with agricultural reuse at the end of design life	1	6,227	$6,227	$2,526	$1,314	$695	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$6,227	$0						
4.0	**100%**	**0%**	**Sewering of unsewered areas**																																				
			Jugiong	1	2,200	$2,200	$825	$405	$203	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$2,200					
			Wombatt	1		$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				
			TOTAL CAPITAL COST (including 30% contingency, 10% SID & 10% PM & CM)			**$20,427**	**$9,534**	**$5,616**	**$3,445**																														
2.0			**OPERATION AND MAINTENANCE COSTS**																																				
			New Harden STP - Activated Sludge	1	$129	$1,548	$598	$303	$158	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$129	$129	$129	$129	$129	$129	$129	$129	$129	$129	$129
			New Boorowa STP - Oxidation pond	1	$10	$70	$24	$11	$5	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$10	$10	$10	$10	$10	$10
			O&M Costs for new serviced areas																																				
			Jugiong		$101	$0	$169	$76	$35	$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	$101	$101	$101	$101
			Wombatt			$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	$0
			TOTAL OPERATION & MAINTENANCE COSTS			**$2,123**	**$791**	**$391**	**$199**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$129**	**$129**	**$129**	**$129**	**$129**	**$139**	**$139**	**$240**	**$240**	**$240**	**$240**
			Avoided Costs																																				
			Harden STP renewals	0.00		$810	$344	$187	$104	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	405	$0	$0	$0	$0	$0	405	$0	-	-	-
			TOTALAVOIDED COSTS			**$810**	**$344**	**$187**	**$104**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$405**	**$0**	**$0**	**$0**	**$0**	**$0**	**$405**	**$0**	**$0**	**$0**	**$0**
			TOTAL PRESENT VALUE			**$21,740**	**$10,669**	**$5,820**	**$3,747**																														

Scenario 1a:

Scenario 1a (GWCC Pipeline)

Water Supply Service

ITEM	ILOS %	Growth %	DESCRIPTION	Qty	[UNIT] $K	AMT $K	PRESENT WORTH ($K) 4%	7%	10%	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052
1.0	**95%**	**5%**	**Boorowa water security - GWCC Pipeline**																																				
			Pipeline and easement		22049	$23,043	$22,165	$21,374	$20,703	$510	$22,049	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$994									
			Pumping station		493	$987	$931	$892	$856	$0	$493																													
			Chlorination		391	$391	$376	$365	$355	$0	$391																													
			Demolition of existing WTP		350	$350	$337	$327	$318		$350																													
			New Boorowa reservoir		769	$769	$740	$719	$699	$0	$769																													
			GWCC Network upgrades		793	$793	$762	$741	$721		$793																													
			Section 64 contributions		4077	$4,077	$3,920	$3,810	$3,706		$4,077																													
			Contingency (30%)		8677	$8,677	$8,343	$8,109	$7,888		$8,677																													
1.1			**Reduce NRW**																																				
			Install smart meters in distribution system to collect information (allowance for 10 meters)	10.00	1500	$15	$14	$14	$14		$15																													
2.0	**0%**	**100%**	**Harden water supply**																																				
2.0			New proposed Western reservoir (replaces Bobbara St res at EOL)	1	5091.0	$5,091	$3,180	$2,260	$1,622	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$5,091	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0						
2.1			**Reduce NRW**																																				
			Install smart meters in distribution system to collect information (allowance for 10 meters)	10.00	1500	$15	$14	$14	$14		$15																													
			TOTAL CAPITAL COST (including 30% contingency, 10% SID & 10% PM & CM)			**$44,207**	**$40,782**	**$38,626**	**$36,896**																														
2.0			**OPERATION AND MAINTENANCE COSTS**																																				
			Boorowa water supply - GWCC pipeline	1	$129.4	$4,020	$2,636	$2,000	$1,611	$266.2	$266.2	$129.4	$129.4	$129.4	$129.4	$129.4	$129.4	$129.4	$129.4	$129.4	$129.4	$129.4	$129.4	$129.4	$129.4	$129.4	$129.4	$129.4	$129.4	$129.4	$129.4	$129.4	$129.4	$129.4	$129.4	$129.4	$129.4	$129.4	$129.4	$129.4
			New proposed Western reservoir (replaces Bobbara St res at EOL)	0.5%		$458	$201	$114	$67	$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	$25.5	$25.5	$25.5	$25.5	$25.5	$25.5	$25.5	$25.5	$25.5	$25.5	$25.5	$25.5	$25.5	$25.5	$25.5	$25.5	$25.5	$25.5
			Bulk water supply charges		446	$12,939	$7,286	$5,120	$3,801		$0	$446	$446	$446	$446	$446	$446	$446	$446	$446	$446	$446	$446	$446	$446	$446	$446	$446	$446	$446	$446	$446	$446	$446	$446	$446	$446	$446	$446	$446
			TOTAL OPERATION & MAINTENANCE COSTS			**$17,418**	**$10,124**	**$7,234**	**$5,478**	**$266**	**$266**	**$576**	**$576**	**$576**	**$576**	**$576**	**$576**	**$576**	**$576**	**$576**	**$576**	**$576**	**$601**	**$601**	**$601**	**$601**	**$601**	**$601**	**$601**	**$601**	**$601**	**$601**	**$601**	**$601**	**$601**	**$601**	**$601**	**$601**	**$601**	**$601**
			Avoided Costs																																				
			Avoided costs at current Boorowa water supply scheme		$5,120	$5,120	$4,923	$4,785	$4,654	$0	$5,120	$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
			Renewal of Boorowa Weir		$7,182	$7,182	$4,665	$3,412	$2,517	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$7,182																	
			TOTAL AVOIDED COSTS			**$12,302**	**$9,588**	**$8,197**	**$7,172**	**$0**	**$5,120**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$7,182**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
			TOTAL PRESENT VALUE			**$49,323**	**$41,317**	**$37,663**	**$35,203**																														

#######

Scenario 1a

Sewerage Service

ITEM	ILOS %	Growth %	DESCRIPTION	Qty	[UNIT] 4K	AMT $K	PRESENT WORTH ($K) 4%	7%	10%	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052
1.0	**0%**	**100%**	**Young sewerage scheme**																																				
			Augment SPS3 to meet growth	1	100	$100	$92	$87	$83	$0	$0	$100	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0								
2.0	**100%**	**0%**	**Harden sewerage scheme**																																				
			Remedial works (repairs to TF and new drying beds)	1																																			
			Construction of a new activated sludge STP	1	11,400	$12,100	$10,007	$8,826	$7,851	$0	$0	$0	$0	$11,400	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$700					
3.0	**100%**	**0%**	**Boorowa sewerage scheme**																																				
			Construct additional maturation pond to provide 20 days detention time	1	500	$500	$462	$437	$413	$0	$0	$500	$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
			New activated sludge plant at the end of design life	1	11,541	$11,541	$4,682	$2,435	$1,289	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$11,541	$0					
4.0	**100%**	**0%**	**Sewering of unsewered areas**																																				
			Jugiong	1	2,200	$2,200	$825	$405	$203	$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	$2,200					
			Wombatt	1		$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					
			TOTAL CAPITAL COST (including 30% contingency, 10% SID & 10% PM & CM)			**$26,441**	**$16,070**	**$12,190**	**$9,839**																														
2.0			**OPERATION AND MAINTENANCE COSTS**																																				
			New Harden STP - Activated Sludge	1	$129	$3,354	$1,762	$1,164	$807	$0	$0	$0	$0	$0	$129	$129	$129	$129	$129	$129	$129	$129	$129	$129	$129	$129	$129	$129	$129	$129	$129	$129	$129	$129	$129	$129	$129	$129	$129
			New Boorowa STP - Oxidation pond	1	$120	$840	$292	$136	$65	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$120	$120	$120	$120	$120	$120	$120
			O&M Costs for new serviced areas																																				
			Jugiong		$101	$0	$207	$95	$45	$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	$101	$101	$101	$101	$101
			Wombatt			$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	$0	$0
			TOTAL OPERATION & MAINTENANCE COSTS			**$4,800**	**$2,261**	**$1,395**	**$917**	**$0**	**$0**	**$0**	**$0**	**$0**	**$129**	**$129**	**$129**	**$129**	**$129**	**$129**	**$129**	**$129**	**$129**	**$129**	**$129**	**$129**	**$129**	**$129**	**$129**	**$129**	**$129**	**$129**	**$249**	**$350**	**$350**	**$350**	**$350**	**$350**
			Avoided Costs																																				
			Harden STP renewals	0.00		$2,242	$1,721	$1,525	$1,405	$0	$1,432	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	405	$0	$0	$0	$0	$0	405	$0	-	-	-
			TOTALAVOIDED COSTS			**$2,242**	**$1,721**	**$1,525**	**$1,405**	**$0**	**$1,432**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$405**	**$0**	**$0**	**$0**	**$0**	**$0**	**$405**	**$0**	**$0**	**$0**	**$0**
			TOTAL PRESENT VALUE			**$28,999**	**$20,052**	**$12,060**	**$12,161**																														

Scenario 2:

Scenario 2 Option 4a (Treatment Upgrade meeting Health Based Targets only)

Water Supply Service

ITEM	ILOS	Growth	DESCRIPTION	Qty	[UNIT]	AMT	PRESENT WORTH ($K)			2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052
	%	%			$K	$K	4%	7%	10%																														
1.0	95%	5%	**Boorowa water security -Option 4a Treatment Upgrade meeting HBTs only**																																			
			Construction cost		23,234	$28,154	$24,586	$22,986	$21,853		$23,234	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$4,920								
			Designs and approvals		3,712	$3,712	$3,712	$3,712	$3,712	$3,712	$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
1.1			**Reduce NRW**			$0	$0	$0	$0		$0																											
			Install smart meters in distribution system to collect information (allowance for 10 meters)																																			
				10.00	1500	$15	$14	$14	$14		$15																											
2.0	0%	100%	**Harden water supply**																																			
2.0			New proposed Western reservoir (replaces Bobbara St res at EOL	1	5091.0	$5,091	$3,180	$2,260	$1,622	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$5,091	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0					
2.1			**Reduce NRW**																																			
			Install smart meters in distribution system to collect information (allowance for 10 meters)	10.00	1500	$15	$14	$14	$14		$15																											
			TOTAL CAPITAL COST (including 30% contingency, 10% SID & 10% PM & CM)			**$36,987**	**$31,507**	**$28,986**	**$27,215**																													
2.0			**OPERATION AND MAINTENANCE COSTS**																																			
			Boorowa water supply - Option 4a Treatment Upgrade meeting HBTs only		$247.0	$8,051	$4,418	$3,034	$2,196	$0	$0	$0	$0	$278	$279	$281	$283	$285	$287	$289	$289	$289	$289	$289	$289	$289	$289	$289	$289	$289	$289	$289	$289	$289	$289	$289	$289	$289	$289
			Harden reservoir mmaintenance (0.5%)	0.5%		$458	$201	$114	$67	$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	$25.46	$25.5	$25.5	$25.5	$25.5	$25.5	$25.5	$25.5	$25.5	$25.5	$25.5	$25.5	$25.5	$25.5	$25.5	$25.5	$25.5
			TOTAL OPERATION & MAINTENANCE COSTS			**$8,509**	**$4,619**	**$3,147**	**$2,263**	**$0**	**$0**	**$0**	**$278**	**$279**	**$281**	**$283**	**$285**	**$287**	**$289**	**$289**	**$289**	**$289**	**$314**	**$314**	**$314**	**$314**	**$314**	**$314**	**$314**	**$314**	**$314**	**$314**	**$314**	**$314**	**$314**	**$314**	**$314**	**$314**	**$314**
			Avoided Costs																																			
			Avoided costs at current Boorowa water supply scheme		$5,120	$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	$0
			Renewal of Boorowa Weir		$7,182	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0																	
			TOTAL AVOIDED COSTS			**$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**
			TOTAL PRESENT VALUE			**$45,496**	**$36,126**	**$32,133**	**$29,478**																														
			Total O&M Cost					$32,133					$525	$526	$528	$530	$532	$534	$536	$536	$536	$536	$536	$536	$536	$536	$536	$536	$536	$536	$536	$536	$536	$536	$536	$536	$536	$536

IWCM - Scenario 2

Sewerage Service

ITEM	ILOS	Growth	DESCRIPTION	Qty	[UNIT]	AMT	PRESENT WORTH ($K)			2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052
	%	%			4K	$K	4%	7%	10%																														
1.0	0%	100%	**Young sewerage scheme**																																			
			Augment SPS3 to meet growth	1	100	$100	$92	$87	$83	$0	$0	$100	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0								
2.0	0%	0%	**Harden sewerage scheme**																																			
			Construction of a new activated sludge STP maintaining existing reuse	1	11,400	$12,100	$10,007	$8,826	$7,851	$0	$0	$0	$0	$11,400	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$700							
3.0	0%	0%	**Boorowa sewerage scheme**																																			
			Construct additional maturation pond to provide 20 days detention time	1	500	$500	$462	$437	$413	$0	$0	$500	$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
			New activated sludge plant at the end of design life	1	11,541	$11,541	$4,682	$2,435	$1,289	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$11,541							
4.0	100%	0%	**Sewering of unsewered areas**																																			
			Jugiong	1	2,200	$2,200	$825	$405	$203	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$2,200					
			Wombatt	1		$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					
			TOTAL CAPITAL COST (including 30% contingency, 10% SID & 10% PM & CM)			**$26,441**	**$16,070**	**$12,190**	**$9,839**																														
2.0			**OPERATION AND MAINTENANCE COSTS**																																			
			New Harden STP - Activated Sludge	1	$129	$3,354	$1,762	$1,164	$807	$0	$0	$0	$0	$0	$129	$129	$129	$129	$129	$129	$129	$129	$129	$129	$129	$129	$129	$129	$129	$129	$129	$129	$129	$129	$129	$129	$129	$129	$129
			New Boorowa STP - Activated sludge	1	$120	$840	$292	$136	$65	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$120	$120	$120	$120	$120	$120	$120	$120
			O&M Costs for new serviced areas																																			
			Jugiong		$101	$0	$207	$95	$45	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$101	$101	$101	$101	$101	$101	$101
			Wombatt			$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	$0	$0
			TOTAL OPERATION & MAINTENANCE COSTS			**$4,800**	**$2,261**	**$1,395**	**$917**	**$0**	**$0**	**$0**	**$0**	**$0**	**$129**	**$129**	**$129**	**$129**	**$129**	**$129**	**$129**	**$129**	**$129**	**$129**	**$129**	**$129**	**$129**	**$129**	**$129**	**$129**	**$129**	**$249**	**$350**	**$350**	**$350**	**$350**	**$350**	**$350**	**$350**
			Avoided Costs																																			
			Harden STP renewal cost	0.00		$2,242	$1,721	$1,525	$1,405		$1,432	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	405	$0	$0	$0	$0	$0	$0	$0
			TOTALAVOIDED COSTS			**$2,242**	**$1,721**	**$1,525**	**$1,405**	**$0**	**$1,432**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$405**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
			TOTAL PRESENT VALUE			**$28,999**	**$20,052**	**$12,060**	**$12,161**																														

Scenario 3:

Scenario 3 Option 4b (Treatment Upgrade meeting HBTargets and hardness)

