



# INTEGRATED WATER CYCLE MANAGEMENT STRATEGY

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**SINGLETON**  
COUNCIL

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## Executive Summary

The Integrated Water Cycle Management (IWCM) Strategy is a local water utility's (LWU's) 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 key outcomes of a LWU's IWCM Strategy are a 30year Total Asset Management Plan (TAMP), a 30year financial plan and a drought and emergency response contingency plan (DERCP). The development of Singleton Council's Water's IWCM Strategy has followed the Department of Planning, Industry and Environment (DPIE) Water IWCM Strategy Check List.

This IWCM Strategy report outlines the adopted IWCM Scenario and includes a Total Asset Management Plan (TAMP) and a Financial Plan (FP).

### Singleton Local Government Area (LGA)

Singleton is home to a diverse mix of commerce and industry, including agriculture, vineyards, and retail. Light and heavy industry, power generation and particularly coal mining are the dominant economic drivers. Major economic activities within the LGA contributing to growth are coal mining, agriculture, defence, and tourism, in addition to urban support activities such as business and industrial land. Singleton's growth scenario anticipated for the 25 years to 2032 is for a population increase in the range 1.0 – 1.5% per annum. A growth rate of 1.5% per annum was nominated for the strategy.

An increasing proportion of the population is expected to live in urban areas largely due to a reduction in the supply of rural lots, adequate supply of residential lots in Singleton, and trends towards increasingly expensive transport costs. The projected population is given in Table S1.

**Table S1: Projected population**

		2016	2021	2026	2031	2036	2041	2046	2047
Total population* (average)	Singleton water and sewer	14,392	15,028	15,619	16,164	16,664	17,117	17,525	17,601
	Singleton water only	1,555	1,624	1,688	1,747	1,801	1,850	1,894	1,902
	Jerrys Plains water only	182	190	198	205	211	217	222	223
	None served	7,466	7,797	8,103	8,386	8,645	8,880	9,092	9,131
	<b>Total</b>	<b>23,595</b>	<b>24,639</b>	<b>25,608</b>	<b>26,502</b>	<b>27,320</b>	<b>28,064</b>	<b>28,733</b>	<b>28,857</b>
	Singleton water and sewer additional peak visitor population	273	285	296	307	316	325	332	334

The existing Obanvale water treatment plant (WTP) has sufficient hydraulic capacity to produce water to meet the future peak day demand with water quality complying with the Australian Drinking Water Guidelines (ADWG).

The existing bulk distribution system and reservoirs also have adequate capacity to reliably supply the peak demands without excessive draw-down.

The existing Singleton sewage treatment plant (STP) has sufficient hydraulic capacity to process the future sewage load.

### Issues and Options

A review of the water supply and sewerage business performance was undertaken against Council adopted objectives and targets contained within the Levels of Service framework. The issues identified and the shortlisted options to address the issues, are summarised below.

**Singleton water security** – In the event of a repeat of critical drought, if the allocation were to be reduced by 25 percent, the unrestricted annual demand at Singleton past 2032, would not be met.

The Greater Hunter Regional Water Strategy (GHRWS) outlines policy infrastructure options to improve water security within the Greater Hunter. The infrastructure options identified for further investigation are construction of a two-way pipeline between Lostock Dam and Glennies Creek Dam and construction of a potable pipeline from Hunter Water Corporation (HWC) to Singleton. The option for constructing a two-way pipeline between Lostock Dam and Glennies Creek Dam is the preferred option. Gateway 0 and Gateway 1 reviews of the business case for the two-way pipeline between Lostock Dam and Glennies Creek Dam have been completed. This project is progressing to a Gateway 2 review for the Final Business Case. These options will improve the drought reliability of the Hunter regulated river system.

In addition to the above, at a local level, Council can develop the Rose Point Park bore water source to supplement the Singleton water supply and provide the reliability during drought.

**Jerrys Plains water security** – The operation of the AGL Macquarie owned Jerrys Plains WTP will cease once AGL Macquarie stops operating the Liddell (past 2022) and Bayswater (past 2035) power stations.

The options to maintain the supply to Jerrys Plains are to extract and treat river water, extract, and treat groundwater, or connect Jerrys Plains to the Singleton water supply at Apex reservoir.

**Singleton water supply** – The Singleton water supply may not be able to meet the potential health-based water quality targets (HBTs) for the assessed catchment classification of Category 4.

Council needs to test the raw water for E. coli on a weekly basis for a minimum of two years, to confirm the catchment category classification and review the finalised HBT requirements of the ADWG. The installation of an ultraviolet disinfection system may be required to achieve the water quality targets.

**Bulga water supply** – A review of the available options shows that Bulga can be supplied from the Singleton water supply scheme by connecting to the reservoir at Broke.

**Singleton sewerage collection and transfer system** – Council has selected a 1 in 5-year 12-hour rainfall event as the containment standard for the system.

To comply with this service standard, in the short-term some gravity mains need upgrading in the Kennedy Street and Bourke Street catchments along with the augmentation of the pumping capacity for the Kennedy street pumping station. In the long-term, an augmentation of the Dunolly street pumping station capacity would be required as most of the growth will be occurring in this catchment. Council also needs to undertake investigations to identify extent of inflow and infiltration to implement source control, that will reduce storm water entering the system.

**Singleton sewage treatment plant** – There is a risk to the aquatic ecology in Doughboy Hollow creek due to a deteriorated effluent quality caused by the formation of algae in the maturation pond. The sludge stabilisation process is inadequate due to the insufficient capacity and design of the sludge lagoons. There is a risk of contamination through the sludge drying beds as they have not been lined, and they have no underdrains which affects their performance.

A staged approach to improving the effluent quality would provide the most benefit, with short-term algae mitigation by phosphorus reduction (to 1 mg/L) in the effluent using chemical dosing, considered as the preferred pathway. The effluent quality results can be reviewed to determine if even further phosphorus reduction is required to achieve the desired outcome.

To provide sufficient time for the sludge stabilisation process and for emptying the lagoon, a third sludge lagoon, with supernatant pumping, will be required. The existing sludge drying beds need to be upgraded to improve their dewatering performance.

**Unserviced areas** – The performance of the on-site sewage management systems (OSSMS) at Broke, Bulga and Jerrys Plains are assessed as having a risk to public health and the environment.

It is recommended that Council inspect and monitor these systems more regularly to gather information and evidence to assist with deciding whether these towns need to have reticulated sewerage systems in the long-term.

### Recommended Scenario

Following the creation, analysis, and triple bottom line assessment, the recommended IWCM Scenario comprises the following works.:

#### Short-term works

These are the works identified to be required in the next 5 to 10 years and are presented in Table S2.

**Table S2: Short-term works (5 to 10 years) for preferred scenario**

Issue	Identified work	year
Address non-revenue water	Implement water loss management plan	2021 – 25
Continuous improvement of DWMS	Implement actions listed in the DWMS improvement plan	2022
Un-serviced water supply for Bulga	Connect Bulga to the Singleton water supply at Broke <i>(subject to funding)</i>	2024
Address sewerage collection and transfer system performance for selected service standard	<ul style="list-style-type: none"> <li>Upgrade the gravity lines in the Bourke Street SPS catchment</li> <li>Upgrade of Kennedy street pump</li> <li>Upgrade the gravity line in the Kennedy SPS catchment</li> </ul>	2022 – 25
Address capacity and performance issues at the STP	Improve sludge management at STP <ul style="list-style-type: none"> <li>Re-commissioning two (2) old sludge lagoons with a new supernatant return pumping station, and</li> <li>Refurbishing existing sludge drying beds with lining, underdrains and a new sub-natant pumping station.</li> </ul>	2022 2023
Comply with the EPA requirement for STP effluent management	Reduce phosphorus levels in effluent to 1 mg/L <ul style="list-style-type: none"> <li>On-going monitoring of system performance to identify opportunities for improvement in the longer term,</li> <li>On-going monitoring of helminths and fencing of portions of property to limit cattle access</li> </ul>	2023
Assess performance of on-site sewage management system	Carry out periodic inspections and gather evidence of any public health or environmental issues with the OSSMS performance at Broke, Jerrys Plains and Bulga.	On-going

#### Medium-term works

These are the works identified to be required in the next 10 to 20 years and are presented in Table S3.

**Table S3: Medium-term works (10 to 20 years) for preferred scenario**

Issue	Identified work	year
Jerrys Plains water supply security	Construct a new water treatment plant to treat surface water	2030
Singleton water supply security	Construct the Rose Point Park bore water supply as a supplementary source	2035

Issue	Identified work	year
Compliance with potential introduction of Health Based Targets for potable water quality	Construct a UV disinfection system at the Obanvale water treatment plant, if required	2030 – 35
Address sewerage collection and transfer system performance for selected service standard	Augment the capacity of the Dunolly sewage pumping station	2035 – 40

### Long-term works

These are the works identified to be required in the next 20 to 30 years and are presented in Table S4.

**Table S4: Long-term works (20 to 30 years) for preferred scenario**

Issue	Identified work	year
Manage trade waste within the LGA	Construct a septage receival facility at the STP	2045
Comply with the EPA requirement for STP effluent management	Reduce the phosphorus levels in the effluent to 0.1 mg/L.	2050
Performance of On-site Sewage Management Systems	Construct a reticulated sewerage scheme for Broke	2045
	Construct a reticulated sewerage scheme for Jerrys Plains	2045
	Construct a reticulated sewerage scheme for Bulga	2050
	Construct a reticulated sewerage scheme for Mount Thorley	2050

### **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.

For the purpose of TRB analysis, preliminary (first-cut) developer charges (DC) for each of the IWCM scenario has been estimated in accordance with the 2016 NSW Developer Charges Guidelines. The estimated first-cut DCs per ET (Equivalent Tenement) for water supply for the two water supply schemes, namely Singleton and Jerrys Plains and are shown in Table S5. First-cut DCs per ET for Singleton sewerage scheme service area is shown in Table S6. The first-cut developer charges are agglomerated charges that do not consider any other additional service areas or cross-subsidies. More details regarding the first-cut DC estimates are presented in Section 7.2.

**Table S5: First-cut water supply DCs per ET (2020-21\$)**

Scenario	First-cut Developer Charge		Currently adopted Developer Charge for 2020/21
	Singleton	Jerrys Plains	
Baseline	11,314	1,403	6,220
Scenario 1	12,305	12,305	6,220
Scenario 2	12,256	41,105	6,220

Scenario	First-cut Developer Charge		Currently adopted Developer Charge for 2020/21
	Singleton	Jerrys Plains	
Scenario 3	12,310	12,310	6,220

**Table S6: First-cut sewerage DCs per ET (2020-21\$)**

Scenario	First-cut Developer Charge	Currently adopted Developer Charge for 2020/21
Baseline	3,679	3,720
Scenario 1	3,701	3,720
Scenario 2	3,701	3,720
Scenario 3	3,701	3,720

The water fund financial model demonstrates the forecast TRBs are not impacted by the IWCM scenarios. The current 2020-21 TRB of \$655 p.a. needs to increase to \$691 p.a. in 2021-22 and can be maintained at that level for all the remaining forecast years for all the IWCM scenarios including the baseline scenario.

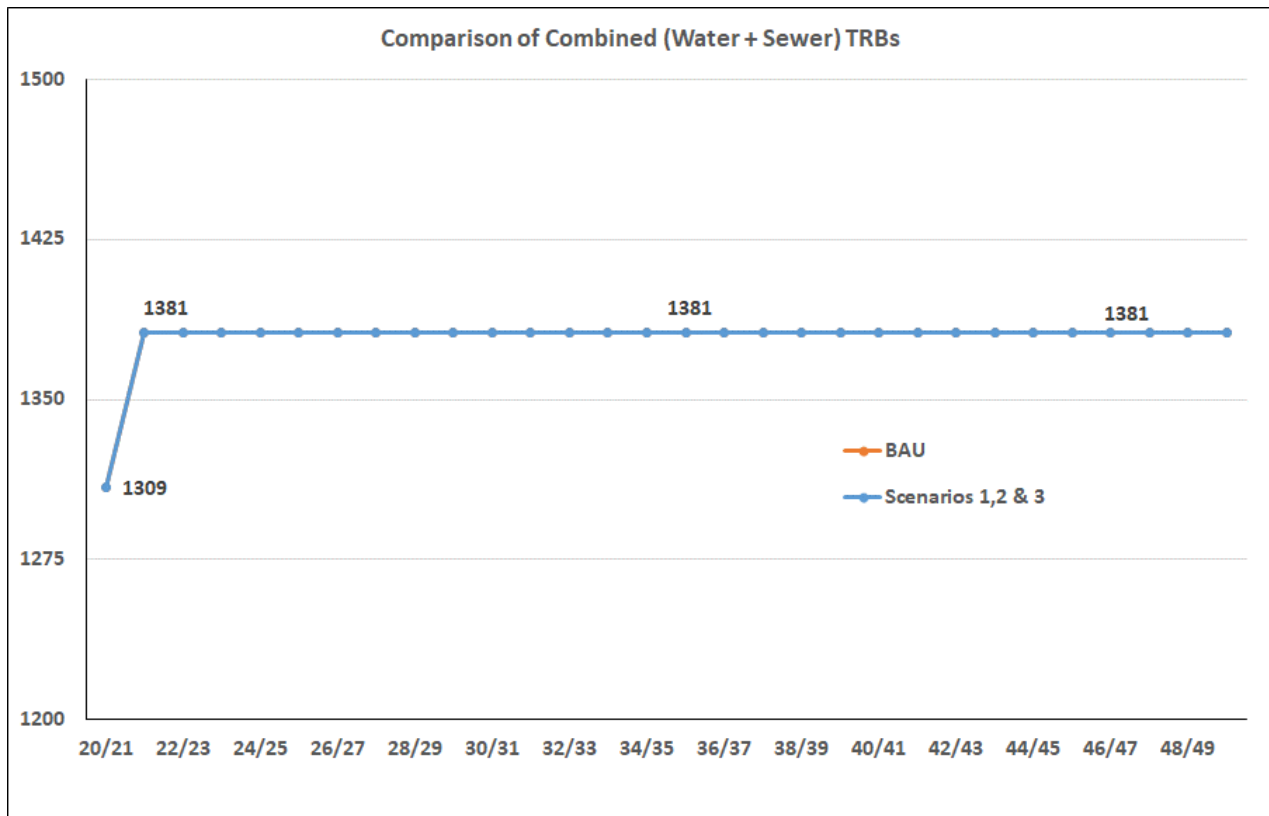
The forecast sewerage TRBs also are not impacted by the IWCM scenarios and the current 2020-21 TRB of \$654 p.a. needs to increase to \$690 p.a. in 2021-22 and can be maintained for all the remaining forecast years for all the IWCM scenarios including the baseline scenario.

Table S7 summarises the forecast water supply and sewerage TRBs for the four LGA-wide IWCM Scenarios.