Water Supply Service

ITEM	ILOS	Growth	DESCRIPTION	Qty	[UNIT]	AMT	PRESENT WORTH ($K)			2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052
	%	%			$K	$K	4%	7%	10%																														
1.0	95%	5%	**Boorowa water security - Option 4b Treatment Upgrade meeting HBTs and hardness**																																			
			Construction cost		24,745	$30,520	$26,429	$24,618	$23,354		$24,745	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$5,775									
			Designs and approvals		3,890	$3,890	$3,890	$3,890	$3,890	$3,890	$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
1.1			**Reduce NRW**			$0	$0	$0	$0	$0	$0																												
			Install smart meters in distribution system to collect information (allowance for 10	10.00	1500	$15	$14	$14	$14		$15																												
2.0	0%	100%	**Harden water supply**																																			
2.0			New proposed Western reservoir (replaces Bobbara St res at EOL	1	5091.0	$5,091	$3,180	$2,260	$1,622	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$5,091	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0						
2.1			**Reduce NRW**																																			
			meters)	10.00	1500	$15	$14	$14	$14		$15																												
			TOTAL CAPITAL COST (including 30% contingency, 10% SID & 10% PM & CM)			**$39,531**	**$33,527**	**$30,797**	**$28,893**																														
2.0			**OPERATION AND MAINTENANCE COSTS**																																			
			Boorowa water supply - Option 4b Treatment Upgrade meeting HBTs and hardness	1	$278.0	$9,901	$5,562	$3,900	$2,889	$0.0	$0.0	$331	$333	$334	$336	$338	$340	$343	$343	$343	$343	$343	$343	$343	$343	$343	$343	$343	$343	$343	$343	$343	$343	$343	$343	$343	$343	$343	$343
			New proposed Western reservoir (replaces Bobbara St res at EO)L	0.5%		$458	$201	$114	$67	$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	$25.5	$25.5	$25.5	$25.5	$25.5	$25.5	$25.5	$25.5	$25.5	$25.5	$25.5	$25.5	$25.5	$25.5	$25.5	$25.5	$25.5
			TOTAL OPERATION & MAINTENANCE COSTS			**$10,359**	**$5,763**	**$4,014**	**$2,956**	**$0**	**$0**	**$331**	**$333**	**$334**	**$336**	**$338**	**$340**	**$343**	**$343**	**$343**	**$343**	**$343**	**$368**	**$368**	**$368**	**$368**	**$368**	**$368**	**$368**	**$368**	**$368**	**$368**	**$368**	**$368**	**$368**	**$368**	**$368**	**$368**	**$368**
			Avoided Costs																																			
			Avoided costs at current Boorowa water supply scheme		$5,120	$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	$0
			TOTAL AVOIDED COSTS			**$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**
			TOTAL PRESENT VALUE			**$49,890**	**$39,290**	**$34,810**	**$31,849**																														
								$34,810				$609	$611	$612	$614	$616	$618	$621	$621	$621	$621	$621	$621	$621	$621	$621	$621	$621	$621	$621	$621	$621	$621	$621	$621	$621	$621	$621

Scenario 3

Sewerage Service

ITEM	ILOS	Growth	DESCRIPTION	Qty	[UNIT]	AMT	PRESENT WORTH ($K)			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	31
	%	%			4K	$K	4%	7%	10%																														
1.0	0%	100%	**Young sewerage scheme**																																			
			Augment SPS3 to meet growth	1	100	$100	$92	$87	$83	$0	$0	$100	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0									
2.0	0%	0%	**Harden sewerage scheme**																																			
			Remedial works (repairs to TF and new drying beds)	1	-	$0	$0	$0	$0	$0	$0	$0																											
			Construction of a new oxidation pond STP with agricultural reuse	1	7,833	$7,833	$6,696	$5,976	$5,350	$0	$0	$0	$0	$7,833	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0									
3.0	0%	0%	**Boorowa sewerage scheme**																																			
			Construct additional maturation pond to provide 20 days detention time	1	500	$500	$462	$437	$413	$0	$0	$500	$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
			Construct a new oxidation pond plant with agricultural reuse at the end of design life	1	6,227	$6,227	$2,526	$1,314	$695	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$6,227							
4.0	100%	0%	**Sewering of unsewered areas**																																			
			Jugiong	1	2,200	$2,200	$825	$405	$203	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$2,200					
			Wombatt	1		$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					
			TOTAL CAPITAL COST (including 30% contingency, 10% SID & 10% PM & CM)			**$16,860**	**$10,602**	**$8,219**	**$6,744**																														
2.0			**OPERATION AND MAINTENANCE COSTS**																																			
			New Harden STP - Oxidation pond with agricultural reuse	1	$14	$364	$191	$126	$88	$0	$0	$0	$0	$0	$14	$14	$14	$14	$14	$14	$14	$14	$14	$14	$14	$14	$14	$14	$14	$14	$14	$14	$14	$14	$14	$14	$14	$14
			New Boorowa STP - Oxidation pond	1	$10	$70	$24	$11	$5	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$10	$10	$10	$10	$10	$10	$10	$10
			O&M Costs for new serviced areas																																			
			Jugiong		$101	$0	$207	$95	$45	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$101	$101	$101	$101	$101	$101
			Wombatt			$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	$0
			TOTAL OPERATION & MAINTENANCE COSTS			**$1,040**	**$422**	**$233**	**$138**	**$0**	**$0**	**$0**	**$0**	**$0**	**$14**	**$14**	**$14**	**$14**	**$14**	**$14**	**$14**	**$14**	**$14**	**$14**	**$14**	**$14**	**$14**	**$14**	**$14**	**$14**	**$24**	**$125**	**$125**	**$125**	**$125**	**$125**
			Avoided Costs																																			
			Harden STP renewal cost	0.00		$2,242	$1,721	$1,525	$1,405		$1,432	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	405	$0	$0	$0	$0	$0	405	$0	$0	$0	$0
			TOTALAVOIDED COSTS			**$2,242**	**$1,721**	**$1,525**	**$1,405**	**$0**	**$1,432**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$405**	**$0**	**$0**	**$0**	**$0**	**$0**	**$405**	**$0**	**$0**	**$0**	**$0**
			TOTAL PRESENT VALUE			**$15,658**	**$12,745**	**$6,926**	**$8,287**																														

Scenario 4:

Scenario 4 Option 4c (Treatment Upgrade meeting HBTargets, hardness and full aesthetic parameters)

Water Supply Service

ITEM	ILOS	Growth	DESCRIPTION	Qty	[UNIT]	AMT	PRESENT WORTH ($K)			2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052
	%	%			$K	$K	4%	7%	10%																														
1.0	**95%**	**5%**	**Boorowa water security - Option 4b Treatment Upgrade meeting HBTs, hardness, and full aesthetic parameters**																																		
			Construction Cost		26547	$33,737	$28,807	$26,668	$25,202		$26,547	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$7,190								
			Design and approval		4157	$4,157	$4,157	$4,157	$4,157	$4,157																												
						$0	$0	$0	$0	$0	$0																												
1.1			**Reduce NRW**																																		
			Install smart meters in distribution system to collect information (allowance for 10 meters)	10.00	1500	$15	$14	$14	$14		$15																											
2.0	**0%**	**100%**	**Harden water supply**																																		
2.0			New proposed Western reservoir (replaces Bobbara St res at EOL)	1	5091.0	$5,091	$3,180	$2,260	$1,622	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$5,091	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0					
2.1			**Reduce NRW**																																		
			Install smart meters in distribution system to collect information (allowance for 10 meters)	10.00	1500	$15	$14	$14	$14		$15																											
			TOTAL CAPITAL COST (including 30% contingency, 10% SID & 10% PM & CM)			**$43,015**	**$36,173**	**$33,114**	**$31,009**																													
2.0			**OPERATION AND MAINTENANCE COSTS**																																		
			Boorowa water supply - Option 4c Treatment Upgrade meeting HBTs and aesthetic	1	$278.0	$12,922	$7,264	$5,097	$3,778	$0.0	$0.0	$436	$437	$439	$441	$443	$445	$447	$447	$447	$447	$447	$447	$447	$447	$447	$447	$447	$447	$447	$447	$447	$447	$447	$447	$447	$447	$447
			New proposed Western reservoir (replaces Bobbara St res at EOL)	0.5%		$458	$201	$114	$67	$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	$25.5	$25.5	$25.5	$25.5	$25.5	$25.5	$25.5	$25.5	$25.5	$25.5	$25.5	$25.5	$25.5	$25.5	$25.5
			TOTAL OPERATION & MAINTENANCE COSTS			**$13,380**	**$7,465**	**$5,211**	**$3,845**	**$0**	**$0**	**$436**	**$437**	**$439**	**$441**	**$443**	**$445**	**$447**	**$447**	**$447**	**$447**	**$447**	**$472**	**$472**	**$472**	**$472**	**$472**	**$472**	**$472**	**$472**	**$472**	**$472**	**$472**	**$472**	**$472**	**$472**	**$472**	**$472**
			Avoided Costs																																		
			Avoided costs at current Boorowa water supply scheme		$5,120	$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
			Renewal of Boorowa Weir		$7,182	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0															
			TOTAL AVOIDED COSTS			**$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**
			TOTAL PRESENT VALUE			**$56,395**	**$43,639**	**$38,325**	**$34,854**																														
								$38,325				$714	$715	$717	$719	$721	$723	$725	$725	$725	$725	$725	$725	$725	$725	$725	$725	$725	$725	$725	$725	$725	$725	$725	$725	$725	$725

Scenario 4

Sewerage Service

ITEM	ILOS	Growth	DESCRIPTION	Qty	[UNIT]	AMT	PRESENT WORTH ($K)			2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052
	%	%			4K	$K	4%	7%	10%																														
1.0	**0%**	**100%**	**Young sewerage scheme**																																		
			Augment SPS3 to meet growth	1	100	$100	$92	$87	$83	$0	$0	$100	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0								
2.0	**100%**	**0%**	**Harden sewerage scheme**																																		
			Remedial works (repairs to TF and new drying beds)	1																																	
			Construction of a new activated sludge STP	1	11,400	$11,400	$5,627	$3,373	$2,050	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$11,400	$0									
3.0	**100%**	**0%**	**Boorowa sewerage scheme**																																		
			Construct additional maturation pond to provide 20 days detention time	1	500	$500	$462	$437	$413	$0	$0	$500	$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
			Construct a new oxidation pond plant with agricultural reuse at the end of design life	1	6,227	$6,227	$2,526	$1,314	$695	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$6,227	$0					
4.0	**100%**	**0%**	**Sewering of unsewered areas**																																		
			Jugiong	1	2,200	$2,200	$825	$405	$203	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$2,200					
			Wombatt	1		$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					
			TOTAL CAPITAL COST (including 30% contingency, 10% SID & 10% PM & CM)			**$20,427**	**$9,534**	**$5,616**	**$3,445**																														
2.0			**OPERATION AND MAINTENANCE COSTS**																																		
			New Harden STP - Activated Sludge	1	$129	$1,548	$598	$303	$158	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$129	$129	$129	$129	$129	$129	$129	$129	$129	$129
			New Boorowa STP - Oxidation pond	1	$10	$70	$24	$11	$5	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$10	$10	$10	$10	$10	$10	$10
			O&M Costs for new serviced areas																																		
			Jugiong		$101	$0	$169	$76	$35	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$101	$101	$101	$101	$101	$101
			Wombatt			$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	$0
			TOTAL OPERATION & MAINTENANCE COSTS			**$2,123**	**$791**	**$391**	**$199**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$129**	**$129**	**$129**	**$129**	**$129**	**$139**	**$139**	**$240**	**$240**	**$240**	**$240**
			Avoided Costs																																		
			Harden STP renewals	0.00		$810	$344	$187	$104	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	405	$0	$0	$0	$0	$0	405	$0	-	-	-
			TOTALAVOIDED COSTS			**$810**	**$344**	**$187**	**$104**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$405**	**$0**	**$0**	**$0**	**$0**	**$0**	**$405**	**$0**	**$0**	**$0**	**$0**
			TOTAL PRESENT VALUE			**$21,740**	**$10,669**	**$5,820**	**$3,747**																														

Scenario 4a:

Scenario 4a Option 4c (Treatment Upgrade meeting HBTargets, hardness and full aesthetic parameters)

Water Supply Service

ITEM	ILOS	Growth	DESCRIPTION	Qty	[UNIT]	AMT	PRESENT WORTH ($K)			2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052
	%	%			$K	$K	4%	7%	10%																														
1.0	95%	5%	**Boorowa water security - Option 4b Treatment Upgrade meeting HBTs, hardness, and full aesthetic parameters**																																			
			Construction Cost		26547	$33,737	$28,807	$26,668	$25,202		$26,547	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$7,190								
			Design and approval		4157	$4,157	$4,157	$4,157	$4,157	$4,157																													
						$0	$0	$0	$0	$0	$0																													
1.1			**Reduce NRW**																																			
			Install smart meters in distribution system to collect information (allowance for 10 meters)	10.00	1500	$15	$14	$14	$14		$15																												
2.0	0%	100%	**Harden water supply**																																			
2.0			New proposed Western reservoir (replaces Bobbara St res at EOL)	1	5091.0	$5,091	$3,180	$2,260	$1,622	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$5,091	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0					
2.1			**Reduce NRW**																																			
			Install smart meters in distribution system to collect information (allowance for 10 meters)	10.00	1500	$15	$14	$14	$14		$15																												
			TOTAL CAPITAL COST (including 30% contingency, 10% SID & 10% PM & CM)			**$43,015**	**$36,173**	**$33,114**	**$31,009**																													
2.0			**OPERATION AND MAINTENANCE COSTS**																																			
			Boorowa water supply - Option 4c Treatment Upgrade meeting HBTs and aesthetic	1	$278.0	$12,922	$7,264	$5,097	$3,778	$0.0	$0.0	$436	$437	$439	$441	$443	$445	$447	$447	$447	$447	$447	$447	$447	$447	$447	$447	$447	$447	$447	$447	$447	$447	$447	$447	$447	$447	$447
			New proposed Western reservoir (replaces Bobbara St res at EOL)	0.5%		$458	$201	$114	$67	$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	$25.5	$25.5	$25.5	$25.5	$25.5	$25.5	$25.5	$25.5	$25.5	$25.5	$25.5	$25.5	$25.5	$25.5	$25.5
			TOTAL OPERATION & MAINTENANCE COSTS			**$13,380**	**$7,465**	**$5,211**	**$3,845**	**$0**	**$0**	**$436**	**$437**	**$439**	**$441**	**$443**	**$445**	**$447**	**$447**	**$447**	**$447**	**$447**	**$472**	**$472**	**$472**	**$472**	**$472**	**$472**	**$472**	**$472**	**$472**	**$472**	**$472**	**$472**	**$472**	**$472**	**$472**	**$472**
			Avoided Costs																																			
			Avoided costs at current Boorowa water supply scheme		$5,120	$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
			Renewal of Boorowa Weir		$7,182	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0																
			TOTAL AVOIDED COSTS			**$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**
			TOTAL PRESENT VALUE			**$56,395**	**$43,639**	**$38,325**	**$34,854**																														
								$38,325				$714	$715	$717	$719	$721	$723	$725	$725	$725	$725	$725	$725	$725	$725	$725	$725	$725	$725	$725	$725	$725	$725	$725	$725	$725	$725	$725

IWCM - Scenario 4a

Sewerage Service

ITEM	ILOS	Growth	DESCRIPTION	Qty	[UNIT]	AMT	PRESENT WORTH ($K)			2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052
	%	%			4K	$K	4%	7%	10%																														
1.0	0%	100%	**Young sewerage scheme**																																			
			Augment SPS3 to meet growth	1	100	$100	$92	$87	$83	$0	$0	$100	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0						
2.0	0%	0%	**Harden sewerage scheme**																																			
			Construction of a new activated sludge STP maintaining existing reuse	1	11,400	$12,100	$10,007	$8,826	$7,851	$0	$0	$0	$0	$11,400	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$700						
3.0	0%	0%	**Boorowa sewerage scheme**																																			
			Construct additional maturation pond to provide 20 days detention time	1	500	$500	$462	$437	$413	$0	$0	$500	$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
			New activated sludge plant at the end of design life	1	11,541	$11,541	$4,682	$2,435	$1,289	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$11,541							
4.0	100%	0%	**Sewering of unsewered areas**																																			
			Jugiong	1	2,200	$2,200	$825	$405	$203	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$2,200					
			Wombatt	1		$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
			TOTAL CAPITAL COST (including 30% contingency, 10% SID & 10% PM & CM)			**$26,441**	**$16,070**	**$12,190**	**$9,839**																														
2.0			**OPERATION AND MAINTENANCE COSTS**																																			
			New Harden STP - Activated Sludge	1	$129	$3,354	$1,762	$1,164	$807	$0	$0	$0	$0	$0	$129	$129	$129	$129	$129	$129	$129	$129	$129	$129	$129	$129	$129	$129	$129	$129	$129	$129	$129	$129	$129	$129	$129	$129
			New Boorowa STP - Activated sludge	1	$120	$840	$292	$136	$65	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$120	$120	$120	$120	$120	$120	$120
			O&M Costs for new serviced areas																																			
			Jugiong		$101	$0	$207	$95	$45	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$101	$101	$101	$101	$101	
			Wombatt			$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
			TOTAL OPERATION & MAINTENANCE COSTS			**$4,800**	**$2,261**	**$1,395**	**$917**	**$0**	**$0**	**$0**	**$0**	**$0**	**$129**	**$129**	**$129**	**$129**	**$129**	**$129**	**$129**	**$129**	**$129**	**$129**	**$129**	**$129**	**$129**	**$129**	**$129**	**$129**	**$129**	**$129**	**$249**	**$350**	**$350**	**$350**	**$350**	**$350**
			Avoided Costs																																			
			Harden STP renewal cost	0.00		$2,242	$1,721	$1,525	$1,405		$1,432	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	405	$0	$0	$0	$0	$0	$0
			TOTALAVOIDED COSTS			**$2,242**	**$1,721**	**$1,525**	**$1,405**	**$0**	**$1,432**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$405**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
			TOTAL PRESENT VALUE			**$28,999**	**$20,052**	**$12,060**	**$12,161**																														