**Table S7: Typical Residential Bills for IWCM Scenarios (2020-21\$)**

IWCM Scenario	Water TRB p.a. from 2021-22	Sewer TRB p.a. from 2021-22
Baseline	691	690
Scenario 1	691	690
Scenario 2	691	690
Scenario 3	691	690

Figure S1 compares the combined (water + sewer) typical residential bills for the four IWCM Scenarios. Further details of the TRB analysis for the IWCM Scenarios are provided in Section 7.2.



**Figure S1: Comparison of Combined TRB (Water + Sewer) for the IWCM Scenarios**

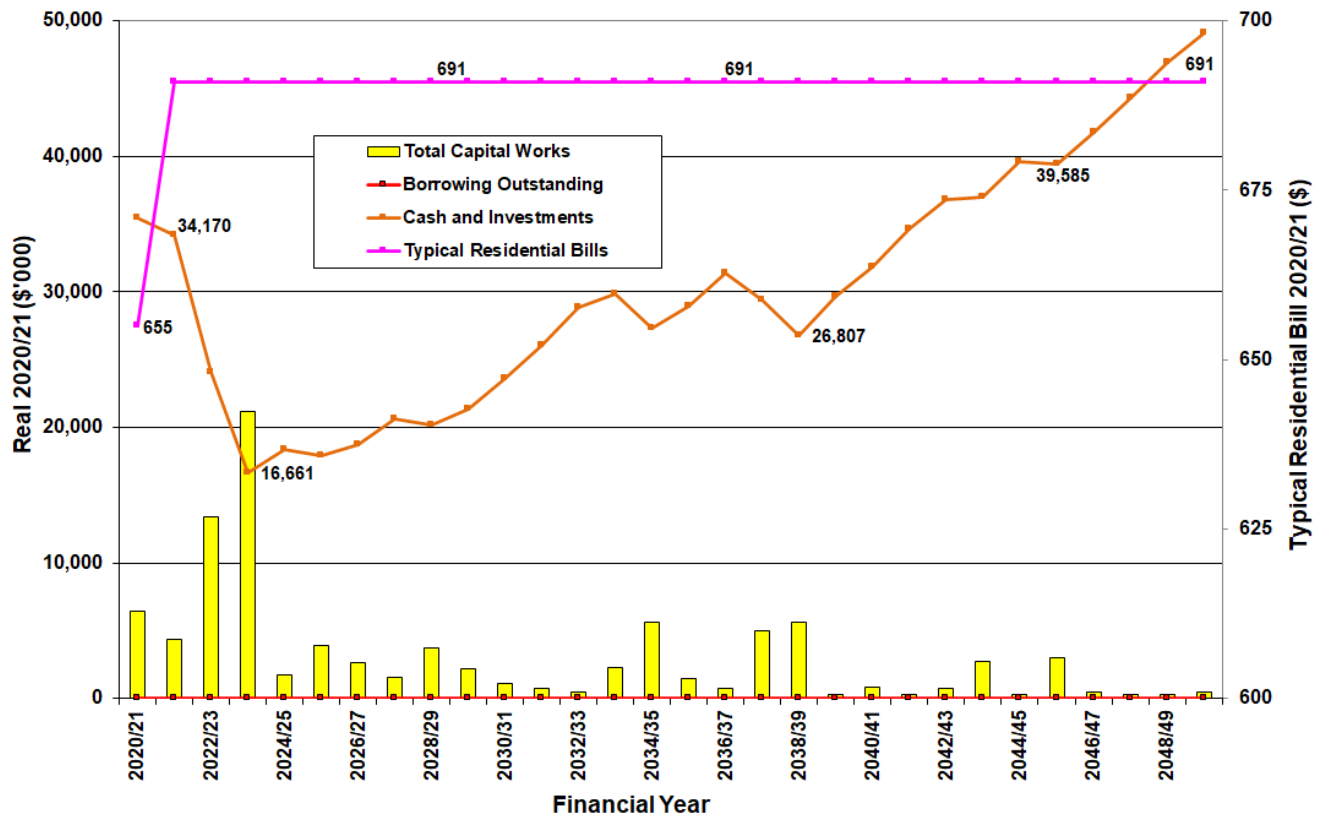
### Long-term Financial Plans

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 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 2020-21 dollars.

The water fund financial model forecasts for the preferred IWCM scenario demonstrate that the current (2020-21) water supply TRB of \$655 p.a. needs to increase to \$691 p.a. in 2021-22 and has to be maintained at that level throughout the forecast period with ongoing annual adjustments for CPI. The model considers a government grant of \$10.347 Million for the Bulga water supply scheme.

There is no current outstanding borrowing for water fund as of 30 June 2020. At the forecast level of TRB, all the planned capital works can be fully funded internally, and no new loan will be required during the forecast period. The levels of TRB and cash and investments during the forecast period are shown in Figure S3. The adopted price path is sufficient to maintain liquidity with a minimum of \$15.0 Million of cash and investments in the water fund over the forecast period. For detailed discussions of the water fund financial model forecast for the recommended IWCM scenario (Scenario 1), refer to Section 10.5.





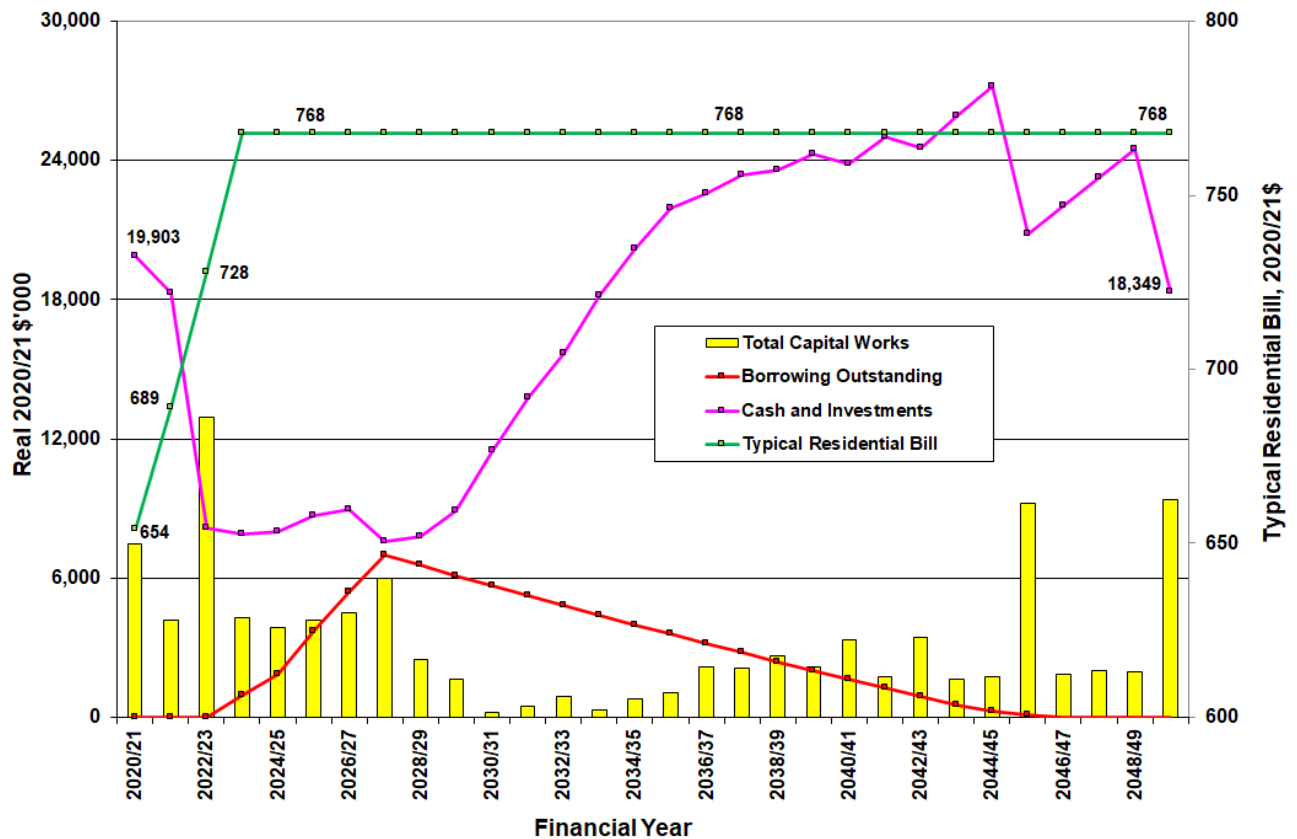
**Figure S3: Water Fund Financial Model Forecasts for the preferred IWCM Scenario**

The sewer fund financial model forecasts for the preferred IWCM scenario show that the sewerage TRB needs to be increased from the current level of \$654 p.a. to \$768 p.a. in 2023-24 over a period of three years. The model does not consider any Government grant or subsidy for any of the planned capital works during the forecast period.