Appendix B Social and Environmental assessment of Scenarios

SOCIAL AND ENVIRONMENTAL PERFORMANCE OF SCENARIOS

TBL CATEGORY		Objective	Key performance Targets	Weighting	Scenario					
					1	1a	2	3	4	4a
	Environmental	Maintain and enhance the health of waterways	Improve quality of STP effluent discharged to the	0.3	3	5	5	2	3	5
			Increase in reuse/recycling of wastewater	0.3	3	5	5	2	3	5
			Protect and improve local environmental flows	0.2	3	5	3	1	1	1
		Drive energy efficiency	Reduce carbon footprint	0.2	3	2	2	5	2	1
			(1) Total weighted environmental score	1	**3.0**	**4.4**	**4.0**	**2.4**	**2.4**	**3.4**
	Social	Increase in facilities and provision of high	Presentation and usability of parks, gardens, reserves,	0.2	2	5	5	0	2	5
		Provide best practice water cycle management	Ensure all towns have access to secure potable water supply that meets industry best practice	0.3	5	5	5	5	5	5
			Ensure all towns have access to high quality potable water supply that meets industry best practice	0.5	5	5	1	3	5	5
			(2) Total weighted social score	1	4.4	5	3	3	4.4	5
	Combined		**(3) Environmental and Social Scores (ESS) (3) = (1) + (2)**	2	**7.4**	**9.4**	**7.0**	**5.4**	**6.8**	**8.4**
			TPV @ 7% ($M)		43.48	49.72	44.19	41.74	44.14	50.38
			ESS/NPV		0.17	0.19	0.16	0.13	0.15	0.17
			Rank		2	1	4	6	5	2

Appendix C Financial Model Input Data – Water Supply

Hilltops IWCM Water Fund Financial Model : Water IWCM - Preferred Scenario

Historical Operating Statement

FINMOD
DEPARTMENT OF COMMERCE

	2019/20*	2020/21*
EXPENSES		
Management Expenses	*1031*	*970*
Administration	582	509
Engineering and Supervision	449	461
Operation and Maintenance Expenses	*5373*	*4803*
Operation Expenses	573	515
Maintenance Expenses	462	476
Energy Costs	45	9
Chemical Costs		
Purchase of Water	4293	3803
Depreciation	*930*	*1005*
System Assets	901	974
Plant & Equipment	29	31
Interest Expenses		54
Other Expenses	103	145
TOTAL EXPENSES	**7437**	**6977**
REVENUES		
Rates & Service Availability Charges	*2972*	*3107*
Residential	2140	2204
Non-Residential	832	903
User Charges	*5529*	*4648*
Sales of Water : Residential	3127	2747
Sales of Water : Non-Residential	2402	1901
Extra Charges		20
Interest Income	42	93
Other Revenues	54	74
Grants	*71*	*280*
Grants for Acquisition of Assets		118
Pensioner Rebate Subsidy	71	73
Other Grants		89
Contributions	*89*	*42*
Developer Charges	89	42
Developer Provided Assets		
Other Contributions		
TOTAL REVENUES	**8757**	**8264**
OPERATING RESULT	**1320**	**1287**
OPERATING RESULT (less Grants for Acq of Assets)	**1320**	**1169**

Hilltops IWCM Water Fund Financial Model : Water IWCM - Preferred Scenario

Historical Statement of Financial Position

FINMOD
DEPARTMENT OF COMMERCE

	2019/20*	2020/21*
Cash and Investments	16712	17165
Receivables	2595	2565
Inventories		239
Property, Plant & Equipment	*42408*	*43478*
System Assets (1)	42357	43121
Plant & Equipment	51	357
Other Assets		
TOTAL ASSETS	**61715**	**63447**
LIABILITIES		
Bank Overdraft		
Creditors	227	496
Borrowings	3559	3227
Provisions	228	233
TOTAL LIABILITIES	**4014**	**3956**
NET ASSETS COMMITTED	**57701**	**59491**
EQUITY		
Accumulated Operating Result	55804	57205
Asset Revaluation Reserve	1897	2286
TOTAL EQUITY	**57701**	**59491**
(1) Notes to System Assets		
Current Replacement Cost	76096	78145
Less: Accumulated Depreciation	33739	35024
Written Down Current Cost	42357	43121

Hilltops IWCM Water Fund Financial Model : Water IWCM - Preferred Scenario

Base Forecast Data

FINMOD
DEPARTMENT OF COMMERCE

	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	2042/43	2043/44	2044/45	2045/46
Financial Data																									
Inflation Rate - General (%)	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50
Inflation Rate - Capital Works (%)	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50
Borrowing Interest Rate for New Loans (%)	4.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50
Investment Interest Rate (%)	2.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50
Number of Assessments																									
Growth Rate (%)																									
Residential Assessments	0.65	0.64	0.65	0.65	0.65	0.67	0.67	0.66	0.66	0.66	0.64	0.65	0.64	0.64	0.63	0.65	0.64	0.64	0.65	0.64	0.64	0.63	0.64	0.64	0.64
Non-Residential Assessments	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Assessments	0.54	0.54	0.55	0.54	0.54	0.56	0.56	0.56	0.55	0.55	0.53	0.54	0.54	0.54	0.54	0.55	0.54	0.54	0.55	0.55	0.54	0.54	0.55	0.55	0.54
Number of New Assessments																									
Residential	40	40	41	41	41	43	43	43	43	43	42	43	43	43	43	44	44	44	45	45	45	45	46	46	46
Non-Residential	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
Total New Assessments	40	40	41	41	41	43	43	43	43	43	42	43	43	43	43	44	44	44	45	45	45	45	46	46	46
Projected Number of Assessments																									
Residential	6228	6268	6309	6350	6391	6434	6477	6520	6563	6606	6648	6691	6734	6777	6820	6864	6908	6952	6997	7042	7087	7132	7178	7224	7270
Non-Residential	1247	1247	1247	1247	1247	1247	1247	1247	1247	1247	1247	1247	1247	1247	1247	1247	1247	1247	1247	1247	1247	1247	1247	1247	1247
Total Projected Assessments	7475	7515	7556	7597	7638	7681	7724	7767	7810	7853	7895	7938	7981	8024	8067	8111	8155	8199	8244	8289	8334	8379	8425	8471	8517
Backlog Assessments																									
Residential	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
Non-Residential	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
Total Backlog Assessments	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
Developer Charges / Vacant Assessments (Values in 2021/22 $)																									
Developer Charges $/Assessment																									
Residential	3888	3888	3888	3888	3888	3888	3888	3888	3888	3888	3888	3888	3888	3888	3888	3888	3888	3888	3888	3888	3888	3888	3888	3888	3888
Non-Residential	3888	3888	3888	3888	3888	3888	3888	3888	3888	3888	3888	3888	3888	3888	3888	3888	3888	3888	3888	3888	3888	3888	3888	3888	3888
Number of Vacant Residential Assessments	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392	392
Average Charge of Vacant Assessments	45	45	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
% of Occupied Assessments	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
Depreciation of Existing Plant and Equipment (Values in 2021/22 $'000)																									
Current Replacement Cost of System Assets	80099																								
Override																									
Written Down Current Cost of System Assets	44199																								
Override																									
Annual Depreciation of Existing System Assets	998																								
Override																									
Written Down Value of Plant and Equipment	357																								
Override																									
Annual Depreciation of Existing Plant and Equipment	35	35	35	35	35	35	35	35	35	42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Hilltops IWCM Water Fund Financial Model : Water IWCM - Preferred Scenario

Base Forecast Data

FINMOD
DEPARTMENT OF COMMERCE

	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	2042/43	2043/44	2044/45	2045/46
Existing Loan Payments (Values in Inflated $'000)																									
Existing Loan Payments : Principal (Total:3227)	337	342	348	353	358	364	369	375	381	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Loan Payments : Interest (Total:238)	48	43	37	32	27	21	16	10	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Capital Works Program (Values in 2021/22 $'000)																									
Subsidised Scheme (Total:38596)	0	485	32076	0	0	0	0	0	0	0	0	0	0	5091	0	0	0	0	0	0	944	0	0	0	0
Other New System Assets (Total:1763)	0	26	1687	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	0	0	0	0
Renewals (Total:29944)	1397	9154	2550	2372	2267	2182	2100	2047	2002	1593	1551	0	68	343	50	0	0	16	0	0	0	31	117	78	26
Total Capital Works (Total:70303)	1397	9665	36313	2372	2267	2182	2100	2047	2002	1593	1551	0	68	5434	50	0	0	16	0	0	994	31	117	78	26
Grant For Acquisition of Assets (% of Subsidised Scheme)	0.00	49.90	49.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grant For Acquisition of Assets ($) (Total:16265)	0	242	16023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Developer Provided Assets (Total: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
Plant and Equipment Expenditure / Asset Disposal (Values in 2021/22 $'000)																									
Plant and Equipment Expenditure	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
Proceeds from Disposal of Plant and Equipment	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
Written Down Value of Plant and Equipment Disposed	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
Gain/Loss on Disposal of Plant and Equipment	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
Proceeds from Disposal of Assets	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
Written Down Value of Assets Disposed	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
Gain/Loss on Disposal of System Assets	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

Hilltops IWCM Water Fund Financial Model : Water IWCM - Preferred Scenario

Revised/Additional Forecast Data

FINMOD
DEPARTMENT OF COMMERCE

	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	2042/43	2043/44	2044/45	2045/46
OMA / Revenue Overrides (Values in 2021/22 $'000)																									
Administration	525	528	531	534	537	540	543	546	549	552	555	558	561	564	567	570	573	576	579	582	585	588	591	594	597
Override																									
Engineering and Supervision	475	478	481	484	487	490	493	496	499	502	505	508	511	514	517	520	523	526	529	532	535	538	541	544	547
Override																									
Operating Expenses	531	534	537	540	543	546	549	552	555	558	561	564	567	570	573	576	579	582	585	588	591	594	597	600	603
Override	531	534	536	1127	1133	1139	1146	1152	1159	1165	1171	1177	1184	1190	1225	1232	1238	1245	1252	1259	1265	1272	1279	1286	1293
Maintenance Expenses	491	494	497	500	503	506	509	512	515	518	521	524	527	530	533	536	539	542	545	548	551	554	557	560	563
Override																									
Energy Costs	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
Override																									
Chemical Costs	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																									
Purchase of Water	3919	3940	3962	3983	4005	4027	4050	4073	4095	4118	4140	4162	4184	4207	4230	4253	4276	4299	4323	4347	4370	4394	4418	4442	4466
Override																									
Other Expenses	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173
Override																									
Other Revenue	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76
Override																									
Other Grants	92	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115
Override	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Override																									
Developer Charges Overrides (Values in 2021/22 $'000)																									
Calculated from Scheme Data	156	156	159	159	159	167	167	167	167	167	163	167	167	167	167	171	171	171	175	175	175	175	179	179	179
Override	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59
Pensioner Rebate (Values in Inflated $)																									
Pensioner Rebate per Pensioner ($)	87.50	87.50	87.50	87.50	87.50	87.50	87.50	87.50	87.50	87.50	87.50	87.50	87.50	87.50	87.50	87.50	87.50	87.50	87.50	87.50	87.50	87.50	87.50	87.50	87.50
Override																									
Pensioner Rebate Subsidy (%)	55.00	55.00	55.00	55.00	55.00	55.00	55.00	55.00	55.00	55.00	55.00	55.00	55.00	55.00	55.00	55.00	55.00	55.00	55.00	55.00	55.00	55.00	55.00	55.00	55.00
Override																									
Number of Pensioner Assessments	1527	1537	1547	1557	1567	1578	1588	1599	1609	1620	1630	1641	1651	1662	1672	1683	1694	1705	1716	1727	1738	1749	1760	1771	1783
Override																									
Percentage of Pensioners (%)	24.52	24.52	24.52	24.52	24.52	24.52	24.52	24.52	24.52	24.52	24.52	24.52	24.52	24.52	24.52	24.52	24.52	24.52	24.52	24.52	24.52	24.52	24.52	24.52	24.52
Override																									
Pensioner Rebate	134	134	135	136	137	138	139	140	141	142	143	144	144	145	146	147	148	149	150	151	152	153	154	155	156
Pensioner Rebate Subsidy	74	74	74	75	75	76	76	77	78	78	79	79	79	80	80	81	81	82	83	83	84	84	85	85	86
Revenue Split (%)																									
Residential Rates	26.75	26.82	26.88	26.95	27.01	27.07	27.14	27.20	27.27	27.33	27.40	27.46	27.52	27.58	27.64	27.71	27.77	27.83	27.89	27.95	28.01	28.07	28.13	28.19	28.26
Override																									
Non-Residential Rates	10.62	10.57	10.53	10.49	10.44	10.40	10.36	10.31	10.27	10.23	10.18	10.14	10.10	10.06	10.02	9.98	9.93	9.89	9.85	9.81	9.77	9.73	9.69	9.65	9.61
Override																									
Sales of Water: Residential	36.18	36.27	36.35	36.43	36.53	36.62	36.70	36.79	36.87	36.96	37.04	37.13	37.21	37.29	37.38	37.46	37.55	37.64	37.72	37.80	37.88	37.96	38.05	38.13	38.20
Override																									
Sales of Water: Non-Residential	26.33	26.22	26.12	26.01	25.90	25.79	25.68	25.58	25.47	25.36	25.26	25.15	25.05	24.95	24.84	24.74	24.64	24.53	24.43	24.33	24.23	24.13	24.02	23.92	23.82
Override																									
Extra Charges	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
Override																									
Total Non-Residential Revenue (%)	36.95	36.79	36.65	36.50	36.34	36.19	36.04	35.89	35.74	35.59	35.44	35.29	35.15	35.01	34.86	34.72	34.57	34.42	34.28	34.14	34.00	33.86	33.71	33.57	33.43
Total Residential Revenue (%)	62.93	63.09	63.23	63.38	63.54	63.69	63.84	63.99	64.14	64.29	64.44	64.59	64.73	64.87	65.02	65.17	65.32	65.47	65.61	65.75	65.89	66.03	66.18	66.32	66.46
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Hilltops IWCM Water Fund Financial Model : Water IWCM - Preferred Scenario

Revised/Additional Forecast Data

FINMOD
DEPARTMENT OF COMMERCE

	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	2042/43	2043/44	2044/45	2045/46
New Loan Payment Overrides (Values in Inflated $'000)																									
Standard Loan Payments: Principal	0	0	321	342	364	389	415	442	471	502	535	571	608	649	691	738	786	838	894	953	1015	1082	0	0	0
Standard Loan Payments: Interest	0	0	815	793	770	746	721	693	664	633	600	565	527	486	443	398	349	297	242	183	120	53	0	0	0
Structured Loan Payments: Principal	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
Structured Loan Payments: Interest	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
Capitalised Interest	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
Total New Loan Payments: Principal Override	0	0	321	342	364	389	415	442	471	502	535	571	608	649	691	738	786	838	894	953	1015	1082	0	0	0
Total New Loan Payments: Interest Override	0	0	815	793	770	746	721	693	664	633	600	565	527	486	443	398	349	297	242	183	120	53	0	0	0
Capitalised Interest Override	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

Appendix D Financial Model Input Data – Sewerage

Hilltops IWCM Sewer Fund Financial Model : Sewer IWCM - Preferred Scenario

Historical Operating Statement

FINMOD
DEPARTMENT OF COMMERCE

	2019/20*	2020/21*
EXPENSES		
Management Expenses	*800*	*685*
Administration	536	408
Engineering and Supervision	264	277
Operation and Maintenance Expenses	*802*	*869*
Operation Expenses	178	151
Maintenance Expenses	570	573
Energy Costs	54	145
Chemical Costs		
Depreciation	*1404*	*1367*
System Assets	1349	1325
Plant & Equipment	55	42
Interest Expenses	302	405
Other Expenses	22	11
TOTAL EXPENSES	**3330**	**3337**
REVENUES		
Rates & Service Availability Charges	*4298*	*4318*
Residential	3433	3528
Non-Residential	865	790
Trade Waste Charges	62	40
Other Sales and Charges		
Extra Charges		
Interest Income	46	42
Other Revenues		
Grants	*61*	*62*
Grants for Acquisition of Assets		
Pensioner Rebate Subsidy	61	62
Other Grants		
Contributions	*20*	*49*
Developer Charges	20	49
Developer Provided Assets		
Other Contributions		
TOTAL REVENUES	**4487**	**4511**
OPERATING RESULT	**-3330**	**-3337**
OPERATING RESULT (less Grants for Acq of Assets)	**-3330**	**-3337**