Council has already published an increased level of TRB of \$689 p.a. for 2021-22 (inflated \$706 p.a.). Therefore, for the two years starting 2022-23, the TRB needs to be increased by \$40 per year to achieve a TRB of \$768 p.a. in 2023-24. Thereafter, it can be maintained at that level for the remaining forecast period with ongoing annual adjustments for CPI. The projected sewerage price path is sufficient to maintain liquidity with a minimum of \$7.5 Million of cash and investments in the sewer fund over the forecast period.

There is no current outstanding borrowing for sewer fund as of 30 June 2020. The model forecast shows that with the adopted price path and the minimum cash and investment levels, new loans to the tune of \$8.0 Million will be required for funding the planned capital works during the period from 2023-24 to 2027-28. The maximum outstanding borrowing will be in year 2027-28 and will be fully retired within the forecast period.

The levels of TRB, cash and borrowing outstanding during the model forecast period are shown in Figure S4. For detailed discussions of the sewer fund financial model forecast for the recommended IWCM scenario 1, refer to Section 10.6.



**Figure S4: Sewer Fund Financial Model Forecasts for the preferred IWCM Scenario**

### IWCM Strategy

Although the IWCM Strategy has been developed for a planning period of 30 years, the strategy needs to be reviewed every 8 years with a mid-year review of the assumptions in accordance with the Best Practice Management Framework, February 2019.

However, it is good business practice to ensure the asset and financial plans continue to have a 30-year outlook. Therefore, it is suggested that annually as part of your business/operational planning process and preparing the Annual Action Plan to Council, the following review is completed:

- Health Check # 1 - are the key assumptions under-pinning the IWCM strategy especially the TAM, Financial & DCER Plans are still current, effective & appropriate
- Health Check # 2 – did we encounter any NEW strategic and/or operational issues/event that require detailed investigation and/or changes to the measures in the TAM
- Update and roll-forward – the TAM, Financial & DCER Plans are updated based on the effectiveness and appropriateness Health Checks # 1 & 2 reviews, and roll-forwarded with additional year(s) to maintain the 30-year outlook

Review IWCM # 1 – if any key assumptions have changed, review the impact on the Plans and instigate detailed investigation relevant to that assumption/event/issue. Based on the findings and adopted solution measures update the Plans.

Review IWCM # 2 – if directed by the Council under the IP&R framework and/or based on the nature of the changes to the assumptions/issues, prepare a new strategy and Plans.

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## 1. The IWCM Strategy

### 1.1 Process

The Integrated Water Cycle Management (IWCM) Strategy is a local water utility's (LWU's) 30year 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. A local water utility's (LWU's) peak planning documents for its water supply and sewerage businesses are its adopted IWCM Strategy and strategic business plan (SBP).

The IWCM 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 and Financial Plan; 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 process of preparing an IWCM Strategy follows the 2019 Department of Planning, Industry and Environment (DPIE) Water's IWCM Strategy Check List and broadly includes the following:

- Preparation of an IWCM Issues Paper
- Evaluation of feasible options
- Developing the IWCM Strategy; and
- Preparation of a Total Asset Management Plan (TAMP) and Financial Plan.

The key outcomes of a Local Water Utility's (LWU) IWCM Strategy are:

- 30-year Total Asset Management Plan;
- 30year financial plan; and
- Drought and emergency response contingency plan (DERCP)

The process of preparing an IWCM is shown in Figure 1-1.

#### Key Drivers

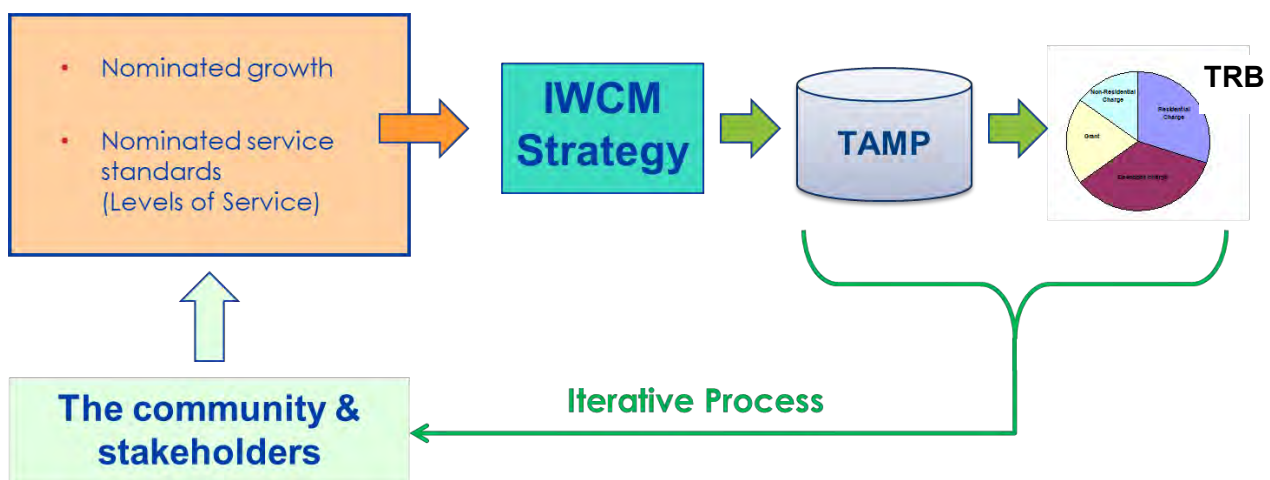


Figure 1-1: Process of preparing an IWCM Strategy

The nominated growth and adopted 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 development of Singleton Council's (MSC) IWCM Strategy has followed the DPIE Water IWCM Strategy Check List. The following tasks have been completed to:

- **IWCM Issues Paper**

This report identified and outlined the current and 30-year projected issues relating to Singleton Council's regulatory requirements, growth, levels of service (LOS), and performance of the water supply and sewerage services. The Issues paper addresses Tasks 1 to 8 of the IWCM Check List.

- **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. The Technical studies address Tasks 9 and 10 of the IWCM Check List.

- **Scenario Bundling**

Following the evaluation and shortlisting of options, IWCM 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. This addressed Tasks 11 and 12 of the IWCM Check List.

- **Stakeholder and community consultation**

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

- (i) Workshop 1 was held at the completion of the IWCM Issues paper; and
- (ii) Workshop 2 was held at the completion of the scenario assessment and financial modelling.