Hilltops IWCM Sewer Fund Financial Model : Sewer IWCM - Preferred Scenario

Historical Statement of Financial Position

FINMOD
DEPARTMENT OF COMMERCE

	2019/20*	2020/21*
Cash and Investments	5525	6776
Receivables	638	944
Inventories		
Property, Plant & Equipment	*46248*	*45571*
System Assets (1)	45050	44281
Plant & Equipment	1198	1290
Other Assets		
TOTAL ASSETS	**52411**	**53291**
LIABILITIES		
Bank Overdraft		
Creditors	19	43
Borrowings	10430	9702
Provisions	121	124
TOTAL LIABILITIES	**10570**	**9869**
NET ASSETS COMMITTED	**41841**	**43422**
EQUITY		
Accumulated Operating Result	39996	41163
Asset Revaluation Reserve	1845	2259
TOTAL EQUITY	**41841**	**43422**

(1) Notes to System Assets

Current Replacement Cost	74645	75473
Less: Accumulated Depreciation	29595	31192
Written Down Current Cost	45050	44281

Hilltops IWCM Sewer Fund Financial Model : Sewer IWCM - Preferred Scenario

Base Forecast Data

FINMOD
DEPARTMENT OF COMMERCE

	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	2042/43	2043/44	2044/45	2045/46
Financial Data																									
Inflation Rate - General (%)	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50
Inflation Rate - Capital Works (%)	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50
Borrowing Interest Rate for New Loans (%)	4.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50
Investment Interest Rate (%)	2.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50
Number of Assessments																									
Growth Rate (%)																									
Residential Assessments	0.81	0.80	0.82	0.81	0.80	0.84	0.83	0.82	0.81	0.81	0.78	0.80	0.79	0.78	0.78	0.79	0.78	0.78	0.79	0.78	0.78	0.77	0.76	0.76	0.75
Non-Residential Assessments	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Assessments	0.71	0.70	0.72	0.71	0.71	0.74	0.73	0.73	0.72	0.71	0.69	0.70	0.70	0.70	0.69	0.70	0.70	0.69	0.70	0.70	0.69	0.69	0.68	0.68	0.67
Number of New Assessments																									
Residential	40	40	41	41	41	43	43	43	43	43	42	43	43	43	43	44	44	44	45	45	45	45	45	45	45
Non-Residential	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
Total New Assessments	40	40	41	41	41	43	43	43	43	43	42	43	43	43	43	44	44	44	45	45	45	45	45	45	45
Projected Number of Assessments																									
Residential	4986	5026	5067	5108	5149	5192	5235	5278	5321	5364	5406	5449	5492	5535	5578	5622	5666	5710	5755	5800	5845	5890	5935	5980	6025
Non-Residential	694	694	694	694	694	694	694	694	694	694	694	694	694	694	694	694	694	694	694	694	694	694	694	694	694
Total Projected Assessments	5680	5720	5761	5802	5843	5886	5929	5972	6015	6058	6100	6143	6186	6229	6272	6316	6360	6404	6449	6494	6539	6584	6629	6674	6719
Backlog Assessments																									
Residential	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
Non-Residential	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
Total Backlog Assessments	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
Developer Charges / Vacant Assessments (Values in 2021/22 $)																									
Developer Charges $/Assessment																									
Residential	4697	4697	4697	4697	4697	4697	4697	4697	4697	4697	4697	4697	4697	4697	4697	4697	4697	4697	4697	4697	4697	4697	4697	4697	4697
Non-Residential	4697	4697	4697	4697	4697	4697	4697	4697	4697	4697	4697	4697	4697	4697	4697	4697	4697	4697	4697	4697	4697	4697	4697	4697	4697
Number of Vacant Residential Assessments	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174
Average Charge of Vacant Assessments	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
% of Occupied Assessments	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
Depreciation of Existing Plant and Equipment (Values in 2021/22 $'000)																									
Current Replacement Cost of System Assets	77360																								
Override																									
Written Down Current Cost of System Assets	45388																								
Override																									
Annual Depreciation of Existing System Assets	1358																								
Override																									
Written Down Value of Plant and Equipment	1290																								
Override																									
Annual Depreciation of Existing Plant and Equipment	80	85	85	85	85	85	85	85	85	85	85	90	90	90	90	0	0	0	0	0	0	0	0	0	0

Hilltops IWCM Sewer Fund Financial Model : Sewer IWCM - Preferred Scenario

Base Forecast Data

FINMOD
DEPARTMENT OF COMMERCE

	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	2042/43	2043/44	2044/45	2045/46
Existing Loan Payments (Values in Inflated $'000)																									
Existing Loan Payments : Principal (Total:9702)	750	697	721	749	777	807	838	870	904	571	521	300	318	338	358	172	11	0	0	0	0	0	0	0	0
Existing Loan Payments : Interest (Total:3269)	368	392	368	340	312	283	251	219	185	151	119	95	77	57	37	15	0	0	0	0	0	0	0	0	0
Capital Works Program (Values in 2021/22 $'000)																									
Subsidised Scheme (Total:20765)	19	175	0	500	0	11400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other New System Assets (Total:1254)	0	0	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Renewals (Total:38903)	3381	2182	1311	747	583	454	261	280	1712	1305	1654	1287	1027	1027	1034	1027	532	532	532	532	1604	8891	85	85	1036
Total Capital Works (Total:60922)	3400	2357	1311	1347	583	11854	261	280	1712	1305	1654	1287	1027	1027	1034	1027	532	532	532	532	1604	8891	85	85	1036
Grant For Acquisition of Assets (% of Subsidised Scheme)	0.00	0.00	0.00	0.00	0.00	50.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grant For Acquisition of Assets ($) (Total:5700)	0	0	0	0	0	5700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Developer Provided Assets (Total: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
Plant and Equipment Expenditure / Asset Disposal (Values in 2021/22 $'000)																									
Plant and Equipment Expenditure	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
Proceeds from Disposal of Plant and Equipment	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
Written Down Value of Plant and Equipment Disposed	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
Gain/Loss on Disposal of Plant and Equipment	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
Proceeds from Disposal of Assets	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
Written Down Value of Assets Disposed	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
Gain/Loss on Disposal of System Assets	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

Hilltops IWCM Sewer Fund Financial Model : Sewer IWCM - Preferred Scenario

Revised/Additional Forecast Data

	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	2042/43	2043/44	2044/45	2045/46
OMA / Revenue Overrides (Values in 2021/22 $'000)																									
Administration	421	424	427	430	433	436	439	442	445	448	451	454	457	460	463	466	469	472	475	478	481	484	487	490	493
Override																									
Engineering and Supervision	286	288	290	292	294	296	298	300	302	304	306	308	310	312	314	316	318	320	322	324	326	328	330	332	334
Override																									
Operating Expenses	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180
Override	156	157	158	159	160	162	298	300	303	305	307	309	311	313	316	318	320	322	324	327	329	331	334	336	338
Maintenance Expenses	591	595	599	603	607	611	615	619	623	627	631	635	639	643	647	652	657	662	667	672	677	682	687	692	697
Override																									
Energy Costs	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174
Override																									
Chemical Costs	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																									
Other Expenses	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
Override																									
Other Revenue	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																									
Other Grants	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																									
Other Contributions	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																									
Developer Charges Overrides (Values in 2021/22 $'000)																									
Calculated from Scheme Data	188	188	193	193	193	202	202	202	202	202	197	202	202	202	202	207	207	207	211	211	211	211	211	211	211
Override	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
Pensioner Rebate (Values in Inflated $)																									
Pensioner Rebate per Pensioner ($)	87.50	87.50	87.50	87.50	87.50	87.50	87.50	87.50	87.50	87.50	87.50	87.50	87.50	87.50	87.50	87.50	87.50	87.50	87.50	87.50	87.50	87.50	87.50	87.50	87.50
Override																									
Pensioner Rebate Subsidy (%)	55.00	55.00	55.00	55.00	55.00	55.00	55.00	55.00	55.00	55.00	55.00	55.00	55.00	55.00	55.00	55.00	55.00	55.00	55.00	55.00	55.00	55.00	55.00	55.00	55.00
Override																									
Number of Pensioner Assessments	1298	1309	1319	1330	1341	1352	1363	1374	1386	1397	1408	1419	1430	1441	1453	1464	1475	1487	1499	1510	1522	1534	1545	1557	1569
Override																									
Percentage of Pensioners (%)	26.04	26.04	26.04	26.04	26.04	26.04	26.04	26.04	26.04	26.04	26.04	26.04	26.04	26.04	26.04	26.04	26.04	26.04	26.04	26.04	26.04	26.04	26.04	26.04	26.04
Override																									
Pensioner Rebate	114	115	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137
Pensioner Rebate Subsidy	63	63	63	64	64	65	65	66	67	67	68	68	69	69	70	70	71	72	72	73	73	74	74	75	75
Revenue Split (%)																									
Residential Rates	79.97	80.09	80.21	80.33	80.45	80.57	80.70	80.82	80.93	81.04	81.16	81.27	81.39	81.50	81.60	81.71	81.82	81.93	82.04	82.15	82.24	82.35	82.45	82.56	82.66
Override																									
Non-Residential Rates	18.86	18.74	18.61	18.49	18.37	18.25	18.12	18.00	17.88	17.77	17.65	17.54	17.42	17.31	17.20	17.09	16.98	16.87	16.76	16.65	16.55	16.44	16.34	16.23	16.13
Override																									
Trade Waste Charges	1.17	1.17	1.18	1.18	1.18	1.18	1.18	1.18	1.19	1.19	1.19	1.19	1.19	1.19	1.20	1.20	1.20	1.20	1.20	1.20	1.21	1.21	1.21	1.21	1.21
Override																									
Other Sales and charges	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Override																									
Extra Charges	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Override																									
Total Non-Residential Revenue (%)	20.03	19.91	19.79	19.67	19.55	19.43	19.30	19.18	19.07	18.96	18.84	18.73	18.61	18.50	18.40	18.29	18.18	18.07	17.96	17.85	17.76	17.65	17.55	17.44	17.34
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Total Residential Revenue (%)	79.97	80.09	80.21	80.33	80.45	80.57	80.70	80.82	80.93	81.04	81.16	81.27	81.39	81.50	81.60	81.71	81.82	81.93	82.04	82.15	82.24	82.35	82.45	82.56	82.66

Hilltops IWCM Sewer Fund Financial Model : Sewer IWCM - Preferred Scenario

Revised/Additional Forecast Data

FINMOD
DEPARTMENT OF COMMERCE

	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	2042/43	2043/44	2044/45	2045/46
New Loan Payment Overrides (Values in Inflated $'000)																									
Standard Loan Payments: Principal	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
Standard Loan Payments: Interest	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
Structured Loan Payments: Principal	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
Structured Loan Payments: Interest	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
Capitalised Interest	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
Total New Loan Payments: Principal Override	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
Total New Loan Payments: Interest Override	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
Capitalised Interest Override	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

Appendix E Financial Model Output Data – Water Supply

Hilltops IWCM Water Fund Financial Model : Water IWCM - Preferred Scenario

Operating Statement

FINMOD
DEPARTMENT OF COMMERCE

	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	2042/43	2043/44	2044/45	2045/46
EXPENSES																									
Management Expenses	*1000*	*1006*	*1012*	*1018*	*1025*	*1030*	*1036*	*1042*	*1048*	*1054*	*1059*	*1066*	*1071*	*1078*	*1084*	*1090*	*1096*	*1101*	*1108*	*1113*	*1120*	*1126*	*1132*	*1138*	*1144*
Administration	525	528	531	534	537	540	543	546	549	552	555	558	561	564	567	570	573	576	579	582	585	588	591	594	597
Engineering and Supervision	475	478	481	484	487	490	493	496	499	502	505	508	511	514	517	520	523	526	529	532	535	538	541	544	547
Operation and Maintenance Expenses	*4950*	*4977*	*5004*	*5619*	*5650*	*5681*	*5714*	*5747*	*5777*	*5810*	*5842*	*5872*	*5904*	*5935*	*5997*	*6030*	*6062*	*6095*	*6129*	*6163*	*6195*	*6228*	*6263*	*6297*	*6331*
Operation Expenses	531	534	536	1127	1133	1139	1146	1152	1159	1165	1171	1177	1184	1190	1225	1232	1238	1245	1252	1259	1265	1272	1279	1286	1293
Maintenance Expenses	491	494	497	500	503	506	509	512	515	518	521	524	527	530	533	536	539	542	545	548	551	554	557	560	563
Energy Costs	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
Chemical Costs	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
Purchase of Water	3919	3940	3962	3983	4005	4027	4050	4073	4095	4118	4140	4162	4184	4207	4230	4253	4276	4299	4323	4347	4370	4394	4418	4442	4466
Depreciation	*1033*	*1039*	*1521*	*1520*	*1519*	*1519*	*1519*	*1518*	*1518*	*1522*	*1488*	*1488*	*1489*	*1561*	*1561*	*1560*	*1560*	*1560*	*1560*	*1560*	*1574*	*1574*	*1574*	*1574*	*1574*
System Assets	998	1005	1488	1488	1488	1488	1488	1488	1489	1489	1488	1488	1489	1561	1561	1560	1560	1560	1560	1560	1574	1574	1574	1574	1574
Plant & Equipment	35	34	33	33	32	31	30	29	29	34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Interest Expenses	48	42	811	766	722	678	636	591	548	507	469	431	392	353	314	275	235	195	155	114	73	32	0	0	0
Other Expenses	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173
TOTAL EXPENSES	**7180**	**7214**	**8499**	**9075**	**9069**	**9061**	**9059**	**9054**	**9048**	**9051**	**9017**	**9018**	**9017**	**9089**	**9118**	**9120**	**9118**	**9118**	**9119**	**9119**	**9132**	**9131**	**9139**	**9181**	**9222**
REVENUES																									
Rates & Service Availability Charges	*3044*	*3635*	*3605*	*3629*	*3646*	*3666*	*3688*	*3707*	*3729*	*3751*	*3770*	*3790*	*3811*	*3832*	*3851*	*3494*	*3512*	*3531*	*3549*	*3570*	*3588*	*3607*	*3627*	*3647*	*3667*
Residential	2179	2608	2591	2612	2629	2649	2669	2689	2709	2730	2749	2768	2788	2808	2827	2569	2587	2605	2623	2642	2660	2679	2698	2717	2736
Non-Residential	865	1027	1015	1017	1016	1017	1019	1019	1020	1022	1021	1022	1023	1024	1025	925	925	926	926	928	928	929	929	930	930
User Charges	*5093*	*6075*	*6022*	*6053*	*6075*	*6108*	*6134*	*6165*	*6193*	*6226*	*6251*	*6279*	*6308*	*6338*	*6362*	*5765*	*5793*	*5819*	*5844*	*5873*	*5899*	*5925*	*5954*	*5980*	*6006*
Sales of Water : Residential	2948	3526	3505	3531	3555	3585	3609	3637	3663	3692	3717	3744	3771	3798	3822	3472	3497	3523	3547	3573	3598	3622	3650	3675	3699
Sales of Water : Non-Residential	2145	2549	2518	2521	2520	2523	2526	2528	2530	2534	2534	2536	2538	2540	2540	2293	2295	2296	2297	2300	2301	2303	2304	2305	2307
Extra Charges	10	12	11	12	12	11	12	12	12	12	12	12	12	12	12	10	10	11	10	11	10	11	10	11	11
Interest Income	435	656	385	241	211	188	171	157	148	158	179	236	309	258	272	319	356	391	424	457	466	491	533	575	617
Other Revenues	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76
Grants	*74*	*314*	*16093*	*70*	*68*	*67*	*66*	*65*	*64*	*62*	*62*	*60*	*59*	*58*	*57*	*56*	*55*	*54*	*53*	*52*	*51*	*50*	*49*	*48*	*48*
Grants for Acquisition of Assets	0	242	16023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pensioner Rebate Subsidy	74	72	70	70	68	67	66	65	64	62	62	60	59	58	57	56	55	54	53	52	51	50	49	48	48
Other Grants	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
Contributions	*59*	*59*	*59*	*59*	*59*	*59*	*59*	*59*	*59*	*59*	*59*	*59*	*59*	*59*	*59*	*59*	*59*	*59*	*59*	*59*	*59*	*59*	*59*	*59*	*59*
Developer Charges	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59
Developer Provided Assets	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL REVENUES	**8791**	**10826**	**26252**	**10139**	**10147**	**10177**	**10205**	**10241**	**10282**	**10345**	**10409**	**10512**	**10634**	**10634**	**10690**	**9779**	**9860**	**9941**	**10017**	**10097**	**10151**	**10219**	**10310**	**10397**	**10483**
OPERATING RESULT	**1611**	**3613**	**17753**	**1064**	**1077**	**1115**	**1146**	**1187**	**1234**	**1294**	**1391**	**1495**	**1616**	**1545**	**1571**	**659**	**742**	**823**	**898**	**978**	**1019**	**1088**	**1170**	**1216**	**1261**
OPERATING RESULT (less Grants for Acq of Assets)	**1611**	**3371**	**1730**	**1064**	**1077**	**1115**	**1146**	**1187**	**1234**	**1294**	**1391**	**1495**	**1616**	**1545**	**1571**	**659**	**742**	**823**	**898**	**978**	**1019**	**1088**	**1170**	**1216**	**1261**