- **Public Exhibition**

The draft IWCM was prepared on the basis of outcomes of the Scenario Evaluation workshop. At its meeting held on 18 October 2021 Council resolved to place the draft IWCM Strategy on public exhibition for a period of 42 days. In accordance with the resolution, the draft IWCM strategy was put on public exhibition for a period of 42 days. In addition, two community engagements sessions were also held at 12:00pm to 1:00pm Wednesday 24 November 2021 and 5:30pm to 6:30pm Monday 6 December 2021. No comments were received during the public exhibition period.

- **Final Strategy**

The Final Strategy has been prepared and presents Scenario 1 as the recommended option. The final Strategy, this document, is to be submitted for adoption by Council and concurrence by the Department of Planning and Environment after which it will be implemented as Council's IWCM Strategy.

## 2. Background information

### 2.1 Singleton LGA

The Singleton Local Government Area (LGA) covers an area of 4,895.6 km<sup>2</sup>. Council provides local government services to the region's urban area and many rural villages, including Broke, Jerry Plains, Bulga, Camberwell, and Branxton.

First settled in 1861, Singleton is home to a diverse mix of commerce and industry, including agriculture, vineyards, and retail. Light and heavy industry, power generation and particularly coal mining are the dominant economic drivers.

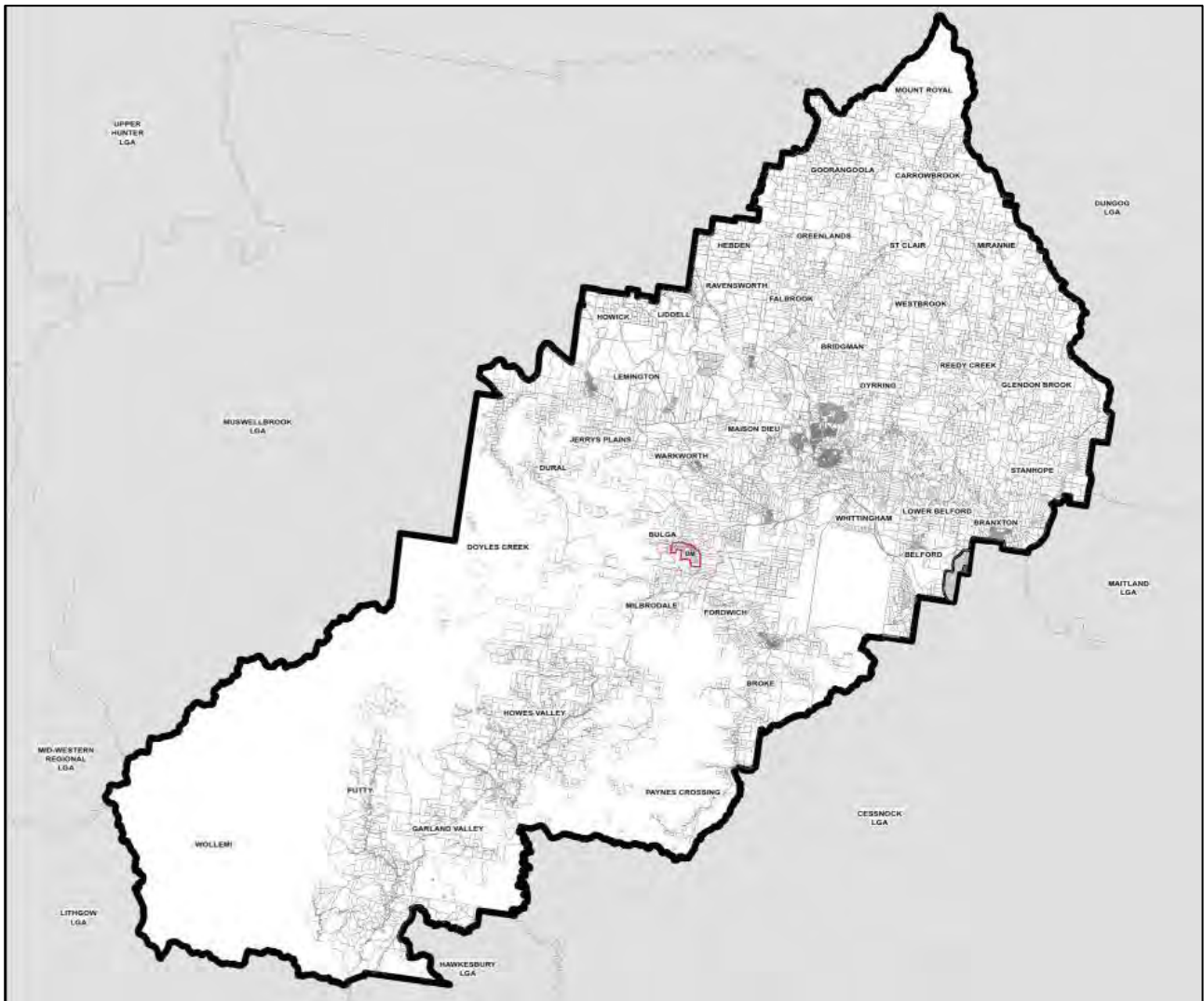


Figure 2-1: Map of Singleton LGA



The main urban centres serviced within Singleton are given in Table 2-1.

**Table 2-1: Serviced areas within Singleton LGA**

Suburb	Water supply scheme	Sewerage service
Singleton	Singleton Water Supply Scheme	Singleton Sewerage Scheme – gravity
McDougalls Hill	Singleton Water Supply Scheme	Singleton Sewerage Scheme – low pressure
Gowrie	Singleton Water Supply Scheme	Singleton Sewerage Scheme – low pressure
Singleton Heights	Singleton Water Supply Scheme	Singleton Sewerage Scheme – gravity
Branxton	Hunter Water (Huntlee Estate served by Private Operator)	Huntlee Estate served by Private Operator (recycled water system)

The small villages and surrounding suburbs water and sewage systems are given in Table 2-2.

**Table 2-2: Services provided in small villages and surrounding suburbs**

Suburbs	Water Supply	Sewage System
Jerrys Plains	Jerry Plains Water Supply Scheme	On-site sewage management systems
Mount Thorley	Singleton Water Supply Scheme	
Broke	Singleton Water Supply Scheme & Broke Fordwich Private Irrigation District	
Putty	Private Water Supply (rainwater tanks or private bores)	
Glendon Brook		
Reedy Creek		
Camberwell		
Mount Olive	Singleton Non-potable Supply	
Bridgman		
Glennies Creek		
Wattle Ponds*		
St Clair		
Obanvale		