Hilltops IWCM Water Fund Financial Model : Water IWCM - Preferred Scenario

Cashflow Statement

FINMOD
DEPARTMENT OF COMMERCE

	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	2042/43	2043/44	2044/45	2045/46
Cashflow From Operating Activities																									
Receipts																									
Rates and Charges	8147	9722	9639	9694	9733	9786	9834	9884	9935	9989	10033	10082	10132	10183	10226	9270	9314	9360	9404	9454	9498	9543	9592	9638	9683
Interest Income	435	656	385	241	211	188	171	157	148	158	179	236	309	258	272	319	356	391	424	457	466	491	533	575	617
Other Revenues	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76	76
Grants	74	314	16093	70	68	67	66	65	64	62	62	60	59	58	57	56	55	54	53	52	51	50	49	48	48
Contributions	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59
Total Receipts from Operations	**8791**	**10826**	**26252**	**10139**	**10147**	**10177**	**10205**	**10241**	**10282**	**10345**	**10409**	**10512**	**10634**	**10634**	**10690**	**9779**	**9860**	**9941**	**10017**	**10097**	**10151**	**10219**	**10310**	**10397**	**10483**
Payments																									
Management	1000	1006	1012	1018	1025	1030	1036	1042	1048	1054	1059	1066	1071	1078	1084	1090	1096	1101	1108	1113	1120	1126	1132	1138	1144
Operations (plus WC Inc)	5013	5041	5067	5683	5715	5747	5779	5812	5844	5877	5909	5939	5971	6004	6065	6099	6131	6164	6199	6233	6266	6299	6334	6369	6403
Interest Expenses	48	42	811	766	722	678	636	591	548	507	469	431	392	353	314	275	235	195	155	114	73	32	0	0	0
Other Expenses	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173
Total Payments from Operations	**6210**	**6239**	**7042**	**7619**	**7615**	**7608**	**7606**	**7602**	**7597**	**7596**	**7596**	**7596**	**7596**	**7596**	**7626**	**7628**	**7627**	**7627**	**7629**	**7629**	**7628**	**7627**	**7636**	**7679**	**7720**
Net Cash from Operations	**2581**	**4587**	**19210**	**2520**	**2532**	**2568**	**2599**	**2639**	**2685**	**2749**	**2812**	**2916**	**3037**	**3038**	**3064**	**2151**	**2233**	**2313**	**2388**	**2468**	**2523**	**2592**	**2674**	**2717**	**2763**
Cashflow from Capital Activities																									
Receipts																									
Proceeds from Disposal of Assets	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
Payments																									
Acquisition of Assets	1397	9665	36313	2372	2267	2182	2100	2047	2002	1593	1551	0	68	5434	50	0	0	16	0	0	994	31	117	78	26
Net Cash from Capital Activities	**-1397**	**-9665**	**-36313**	**-2372**	**-2267**	**-2182**	**-2100**	**-2047**	**-2002**	**-1593**	**-1551**	**0**	**-68**	**-5434**	**-50**	**0**	**0**	**-16**	**0**	**0**	**-994**	**-31**	**-117**	**-78**	**-26**
CashFlow from Financing Activities																									
Receipts																									
New Loans Required	0	0	12000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Payments																									
Principal Loan Payments	337	334	637	645	654	666	676	687	699	402	418	435	452	471	489	510	529	551	573	596	619	644	0	0	0
Net Cash from Financing Activities	**-337**	**-334**	**11363**	**-645**	**-654**	**-666**	**-676**	**-687**	**-699**	**-402**	**-418**	**-435**	**-452**	**-471**	**-489**	**-510**	**-529**	**-551**	**-573**	**-596**	**-619**	**-644**	**0**	**0**	**0**
TOTAL NET CASH	**847**	**-5412**	**-5739**	**-497**	**-389**	**-279**	**-177**	**-95**	**-16**	**754**	**844**	**2481**	**2518**	**-2867**	**2524**	**1641**	**1704**	**1747**	**1814**	**1872**	**909**	**1917**	**2557**	**2639**	**2737**
Current Year Cash	847	-5412	-5739	-497	-389	-279	-177	-95	-16	754	844	2481	2518	-2867	2524	1641	1704	1747	1814	1872	909	1917	2557	2639	2737
Cash & Investments @Year Start	17165	17573	11864	5976	5345	4836	4445	4164	3970	3858	4500	5213	7506	9779	6744	9042	10423	11831	13246	14694	16162	16655	18118	20171	22254
Cash & Investments @Year End	18012	12161	6125	5479	4956	4556	4268	4069	3954	4612	5343	7694	10024	6913	9268	10684	12127	13578	15061	16566	17071	18571	20675	22810	24991
Capital Works Funding:																									
nternal Funding for New Works ($'000)	0	269	5740	0	0	0	0	0	0	0	0	0	0	5091	0	0	0	0	0	0	994	0	0	0	0
Internal Funding for Renewals	1397	9154	2550	2372	2267	2182	2100	2047	2002	1593	1551	0	68	343	50	0	0	16	0	0	0	31	117	78	26
New Loans	0	0	12000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grants	0	242	16023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Capital Works	**1397**	**9665**	**36313**	**2372**	**2267**	**2182**	**2100**	**2047**	**2002**	**1593**	**1551**	**0**	**68**	**5434**	**50**	**0**	**0**	**16**	**0**	**0**	**994**	**31**	**117**	**78**	**26**

Hilltops IWCM Water Fund Financial Model : Water IWCM - Preferred Scenario

Statement of Financial Position

FINMOD
DEPARTMENT OF COMMERCE

	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	2042/43	2043/44	2044/45	2045/46
Cash and Investments	18012	11864	5830	5088	4490	4027	3680	3423	3245	3693	4174	5864	7453	5015	6559	7377	8169	8923	9657	10362	10418	11057	12009	12926	13817
Receivables	2643	2658	2672	2686	2701	2716	2731	2746	2761	2776	2791	2806	2821	2836	2851	2867	2882	2898	2914	2930	2946	2961	2978	2994	3010
Inventories	246	248	249	251	252	254	255	257	258	259	261	262	264	266	267	269	270	271	273	275	276	277	279	281	282
Property, Plant & Equipment	*44920*	*53538*	*88323*	*89168*	*89910*	*90569*	*91147*	*91674*	*92157*	*92226*	*92289*	*90800*	*89380*	*93253*	*91743*	*90182*	*88622*	*87078*	*85517*	*83957*	*83378*	*81835*	*80377*	*78881*	*77333*
System Assets (1)	44598	53258	88083	88966	89745	90439	91050	91609	92122	92226	92289	90800	89380	93253	91743	90182	88622	87078	85517	83957	83378	81835	80377	78881	77333
Plant & Equipment	322	280	240	202	165	130	97	65	34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Assets	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
TOTAL ASSETS	**65821**	**68307**	**97074**	**97193**	**97353**	**97565**	**97813**	**98099**	**98421**	**98955**	**99515**	**99733**	**99918**	**101370**	**101420**	**100695**	**99944**	**99171**	**98361**	**97524**	**97017**	**96130**	**95643**	**95082**	**94442**
LIABILITIES																									
Bank Overdraft	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
Creditors	511	514	517	520	523	526	529	532	534	537	540	543	546	548	551	554	558	561	564	567	570	573	577	580	583
Borrowings	2890	2486	13788	12806	11840	10886	9944	9014	8095	7496	6895	6292	5686	5076	4464	3845	3222	2593	1956	1312	661	1	1	1	1
Provisions	240	241	243	244	246	247	248	250	251	252	254	255	257	258	260	261	263	264	265	267	269	270	271	273	274
TOTAL LIABILITIES	**3641**	**3241**	**14548**	**13571**	**12608**	**11658**	**10721**	**9796**	**8880**	**8285**	**7689**	**7089**	**6488**	**5883**	**5275**	**4661**	**4042**	**3417**	**2785**	**2146**	**1499**	**844**	**849**	**853**	**858**
NET ASSETS COMMITTED	**62180**	**65066**	**82526**	**83622**	**84744**	**85907**	**87092**	**88303**	**89540**	**90670**	**91827**	**92643**	**93430**	**95486**	**96145**	**96034**	**95901**	**95753**	**95576**	**95378**	**95518**	**95287**	**94794**	**94229**	**93584**
EQUITY																									
Accumulated Operating Result	58816	60994	77260	76440	75652	74923	74241	73617	73056	72568	72190	71924	71786	71580	71405	70323	69350	68481	67709	67036	66420	65888	65452	65071	64744
Asset Revaluation Reserve	3364	4478	5843	8156	10551	13027	15585	18225	20948	23754	26634	29587	32566	35571	38785	42026	45291	48580	51892	55226	58582	61998	65434	68893	72373
TOTAL EQUITY	**62180**	**65363**	**82821**	**84013**	**85211**	**86437**	**87680**	**88949**	**90249**	**91589**	**92996**	**94473**	**96001**	**97384**	**98855**	**99341**	**99859**	**100408**	**100980**	**101581**	**102171**	**102801**	**103460**	**104112**	**104758**
(1) Notes to System Assets																									
Current Replacement Cost	80099	80610	114373	114373	114373	114373	114372	114373	114373	114373	114373	114373	114373	119464	119464	119464	119463	119464	119463	119463	120458	120458	120458	120458	120458
Less: Accumulated Depreciation	35501	27352	26290	25406	24627	23934	23323	22764	22250	22147	22084	23572	24993	26211	27721	29281	30841	32386	33946	35506	37080	38623	40081	41577	43125
Written Down Current Cost	44598	53258	88083	88966	89745	90439	91050	91609	92122	92226	92289	90800	89380	93253	91743	90182	88622	87078	85517	83957	83378	81835	80377	78881	77333

Hilltops IWCM Water Fund Financial Model : Water IWCM - Preferred Scenario

Performance Indicators

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	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	2042/43	2043/44	2044/45	2045/46
Typical Residential Bills	875	1035	1035	1035	1035	1035	1035	1035	1035	1035	1035	1035	1035	1035	1035	935	935	935	935	935	935	935	935	935	935
Average Residential Bills (2021/22$)	823	979	966	968	968	969	969	970	971	972	973	973	974	975	975	880	880	881	882	883	883	884	885	885	885
Mgmnt Cost / Assessment (2021/22$)	134	134	134	134	134	134	135	135	135	135	134	134	135	134	134	135	135	134	135	134	134	135	134	134	134
OMA Cost per Assessment (2021/22$)	272	272	271	349	350	349	349	350	350	350	350	350	349	350	353	354	354	354	353	353	353	354	353	353	353
Operating Sales Margin (%)	14.65	27.77	21.91	16.06	15.98	16.07	16.05	16.08	16.13	16.13	16.43	16.44	16.46	15.80	15.48	6.50	6.53	6.57	6.56	6.59	6.47	6.46	6.52	6.52	6.52
Economic Real Rate of Return (%)	2.72	5.15	2.44	1.78	1.77	1.77	1.77	1.77	1.77	1.78	1.82	1.86	1.90	1.76	1.76	0.68	0.70	0.72	0.74	0.76	0.75	0.77	0.79	0.81	0.83
Debt Service Ratio	0.04	0.04	0.14	0.14	0.14	0.13	0.13	0.12	0.12	0.09	0.09	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.07	0.07	0.07	0.07	0.00	0.00	0.00
Debt/Equity Ratio	0.05	0.04	0.17	0.15	0.14	0.13	0.11	0.10	0.09	0.08	0.07	0.07	0.06	0.05	0.05	0.04	0.03	0.03	0.02	0.01	0.01	0.00	0.00	0.00	0.00
Interest Cover	34.56	81.35	3.13	2.39	2.49	2.65	2.80	3.01	3.25	3.55	3.97	4.47	5.13	5.38	6.01	3.40	4.15	5.22	6.79	9.55	14.92	35.49	0.00	0.00	0.00
Return on capital (%)	2.52	5.00	3.41	1.88	1.85	1.84	1.82	1.81	1.81	1.82	1.87	1.93	2.01	1.87	1.86	0.93	0.98	1.03	1.07	1.12	1.13	1.17	1.22	1.28	1.33
Cash and Investments (2021/22$'000)	18012	12161	6125	5479	4956	4556	4268	4069	3954	4612	5343	7694	10024	6913	9268	10684	12127	13578	15061	16566	17071	18571	20675	22810	24991
Debt outstanding (2021/22$'000)	2890	2486	13788	12806	11840	10886	9944	9014	8095	7496	6895	6292	5686	5076	4464	3845	3222	2593	1956	1312	661	1	1	1	1
Net Debt (2021/22$'000)	0	0	7663	7327	6884	6330	5676	4945	4141	2884	1552	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Hilltops IWCM Water Fund Financial Model : Water IWCM - Preferred Scenario

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STANDARD LOAN PAYMENT SCHEDULE

Drawdown		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	2042/43	2043/44	2044/45	2045/46
2023/24 Principal	12607			321	342	364	389	415	442	471	502	535	571	608	649	691	738	786	838	894	953	1015	1082	0	0	0
Interest				815	793	770	746	721	693	664	633	600	565	527	486	443	398	349	297	242	183	120	53	0	0	0
Total Principal	**12607**	0	0	321	342	364	389	415	442	471	502	535	571	608	649	691	738	786	838	894	953	1015	1082	0	0	0
Total Interest		0	0	815	793	770	746	721	693	664	633	600	565	527	486	443	398	349	297	242	183	120	53	0	0	0

Hilltops IWCM Water Fund Financial Model : Water IWCM - Preferred Scenario

Summary Report of Assumptions and Results

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	2021/22	2025/26	2030/31	2035/36	2040/41	2045/46	2050/51
Inflation Rates - General (%)	2.50	2.50	2.50	2.50	2.50	2.50	2.50
Inflation Rates - Capital Works (%)	2.50	2.50	2.50	2.50	2.50	2.50	2.50
Borrowing Interest Rate (%)	4.50	6.50	6.50	6.50	6.50	6.50	6.50
Term of New Loans (years)	20	20	20	20	20	20	20
Investment Interest Rate (%)	2.50	4.50	4.50	4.50	4.50	4.50	4.50
Growth Rate - Residential (%)	0.65	0.65	0.66	0.63	0.64	0.64	0.65
Developer Charges per Assessment - Residential (2021/22 $)	3888	3888	3888	3888	3888	3888	3888
Subsidised Scheme Capital Works ($m)	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grants on Acquisition of Assets ($m)	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Renewals ($m)	1.40	2.27	1.59	0.05	0.00	0.03	0.00
Renewals (%)	1.74	1.98	1.39	0.04	0.00	0.02	0.00
Cash and Investments ($m)	18.01	4.49	3.69	6.56	10.36	13.82	17.51
Borrowing Outstanding ($m)	2.89	11.84	7.50	4.46	1.31	0.00	0.00
Mgmnt Cost / Assessment	134	134	135	134	134	134	134
Debt Equity Ratio	0.05	0.13	0.07	0.03	0.01	0.00	0.00
OMA Cost Per Assessment	272	350	350	353	353	353	353
Economic Real Rate of Return (%)	2.72	1.77	1.78	1.76	0.76	0.83	0.96
Return on Capital (%)	2.52	1.85	1.82	1.86	1.12	1.33	1.62
Net Debt ($m)	0.00	6.88	2.88	0.00	0.00	0.00	0.00
Debt Service Ratio	0.04	0.14	0.09	0.08	0.07	0.00	0.00
Average Residential Bills	823	968	972	975	883	885	888
Typical Residential Bills (2021/22$)	875	1035	1035	1035	935	935	935