\*<10 properties

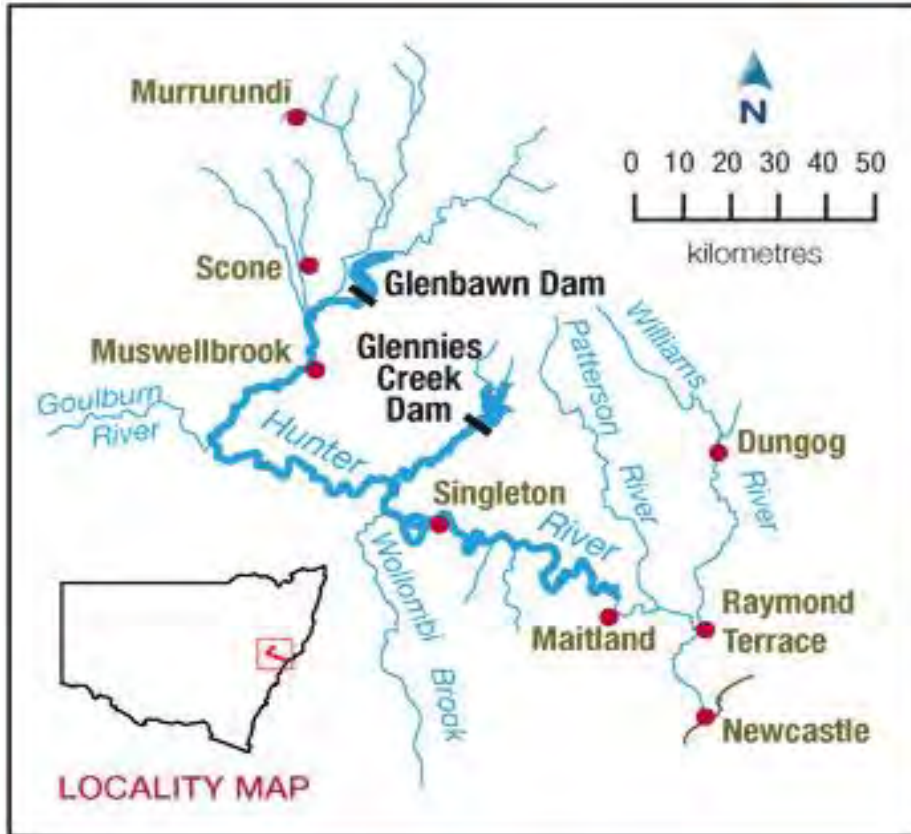
## 2.2 Catchment characteristics

Singleton is located within the Hunter River Catchment. The Hunter is the largest coastal catchment in NSW, with an area of 21,500 km<sup>2</sup>, and has a variable climate with periods of severe drought and flood.

The Hunter River is regulated by two major headwater storages, Glenbawn Dam on the upper Hunter River and Glennies Creek Dam on Glennies Creek, as well as a number of minor dams. The

volume and pattern of flows in the Hunter River system have been significantly altered by the construction and operation of these storages, which are operated to supply water for irrigation, town water, stock and domestic supplies, and industries.

The Hunter Regulated River water source map is shown in Figure 2-2



**Figure 2-2: The Hunter Regulated River Water Source Map**

### 2.3 Residential population and growth and economic drivers

Major economic activities within the LGA contributing to growth are coal mining, agriculture, defence and tourism, in addition to urban support activities such as business and industrial land. A large proportion of the workforce is employed in the mining industry which is expected to maintain its employment level over the Strategy period. Dwelling requirements are expected to grow faster than population growth, based on lower dwelling occupancy rate trends. Singleton's growth scenario anticipated for the 25 years to 2032 is for a population increase in the range 1.0 – 1.5% per annum. A growth rate of 1.5% per annum was nominated for the strategy. Growth is expected to substantially result from in-migration for lifestyle and employment reasons. The projected LGA wide population is given in Table 2-3.

**Table 2-3: Forecast four Wide and service area population**

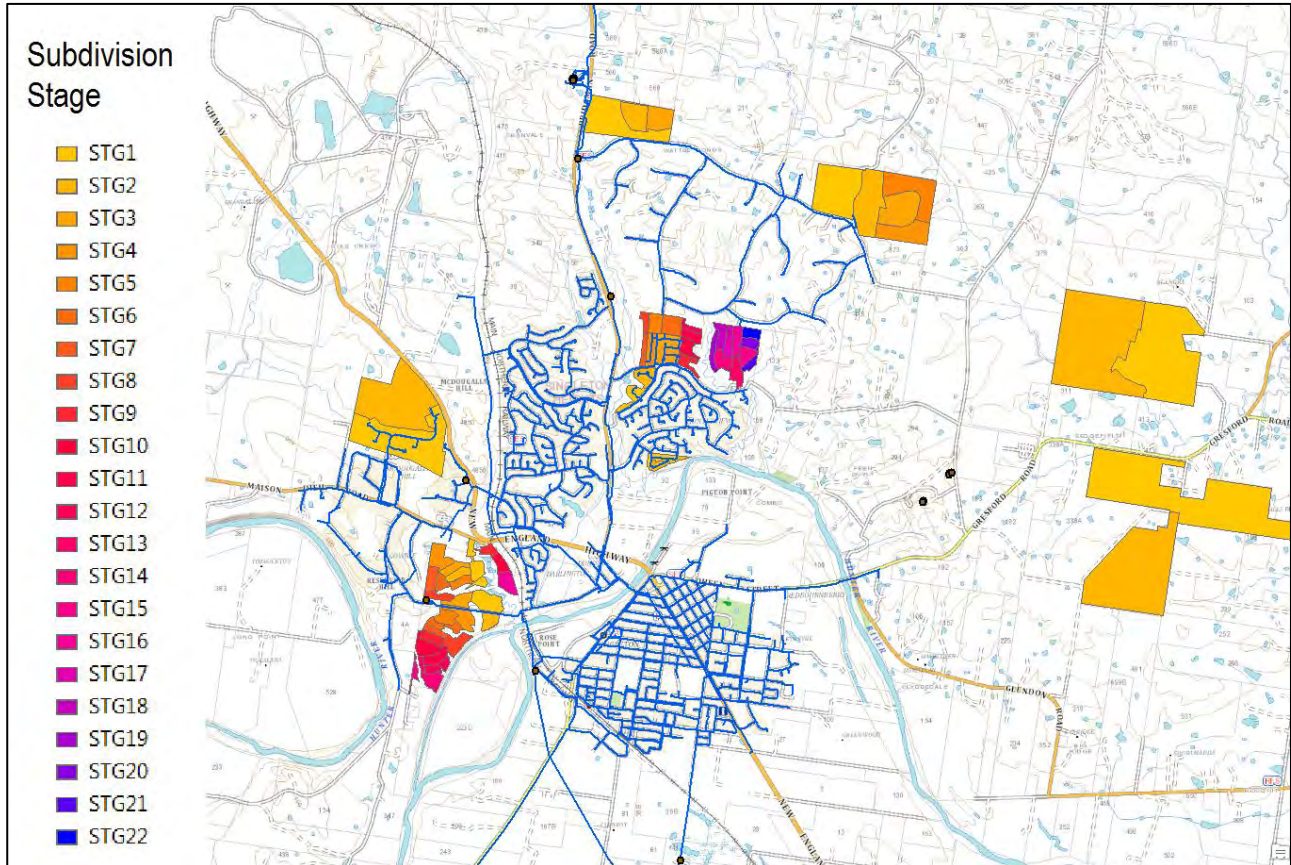
		2016	2021	2026	2031	2036	2041	2046	2047
Total population* (average)	Singleton water and sewer	14,392	15,028	15,619	16,164	16,664	17,117	17,525	17,601
	Singleton water only	1,555	1,624	1,688	1,747	1,801	1,850	1,894	1,902
	Jerrys Plains water only	182	190	198	205	211	217	222	223
	None served	7,466	7,797	8,103	8,386	8,645	8,880	9,092	9,131
	<b>Total</b>	<b>23,595</b>	<b>24,639</b>	<b>25,608</b>	<b>26,502</b>	<b>27,320</b>	<b>28,064</b>	<b>28,733</b>	<b>28,857</b>
	Singleton water and sewer additional peak visitor population	273	285	296	307	316	325	332	334
	Singleton water and sewer peak population	14,665	15,313	15,915	16,471	16,980	17,442	17,858	17,935
Occupied dwellings	Singleton water and sewer	5,365	5,603	5,823	6,026	6,213	6,382	6,534	6,562
	Singleton water only	504	527	547	566	584	600	614	617
	Jerrys Plains water only	69	72	75	77	80	82	84	84
	None served	2,655	2,772	2,881	2,982	3,074	3,157	3,233	3,247
	<b>Total</b>	<b>8,593</b>	<b>8,973</b>	<b>9,326</b>	<b>9,652</b>	<b>9,950</b>	<b>10,221</b>	<b>10,464</b>	<b>10,510</b>
Total dwellings	Singleton water and sewer	6,008	6,274	6,520	6,748	6,956	7,146	7,316	7,348
	Singleton water only	539	562	585	605	624	641	656	659
	Jerrys Plains water only	82	86	89	93	95	98	100	101
	None served	2,987	3,119	3,242	3,355	3,458	3,553	3,637	3,653
	<b>Total</b>	<b>9,616</b>	<b>10,041</b>	<b>10,436</b>	<b>10,800</b>	<b>11,134</b>	<b>11,437</b>	<b>11,709</b>	<b>11,760</b>

\* includes average visitor population and non-private dwelling population

### Spatial distribution of growth

The population in most areas of the Singleton LGA is expected to increase, but some parts of the area will grow more quickly, especially Singleton Heights/North Singleton and the Rural East Planning Area. An increasing proportion of the population is expected to live in urban areas largely due to a reduction in the supply of rural lots, adequate supply of residential lots in Singleton, and trends towards increasingly expensive transport costs. These estimates do not take into account demand and supply in the Branxton area, since no timing is available for land supply in this area, and it is unlikely that this would occur within 5 years.

The location of each planned subdivision, along with a development stage, ordered 1 to 22 are shown in Figure 2-3. The designated subdivisions are greenfield sites, previously used for agriculture, and rural living.



**Figure 2-3: Development staging of subdivisions**



### 3. Urban water services

There are two non-potable water supply schemes, the Glennie Creek scheme and the Mount Thorley scheme water. There is also a Private Irrigation District (PID) scheme which provides irrigation water supply to the Broke, Fordwich, Bulga and Milbrodale areas.

Council has two potable water supply schemes in the LGA, Singleton water supply scheme and Jerry Plains water supply scheme. The town of Branxton is supplied by Huntlee Water.

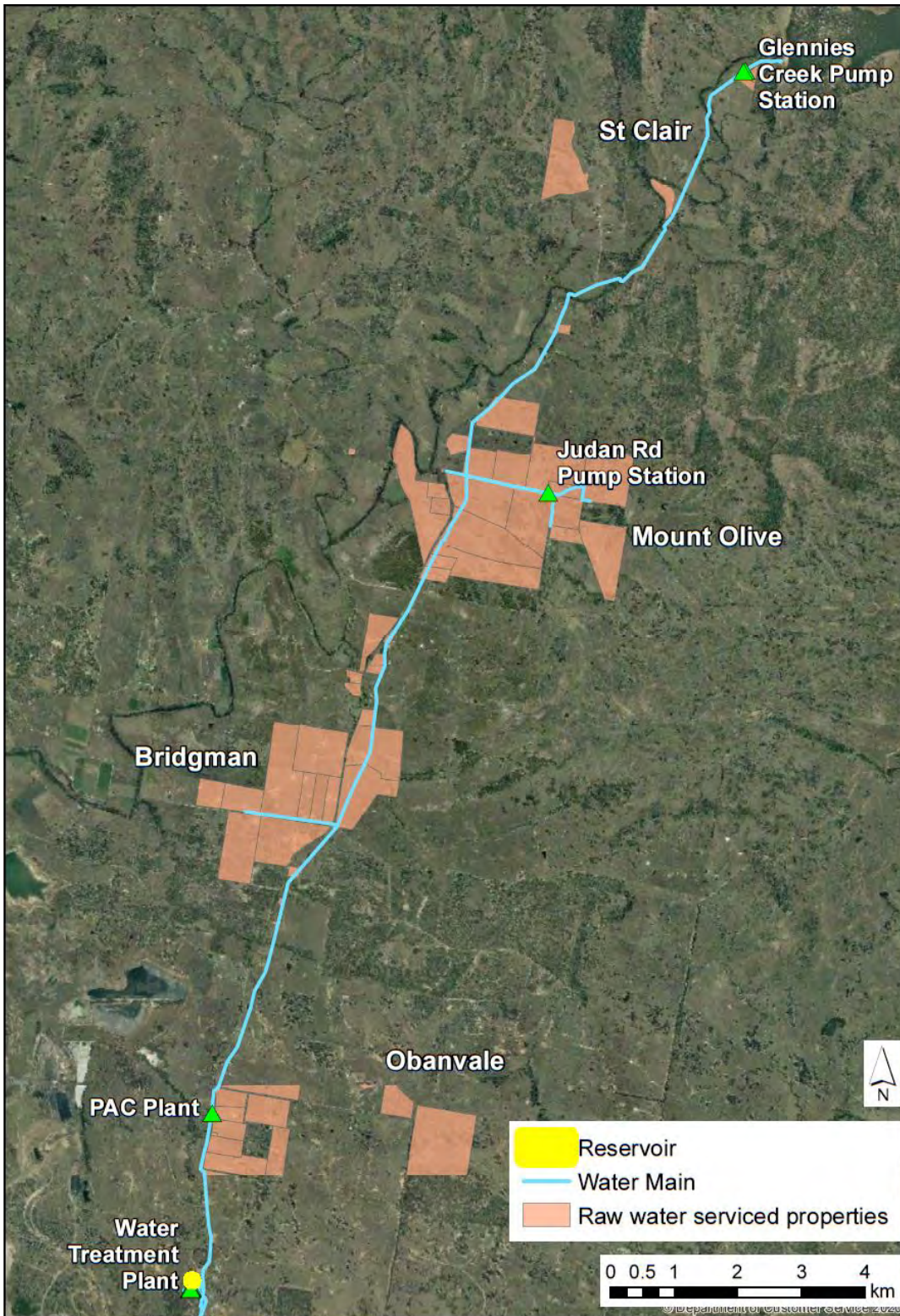
The non-potable and potable water supply schemes are summarised below.

#### 3.1 Glennies Creek non-potable water supply scheme

Council provides an irrigation and stock only supply for property owners between Glennies Creek Dam and Council's Obanvale Water Treatment Plant. This supply is by way of connection to Council's Glennies Creek trunk water main before Obanvale Water Treatment Plant. See Figure 3-1.

Based on data provided by Council, there are 71 serviced assessments along the trunk main from Glennies Creek to the Obanvale WTP.

Customers of the Glennies Creek non-potable water supply scheme are covered by Council's Customer Service Plan with the exception that the water supplied will not meet the drinking water quality service standard, or minimum pressure and continuity requirements.