Appendix F Financial Model Output Data – Sewerage

Hilltops IWCM Sewer Fund Financial Model : Sewer IWCM - Preferred Scenario

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DEPARTMENT OF COMMERCE

Operating Statement

	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	2042/43	2043/44	2044/45	2045/46
EXPENSES																									
Management Expenses	*707*	*712*	*718*	*722*	*727*	*732*	*737*	*742*	*747*	*752*	*757*	*762*	*767*	*772*	*777*	*782*	*787*	*792*	*797*	*802*	*807*	*812*	*817*	*822*	*827*
Administration	421	424	427	430	433	436	439	442	445	448	451	454	457	460	463	466	469	472	475	478	481	484	487	490	493
Engineering and Supervision	286	288	290	292	294	296	298	300	302	304	306	308	310	312	314	316	318	320	322	324	326	328	330	332	334
Operation and Maintenance Expenses	*897*	*903*	*909*	*915*	*921*	*927*	*1069*	*1077*	*1084*	*1091*	*1098*	*1104*	*1112*	*1119*	*1127*	*1135*	*1142*	*1151*	*1159*	*1168*	*1176*	*1184*	*1193*	*1201*	*1209*
Operation Expenses	156	157	158	159	160	162	298	300	303	305	307	309	311	313	316	318	320	322	324	327	329	331	334	336	338
Maintenance Expenses	591	595	599	603	607	611	615	619	623	627	631	635	639	643	647	652	657	662	667	672	677	682	687	692	697
Energy Costs	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174
Chemical Costs	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
Depreciation	*1438*	*1444*	*1442*	*1450*	*1449*	*1637*	*1635*	*1633*	*1631*	*1629*	*1626*	*1628*	*1627*	*1626*	*1624*	*1560*	*1560*	*1560*	*1561*	*1561*	*1560*	*1561*	*1560*	*1560*	*1560*
System Assets	1358	1361	1361	1372	1372	1562	1562	1561	1561	1561	1560	1559	1560	1560	1561	1560	1560	1560	1561	1561	1560	1561	1560	1560	1560
Plant & Equipment	80	83	81	79	77	75	73	72	70	68	66	69	67	65	64	0	0	0	0	0	0	0	0	0	0
Interest Expenses	368	382	350	316	283	250	216	184	152	121	93	72	57	41	26	10	0	0	0	0	0	0	0	0	0
Other Expenses	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
TOTAL EXPENSES	**3421**	**3453**	**3430**	**3414**	**3391**	**3557**	**3669**	**3647**	**3624**	**3604**	**3586**	**3578**	**3574**	**3568**	**3566**	**3499**	**3500**	**3514**	**3527**	**3542**	**3554**	**3567**	**3581**	**3594**	**3608**
REVENUES																									
Rates & Service Availability Charges	*4588*	*4620*	*4654*	*4692*	*4722*	*4761*	*4797*	*4830*	*4865*	*4904*	*4937*	*4974*	*5007*	*5042*	*5080*	*5114*	*5150*	*5187*	*5222*	*5258*	*5295*	*5332*	*5368*	*5406*	*5443*
Residential	3713	3743	3778	3815	3844	3882	3917	3950	3985	4022	4055	4090	4125	4158	4195	4229	4265	4301	4336	4372	4408	4445	4480	4518	4554
Non-Residential	875	876	877	878	878	879	880	880	881	882	882	883	883	884	885	884	885	886	886	886	887	887	888	888	888
Trade Waste Charges	54	55	55	56	56	57	57	58	58	59	59	60	60	61	62	62	63	63	63	64	65	65	66	66	67
Other Sales and Charges	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
Extra Charges	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
Interest Income	152	237	247	281	332	271	244	317	356	389	426	470	526	585	640	697	767	839	909	974	1012	878	910	980	1025
Other Revenues	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
Grants	*63*	*61*	*60*	*59*	*58*	*5757*	*56*	*56*	*55*	*54*	*53*	*52*	*51*	*50*	*50*	*48*	*48*	*47*	*46*	*46*	*45*	*44*	*43*	*43*	*41*
Grants for Acquisition of Assets	0	0	0	0	0	5700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pensioner Rebate Subsidy	63	61	60	59	58	57	56	56	55	54	53	52	51	50	50	48	48	47	46	46	45	44	43	43	41
Other Grants	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
Contributions	*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*
Developer Charges	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
Developer Provided Assets	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL REVENUES	**4907**	**5022**	**5067**	**5139**	**5217**	**10897**	**5204**	**5310**	**5385**	**5455**	**5525**	**5606**	**5695**	**5787**	**5881**	**5970**	**6077**	**6187**	**6290**	**6392**	**6467**	**6370**	**6436**	**6545**	**6626**
OPERATING RESULT	**1486**	**1570**	**1637**	**1725**	**1826**	**7340**	**1535**	**1663**	**1761**	**1851**	**1940**	**2029**	**2121**	**2219**	**2316**	**2471**	**2577**	**2673**	**2763**	**2850**	**2913**	**2803**	**2855**	**2951**	**3018**
OPERATING RESULT (less Grants for Acq of Assets)	**1486**	**1570**	**1637**	**1725**	**1826**	**1640**	**1535**	**1663**	**1761**	**1851**	**1940**	**2029**	**2121**	**2219**	**2316**	**2471**	**2577**	**2673**	**2763**	**2850**	**2913**	**2803**	**2855**	**2951**	**3018**

Hilltops IWCM Sewer Fund Financial Model : Sewer IWCM - Preferred Scenario

Cashflow Statement

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	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	2042/43	2043/44	2044/45	2045/46
Cashflow From Operating Activities																									
Receipts																									
Rates and Charges	4642	4674	4710	4748	4778	4818	4854	4888	4924	4963	4997	5034	5067	5103	5142	5176	5213	5250	5286	5322	5360	5398	5433	5473	5509
Interest Income	152	237	247	281	332	271	244	317	356	389	426	470	526	585	640	697	767	839	909	974	1012	878	910	980	1025
Other Revenues	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
Grants	63	61	60	59	58	5757	56	56	55	54	53	52	51	50	50	48	48	47	46	46	45	44	43	43	41
Contributions	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
Total Receipts from Operations	**4907**	**5022**	**5067**	**5139**	**5217**	**10897**	**5204**	**5310**	**5385**	**5455**	**5525**	**5606**	**5695**	**5787**	**5881**	**5970**	**6077**	**6187**	**6290**	**6392**	**6467**	**6370**	**6436**	**6545**	**6626**
Payments																									
Management	707	712	718	722	727	732	737	742	747	752	757	762	767	772	777	782	787	792	797	802	807	812	817	822	827
Operations (plus WC Inc)	922	929	936	942	947	953	1095	1103	1110	1119	1126	1131	1138	1146	1154	1163	1170	1179	1187	1197	1205	1212	1222	1230	1238
Interest Expenses	368	382	350	316	283	250	216	184	152	121	93	72	57	41	26	10	0	0	0	0	0	0	0	0	0
Other Expenses	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
Total Payments from Operations	**2008**	**2034**	**2015**	**1990**	**1968**	**1945**	**2060**	**2040**	**2020**	**2003**	**1987**	**1976**	**1974**	**1970**	**1969**	**1967**	**1968**	**1982**	**1995**	**2010**	**2022**	**2035**	**2050**	**2063**	**2077**
Net Cash from Operations	**2899**	**2988**	**3052**	**3149**	**3250**	**8952**	**3144**	**3270**	**3365**	**3453**	**3539**	**3630**	**3721**	**3817**	**3912**	**4003**	**4109**	**4205**	**4295**	**4381**	**4445**	**4335**	**4386**	**4481**	**4549**
Cashflow from Capital Activities																									
Receipts																									
Proceeds from Disposal of Assets	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
Payments																									
Acquisition of Assets	3400	2357	1311	1346	583	11854	261	280	1712	1305	1654	1287	1027	1027	1034	1027	532	532	532	532	1604	8891	85	85	1036
Net Cash from Capital Activities	**-3400**	**-2357**	**-1311**	**-1346**	**-583**	**-11854**	**-261**	**-280**	**-1712**	**-1305**	**-1654**	**-1287**	**-1027**	**-1027**	**-1034**	**-1027**	**-532**	**-532**	**-532**	**-532**	**-1604**	**-8891**	**-85**	**-85**	**-1036**
CashFlow from Financing Activities																									
Receipts																									
New Loans Required	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
Payments																									
Principal Loan Payments	750	680	686	696	704	713	723	732	742	457	407	229	236	245	253	119	7	0	0	0	0	0	0	0	0
Net Cash from Financing Activities	**-750**	**-680**	**-686**	**-696**	**-704**	**-713**	**-723**	**-732**	**-742**	**-457**	**-407**	**-229**	**-236**	**-245**	**-253**	**-119**	**-7**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
TOTAL NET CASH	**-1251**	**-49**	**1056**	**1107**	**1962**	**-3616**	**2160**	**2258**	**911**	**1690**	**1478**	**2114**	**2457**	**2545**	**2625**	**2858**	**3570**	**3672**	**3763**	**3849**	**2841**	**-4556**	**4301**	**4396**	**3513**
Current Year Cash	-1251	-49	1056	1107	1962	-3616	2160	2258	911	1690	1478	2114	2457	2545	2625	2858	3570	3672	3763	3849	2841	-4556	4301	4396	3513
Cash & Investments @Year Start	6776	5390	5211	6114	7045	8787	5045	7030	9061	9729	11141	12311	14073	16128	18217	20334	22626	25556	28516	31492	34479	36410	31077	34515	37963
Cash & Investments @Year End	**5525**	**5341**	**6267**	**7221**	**9007**	**5171**	**7205**	**9288**	**9972**	**11419**	**12619**	**14425**	**16531**	**18672**	**20842**	**23191**	**26195**	**29229**	**32279**	**35341**	**37320**	**31854**	**35378**	**38912**	**41476**
Capital Works Funding:																									
nternal Funding for New Works ($'000)	19	175	0	600	0	5700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Internal Funding for Renewals	3381	2182	1311	747	583	454	261	280	1712	1305	1654	1287	1027	1027	1034	1027	532	532	532	532	1604	8891	85	85	1036
New Loans	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
Grants	0	0	0	0	0	5700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Capital Works	**3400**	**2357**	**1311**	**1346**	**583**	**11854**	**261**	**280**	**1712**	**1305**	**1654**	**1287**	**1027**	**1027**	**1034**	**1027**	**532**	**532**	**532**	**532**	**1604**	**8891**	**85**	**85**	**1036**

Hilltops IWCM Sewer Fund Financial Model : Sewer IWCM - Preferred Scenario

Statement of Financial Position

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	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	2042/43	2043/44	2044/45	2045/46
Cash and Investments	5525	5341	6267	7221	9007	5171	7205	9288	9972	11419	12619	14425	16531	18672	20842	23191	26195	29229	32279	35341	37320	31854	35378	38912	41476
Receivables	974	980	988	995	1003	1010	1018	1025	1032	1039	1047	1054	1061	1069	1076	1083	1091	1098	1106	1114	1122	1129	1137	1145	1153
Inventories	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
Property, Plant & Equipment	*48640*	*49523*	*49365*	*49237*	*48351*	*58549*	*57158*	*55790*	*55858*	*55524*	*55542*	*55195*	*54590*	*53989*	*53397*	*52863*	*51835*	*50807*	*49779*	*48750*	*48793*	*56123*	*54648*	*53173*	*52649*
System Assets (1)	47430	48425	48375	48350	47562	57855	56555	55273	55423	55168	55261	54990	54457	53923	53397	52863	51835	50807	49779	48750	48793	56123	54648	53173	52649
Plant & Equipment	1210	1098	990	887	788	694	604	517	435	356	281	206	134	65	0	0	0	0	0	0	0	0	0	0	0
Other Assets	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
TOTAL ASSETS	**55139**	**55845**	**56620**	**57453**	**58360**	**64731**	**65381**	**66102**	**66862**	**67983**	**69208**	**70674**	**72182**	**73730**	**75314**	**77137**	**79121**	**81134**	**83164**	**85205**	**87235**	**89107**	**91163**	**93230**	**95277**
LIABILITIES																									
Bank Overdraft	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
Creditors	44	44	44	44	44	45	46	46	47	47	48	48	48	49	49	49	49	49	49	49	50	51	51	52	52
Borrowings	8952	8054	7171	6301	5443	4597	3762	2939	2125	1616	1169	912	654	392	130	8	0	0	0	0	0	0	0	0	0
Provisions	128	129	129	130	131	133	134	135	135	136	137	138	139	140	141	142	143	144	145	146	146	148	149	150	150
TOTAL LIABILITIES	**9124**	**8226**	**7344**	**6474**	**5619**	**4775**	**3942**	**3119**	**2307**	**1799**	**1354**	**1098**	**841**	**581**	**319**	**198**	**192**	**193**	**194**	**195**	**197**	**198**	**200**	**201**	**202**
NET ASSETS COMMITTED	**46015**	**47619**	**49275**	**50979**	**52742**	**59956**	**61440**	**62983**	**64555**	**66183**	**67854**	**69576**	**71341**	**73148**	**74995**	**76939**	**78929**	**80941**	**82969**	**85010**	**87038**	**88908**	**90963**	**93028**	**95075**
EQUITY																									
Accumulated Operating Result	42649	43179	43763	44420	45163	51402	51683	52086	52576	53145	53789	54506	55297	56167	57113	58191	59348	60574	61860	63201	64572	65800	67050	68366	69716
Asset Revaluation Reserve	3366	4440	5513	6559	7578	8554	9756	10897	11979	13038	14065	15071	16044	16981	17882	18748	19580	20367	21110	21809	22466	23108	23913	24663	25358
TOTAL EQUITY	**46015**	**47619**	**49275**	**50979**	**52742**	**59956**	**61440**	**62983**	**64555**	**66183**	**67854**	**69576**	**71341**	**73148**	**74995**	**76939**	**78929**	**80941**	**82969**	**85010**	**87038**	**88908**	**90963**	**93028**	**95075**
(1) Notes to System Assets																									
Current Replacement Cost	77379	77553	77553	78153	78153	89553	89553	89553	89552	89553	89553	89553	89553	89553	89553	89553	89552	89553	89553	89553	89553	89553	89553	89553	89553
Less: Accumulated Depreciation	29949	29128	29178	29802	30590	31698	32998	34280	34129	34385	34291	34563	35097	35630	36156	36690	37718	38746	39774	40803	40760	33430	34905	36380	36904
Written Down Current Cost	47430	48425	48375	48350	47562	57855	56555	55273	55423	55168	55261	54990	54457	53923	53397	52863	51835	50807	49779	48750	48793	56123	54648	53173	52649

Hilltops IWCM Sewer Fund Financial Model : Sewer IWCM - Preferred Scenario

Performance Indicators

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	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	2042/43	2043/44	2044/45	2045/46
Typical Residential Bills	774	774	774	774	774	774	774	774	774	774	774	774	774	774	774	774	774	774	774	774	774	774	774	774	774
Average Residential Bills (2021/22$)	745	744	745	747	747	748	748	749	749	749	750	751	751	752	752	752	752	753	753	754	754	755	755	755	756
Mgmnt Cost / Assessment (2021/22$)	124	125	125	124	124	125	124	125	124	124	124	124	124	124	124	124	124	124	124	123	123	123	123	123	123
OMA Cost per Assessment (2021/22$)	282	283	283	282	282	282	304	305	304	304	304	304	304	303	304	304	303	304	303	303	303	303	303	303	303
Operating Sales Margin (%)	35.79	35.84	36.10	36.23	36.38	32.87	30.39	30.65	30.94	31.25	31.51	31.76	31.95	32.21	32.47	33.84	34.09	34.29	34.47	34.63	34.84	35.05	35.20	35.42	35.59
Economic Real Rate of Return (%)	3.50	3.46	3.52	3.57	3.68	2.77	2.64	2.74	2.79	2.85	2.89	2.95	3.03	3.10	3.19	3.38	3.49	3.61	3.73	3.85	3.89	3.43	3.56	3.71	3.79
Debt Service Ratio	0.23	0.21	0.20	0.20	0.19	0.19	0.18	0.17	0.17	0.11	0.09	0.05	0.05	0.05	0.05	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Debt/Equity Ratio	0.19	0.17	0.15	0.12	0.10	0.08	0.06	0.05	0.03	0.02	0.02	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest Cover	5.04	5.10	5.67	6.46	7.46	7.56	8.09	10.03	12.59	16.31	21.87	29.02	38.04	54.67	89.43	239.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Return on capital (%)	3.36	3.50	3.51	3.55	3.61	3.94	2.68	2.79	2.86	2.90	2.94	2.97	3.02	3.07	3.11	3.22	3.26	3.29	3.32	3.34	3.34	3.15	3.13	3.17	3.17
Cash and Investments (2021/22$'000)	5525	5341	6267	7221	9007	5171	7205	9288	9972	11419	12619	14425	16531	18672	20842	23191	26195	29229	32279	35341	37320	31854	35378	38912	41476
Debt outstanding (2021/22$'000)	8952	8054	7171	6301	5443	4597	3762	2939	2125	1616	1169	912	654	392	130	8	0	0	0	0	0	0	0	0	0
Net Debt (2021/22$'000)	3427	2713	904	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Hilltops IWCM Sewer Fund Financial Model : Sewer IWCM - Preferred Scenario

Summary Report of Assumptions and Results

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	2021/22	2025/26	2030/31	2035/36	2040/41	2045/46	2050/51
Inflation Rates - General (%)	2.50	2.50	2.50	2.50	2.50	2.50	2.50
Inflation Rates - Capital Works (%)	2.50	2.50	2.50	2.50	2.50	2.50	2.50
Borrowing Interest Rate (%)	4.50	6.50	6.50	6.50	6.50	6.50	6.50
Term of New Loans (years)	20	20	20	20	20	20	20
Investment Interest Rate (%)	2.50	4.50	4.50	4.50	4.50	4.50	4.50
Growth Rate - Residential (%)	0.81	0.80	0.81	0.78	0.78	0.75	0.74
Developer Charges per Assessment - Residential (2021/22 $)	4697	4697	4697	4697	4697	4697	4697
Subsidised Scheme Capital Works ($m)	0.02	0.00	0.00	0.00	0.00	0.00	0.00
Grants on Acquisition of Assets ($m)	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Renewals ($m)	3.38	0.58	1.31	1.03	0.53	1.04	0.00
Renewals (%)	4.37	0.75	1.46	1.15	0.59	1.16	0.00
Cash and Investments ($m)	5.53	9.01	11.42	20.84	35.34	41.48	42.67
Borrowing Outstanding ($m)	8.95	5.44	1.62	0.13	0.00	0.00	0.00
Mgmnt Cost / Assessment	124	124	124	124	123	123	123
Debt Equity Ratio	0.19	0.09	0.02	0.00	0.00	0.00	0.00
OMA Cost Per Assessment	282	282	304	304	303	303	342
Economic Real Rate of Return (%)	3.50	3.68	2.85	3.19	3.85	3.79	2.81
Return on Capital (%)	3.36	3.61	2.90	3.11	3.34	3.17	2.53
Net Debt ($m)	3.43	0.00	0.00	0.00	0.00	0.00	0.00
Debt Service Ratio	0.23	0.19	0.11	0.05	0.00	0.00	0.00
Average Residential Bills	745	747	749	752	754	756	757
Typical Residential Bills	774	774	774	774	774	774	774

Appendix G Financial Model Outcomes - Separate Water Funds

Hilltops Council

Financial Model Forecasts Summary for Separate Water Funds

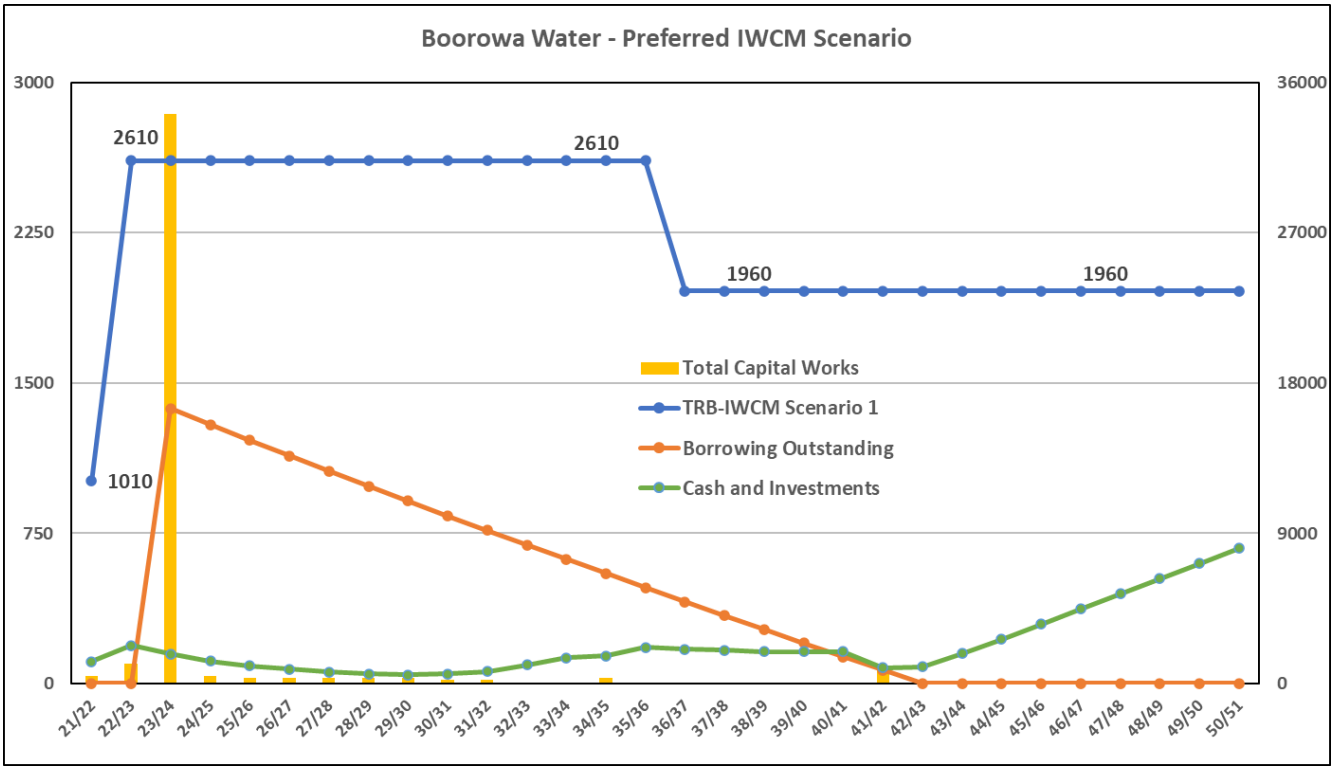
Key Input Parameters - Water Fund Models:

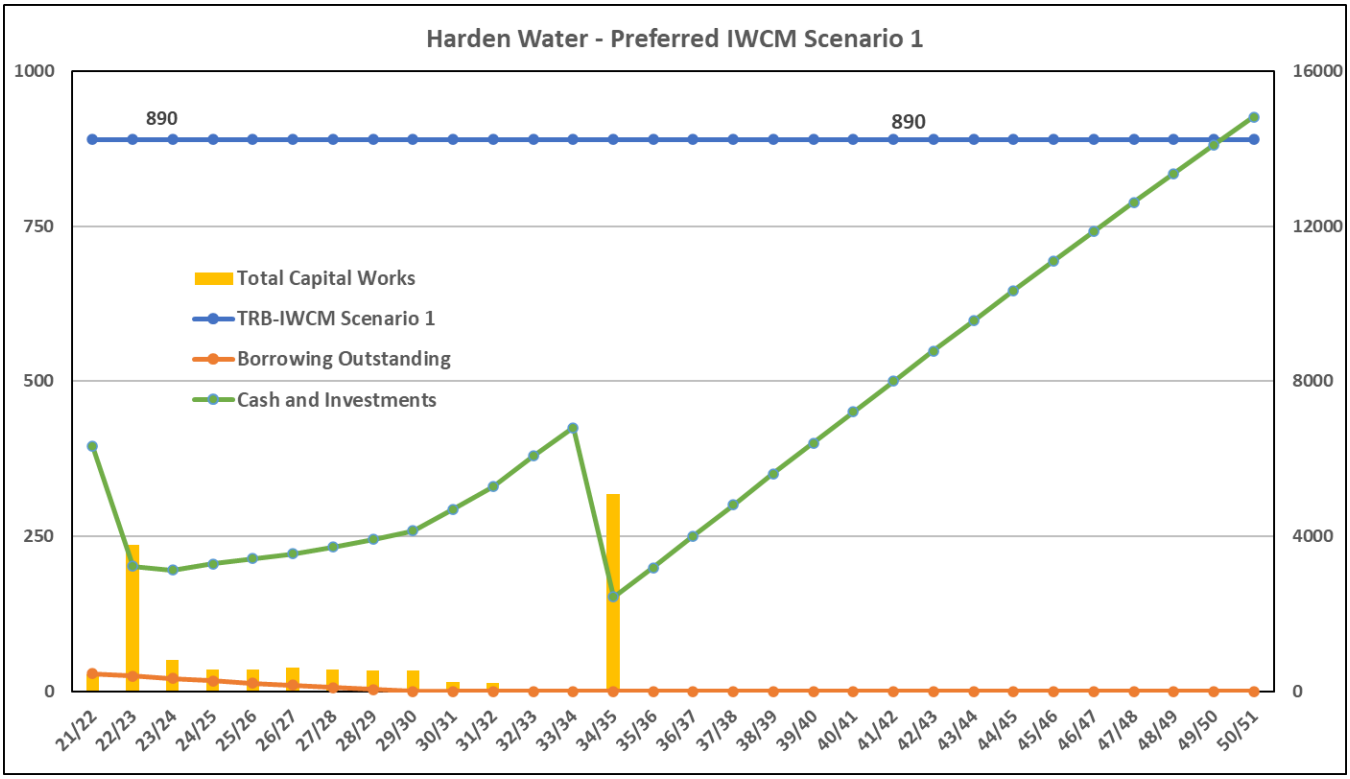
Data Type	Input Data/ Assumption
Historical Data	Water fund income statements and financial position statements of pre-amalgamated Council areas of Boorowa, Harden and Young for 2019-20 and 2020-21.
Financial Data	Average annual long-term inflation rate: 2.5% p.a. Annual Investment Interest Rate: 5.5% p.a. (default) – 4.5% p.a. adopted Annual Borrowing Interest Rate: 6.5% p.a. (default) – 6.5% p.a. adopted
Demographic Base Data (2020-21)	**Total no. of Residential Assessments: 6,188** Young: 4,101; Harden: 1,404; Boorowa: 683 **Total no. of Non-Residential Assessments: 1,247** Young: 689; Harden: 508; Boorowa: 50 **Pensioner Assessments: 1,519 (24.52%)** Young: 915; Harden: 411; Boorowa: 178 **Assessment Growth Rate (p.a.) -** As forecast for IWCM strategy development Young: 0.7%; Harden: Nil; Boorowa: 0.7%
Opening Balances (as of June 2021)	**Outstanding Loan:** Young: $2,720 K; Harden: $507 K; Boorowa: Nil **Total Cash and Investments:** Young: $9,982 K; Harden: $5,593 K; Boorowa: $1,289 Kl **Minimum cash and investment (for modelling):** Young: $2,000 K: Harden: $1,000 K; Boorowa: $500K Term of new loans: 20 years
Current Charges (2021-22)	**Young:** Access Charge: $327 p.a. (20mm meter size) Usage Charge: $3.42 per KL - For all consumption TRB for 2021/22: $874 p.a. (Av. Res. water consumption:160 KL/a) **Harden:** Access Charge: $460 p.a. (20mm meter size) Usage Charge: $2.76 per KL - For all consumption TRB for 2021/22: $890 p.a. (Av. Res. water consumption:156 KL/a) **Boorowa:** Access Charge: $673 p.a. (20mm meter size) Usage Charge: $2.71 per KL - For 268 KL/year or less $5.42 per KL - Above 268 KL/year TRB for 2021/22: $1,010 p.a. (Av. Res. water consumption:125 KL/a)
	Sec.64 Developer Charges for Water Supply: Boorowa: $8,735/ET; Young: $3,888/ET; Harden: Nil.

Typical Residential Bill, Cash& Investments and New Loan requirements

Financial forecasts for the recommended IWCM scenario affects only the Boorowa water fund forecasts. TRB forecasts for Harden and Young are not affected. The water TRB impacts are presented in the table and figures below:

Water Fund	Baseline TRB	Forecast TRB p.a. (in 2021/22$) for Preferred IWCM Scenario – 50% grant	
		TRB from 2022/23 up to 2035/36	TRB from 2036/37 to 2050/51
Hilltops (consolidated)	875	1,035	935
Boorowa	1,010	2,610	1,960
Harden	890	890	890
Young	875	875	875




Harden Water - Preferred IWCM Scenario 1
1000
750
500
250
0
16000
12000
8000
4000
0
890
890
Total Capital Works
TRB-IWCM Scenario 1
Borrowing Outstanding
Cash and Investments
21/22
22/23
23/24
24/25
25/26
26/27
27/28
28/29
29/30
30/31
31/32
32/33
33/34
34/35
35/36
36/37
37/38
38/39
39/40
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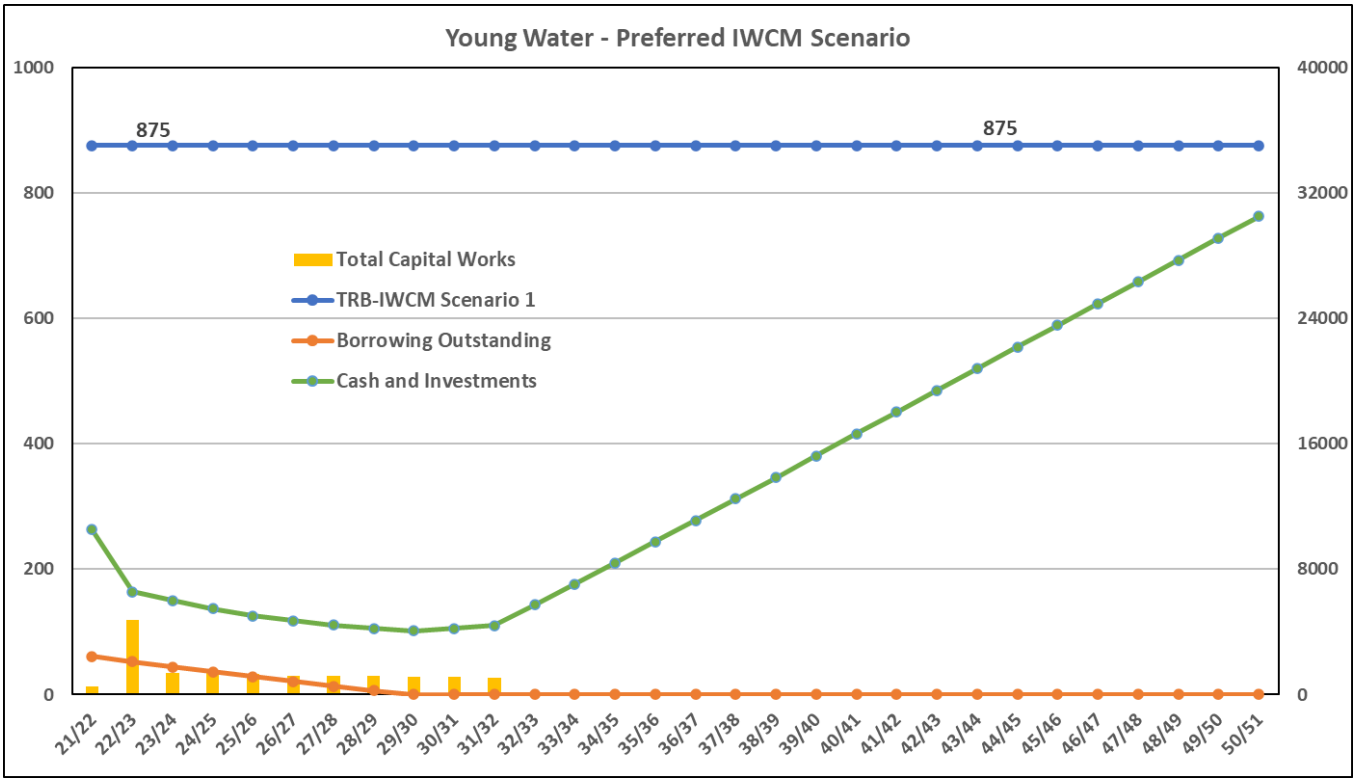
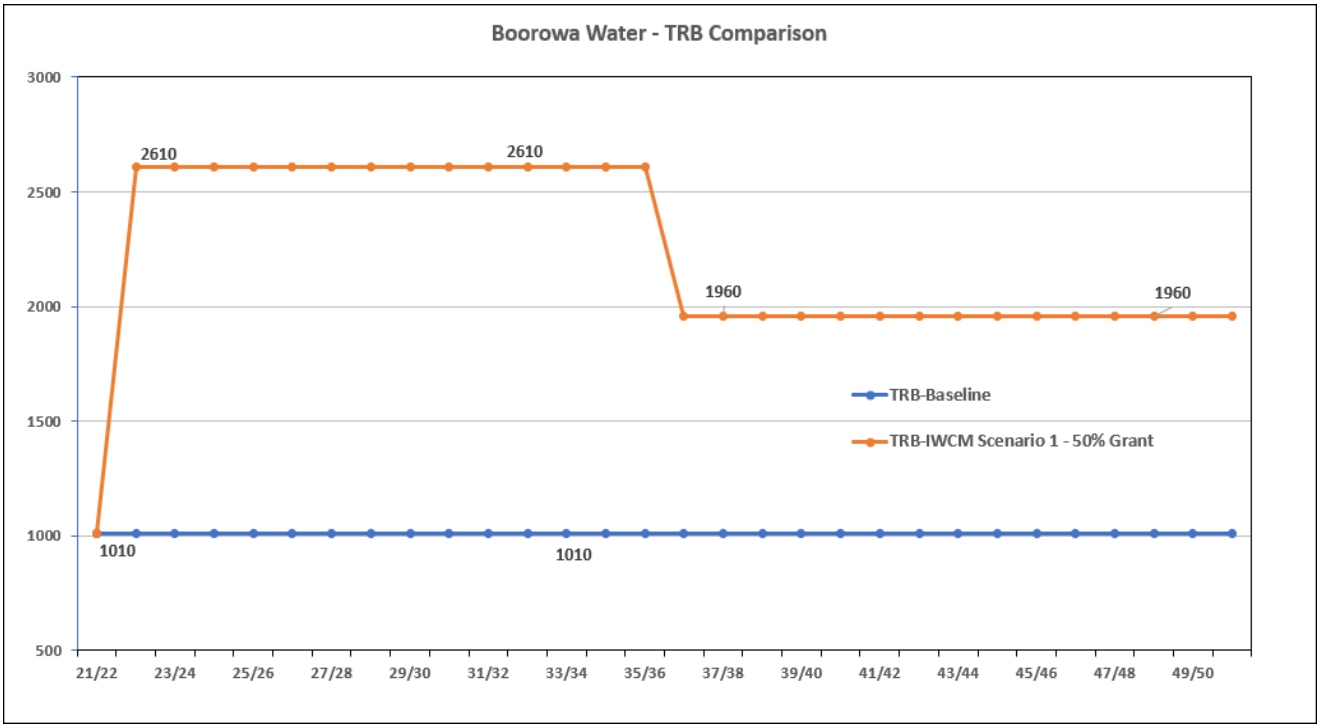
45/46
46/47
47/48
48/49
49/50
50/51


Young Water - Preferred IWCM Scenario
1000
800
600
400
200
0
40000
32000
24000
16000
8000
0
875
875
Total Capital Works
TRB-IWCM Scenario 1
Borrowing Outstanding
Cash and Investments
21/22
22/23
23/24
24/25
25/26
26/27
27/28
28/29
29/30
30/31
31/32
32/33
33/34
34/35
35/36
36/37
37/38
38/39
39/40
40/41
41/42
42/43
43/44
44/45
45/46
46/47
47/48
48/49
49/50
50/51

A comparison of Boorowa water TRB forecasts for the preferred IWCM scenario with that of the baseline cases that consider the 'business-as-usual' 30-year renewal capital works program is presented in the graphs below.



Appendix H Financial Model Outcomes - Separate Sewer Funds

Hilltops Council

Financial Model Forecasts Summary for Separate Sewer Funds

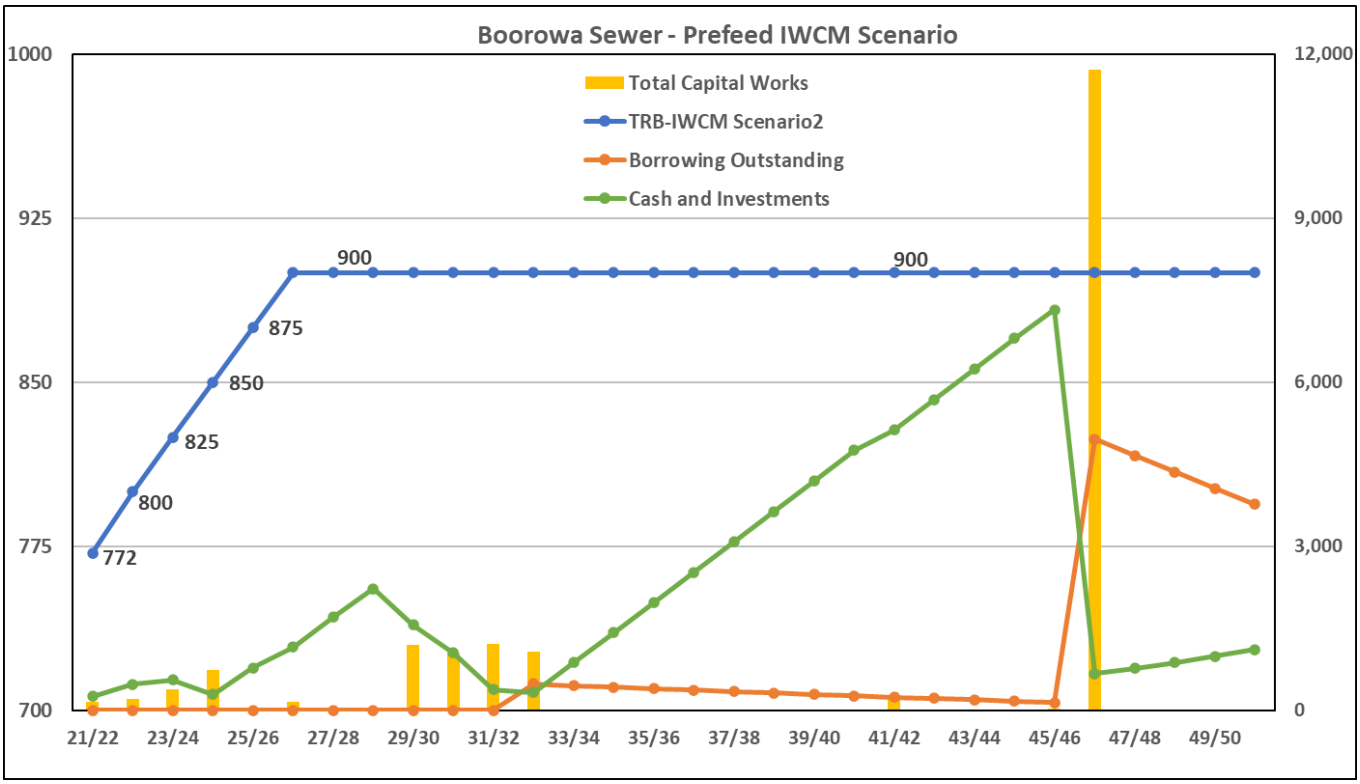
Key Input Parameters - Sewer Fund Models:

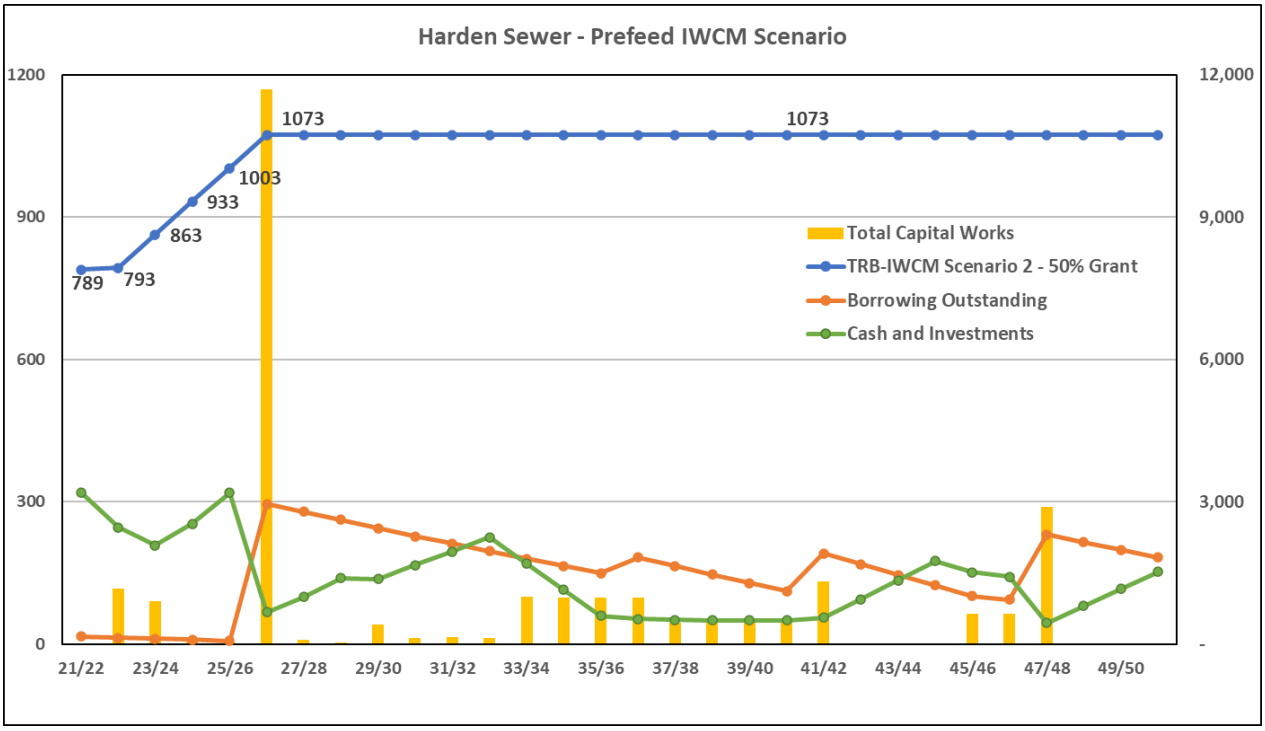
Data Type	Input Data/ Assumption
Historical Data	Sewer fund income statements and financial position statements of pre-amalgamated Council areas of Boorowa, Harden and Young for 2019-20 and 2020-21.
Financial Data	Average annual long-term inflation rate: 2.5% p.a. Annual Investment Interest Rate: 5.5% p.a. (default) – 4.5% p.a. adopted Annual Borrowing Interest Rate: 6.5% p.a. (default) – 6.5% p.a. adopted
Demographic Base Data (2020-21)	**Total no. of Residential Assessments: 4,946** Young: 3,346; Harden: 917; Boorowa: 683 **Total no. of Non-Residential Assessments: 694** Young: 505; Harden: 139; Boorowa: 50 **Pensioner Assessments: 1,284 (26.04%)** Young: 824; Harden: 293; Boorowa: 167 **Assessment Growth Rate (p.a.) -** As forecast for IWCM strategy development Young: 0.8%; Harden: Nil; Boorowa: 0.7%
Opening Balances (as of June 2021)	**Outstanding Loan:** Young: $9,519 K; Harden: $182 K; Boorowa: Nil **Total Cash and Investments:** Young: $4,310 K; Harden: $2,702 K; Boorowa: Nil **Minimum cash and investment (for modelling):** Young: $2,000 K: Harden: $1,000 K; Boorowa: $1,000K Term of new loans: 20 years
Current Charges (2021-22)	**Young:** Residential Annual Charge - Occupied: $776 p.a. (20mm meter size) Residential Annual Charge – Vacant: $582 p.a. (75%) **Harden:** Residential Annual Charge - Occupied: $789 p.a. (20mm meter size) Residential Annual Charge – Vacant: $301 p.a. (38%) **Boorowa:** Residential Annual Charge - Occupied: $796 p.a. (20mm meter size) Residential Annual Charge – Vacant: $796 p.a. (100%)
	Sec.64 Developer Charges for Sewerage: Boorowa: $612/ET; Young: $4,697/ET; Harden: Nil.

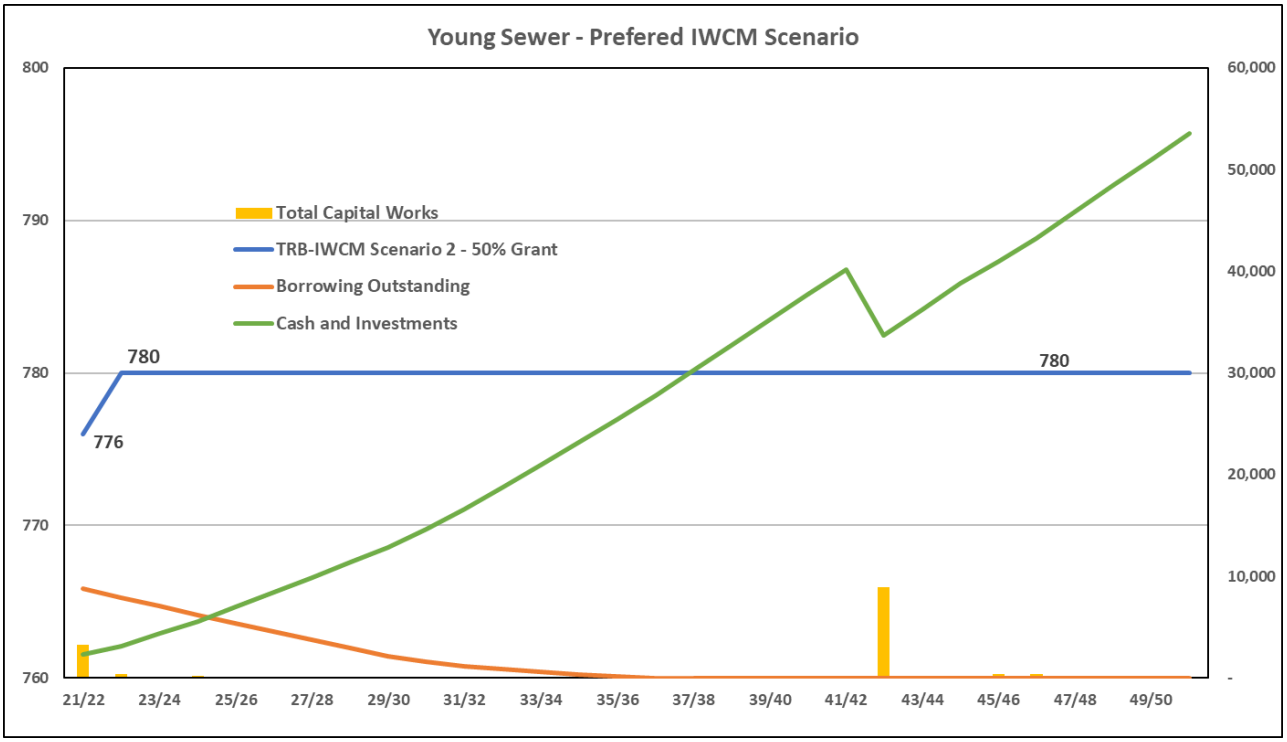
Typical Residential Bill, Cash& Investments and New Loan requirements

Financial forecasts for the recommended IWCM scenario affects the Boorowa and Harden sewer fund forecasts. TRB forecasts of Young sewer fund is not affected. The TRB impacts are presented in the table and figures below.

Sewer Fund	2022/23 Baseline TRB (in 2021/22$)	Forecast TRB p.a. (in 2021/22$) for Preferred IWCM Scenario – 50% grant	
		Required annual increase from 2023/24 to 2027/28	TRB from 2027/28 onwards
Hilltops	780	Nil	780
Boorowa	800	25	900
Harden	793	70	1,073
Young	780	Nil	780




Harden Sewer - Prefeed IWCM Scenario
1200
900
600
300
0
12,000
9,000
6,000
3,000
-
1073
1073
1003
933
863
789
793
Total Capital Works
TRB-IWCM Scenario 2 - 50% Grant
Borrowing Outstanding
Cash and Investments
21/22
23/24
25/26
27/28
29/30
31/32
33/34
35/36
37/38
39/40
41/42
43/44
45/46
47/48
49/50


Young Sewer - Prefered IWCM Scenario
800
790
780
770
760
60,000
50,000
40,000
30,000
20,000
10,000
-
780
780
776
Total Capital Works
TRB-IWCM Scenario 2 - 50% Grant
Borrowing Outstanding
Cash and Investments
21/22
23/24
25/26
27/28
29/30
31/32
33/34
35/36
37/38
39/40
41/42
43/44
45/46
47/48
49/50

A comparison of Harden and Boorowa sewer TRB forecasts for the preferred IWCM scenario with those of baseline cases that consider the 'business-as-usual' 30-year renewal capital works program are presented in the graphs below. The graphs also compare a 'no grant' IWCM scenario for Harden sewer fund.