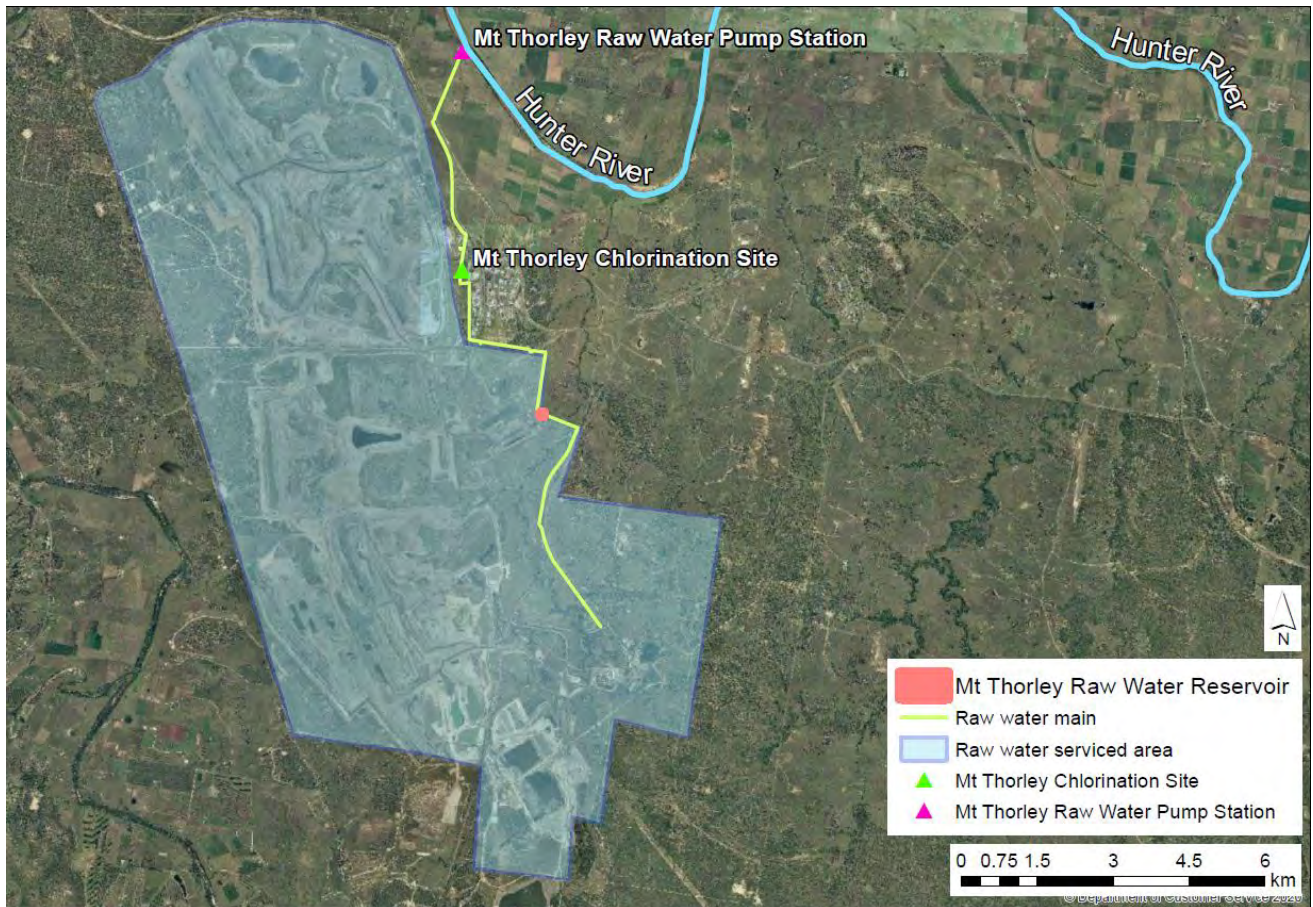
**Figure 3-1: Glennies Creek Trunk Main Scheme distribution system**

### 3.2 Mount Thorley non-potable water supply schemes

Council manages the bulk water supply of untreated water to three mines (Bulga Coal Mine, Mount Thorley Operations and Warkworth Mine) and Gromor Enterprises (mushroom composters). Council has entered into a Joint Venture Agreement (JVA) with Warkworth Mining Ltd, Bulga Coal Management Mt Thorley Operations Pty Ltd, and Gromor Enterprises Pty Ltd for project management



of the Mt Thorley Raw Water Supply Scheme. Water is extracted from the Hunter River under Council's Water Access Licences WAL 10543. The scheme is shown in Figure 3-2.



**Figure 3-2: Mount Thorley non-potable water scheme**

Customers of the Mount Thorley scheme are covered by the Mount Thorley Raw Water Agreement.

### 3.3 Broke Fordwich Private Irrigation District

The Broke Fordwich Private Irrigation District (PID) pipeline is a community funded and constructed irrigation water supply system. It serves members in the Broke Fordwich, Bulga and Milbrodale areas. Council has no role in the operation of this water supply scheme.

The Broke Fordwich PID is legislated under Chapter 4 Part 2 of the Water Management Act 2000. The extent of the PID scheme is shown in Figure 3-3.



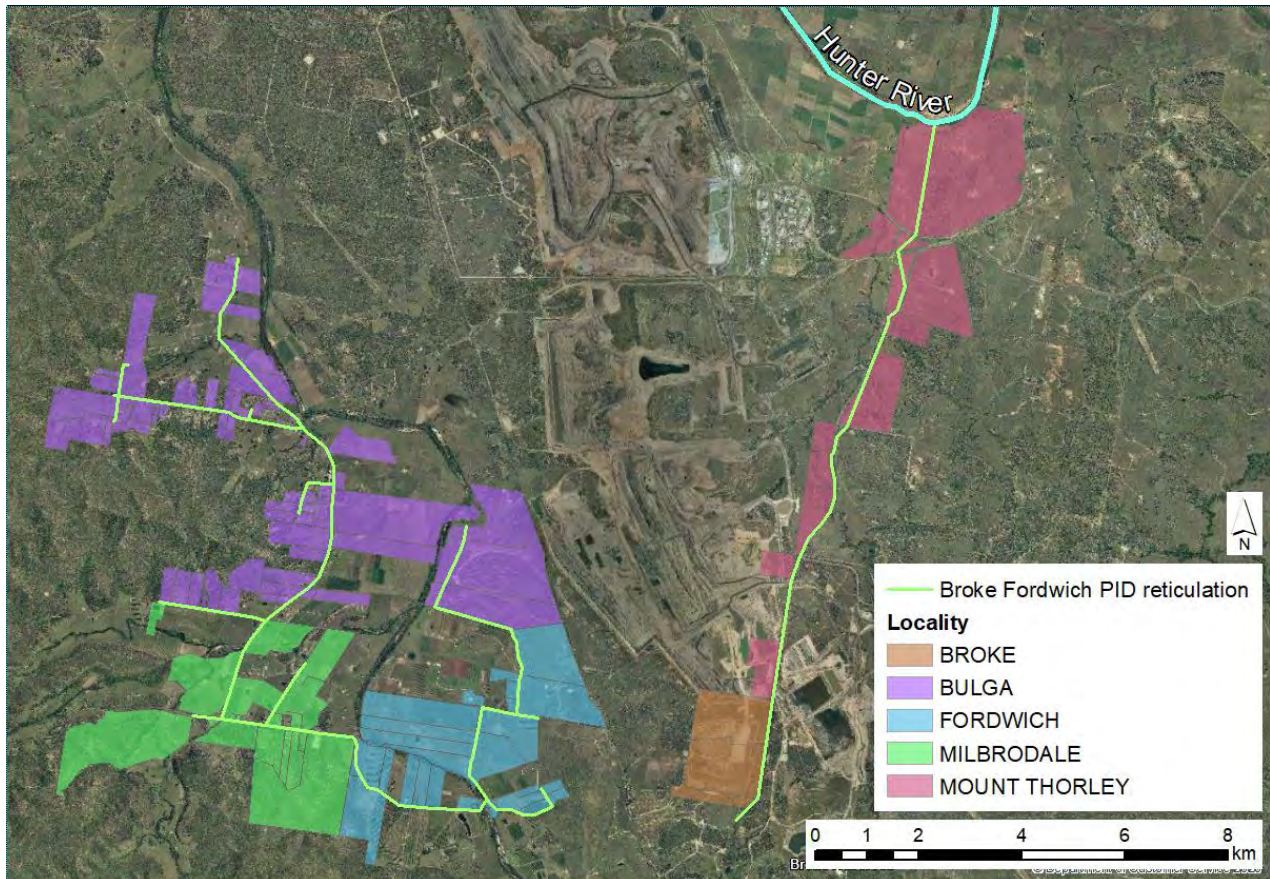
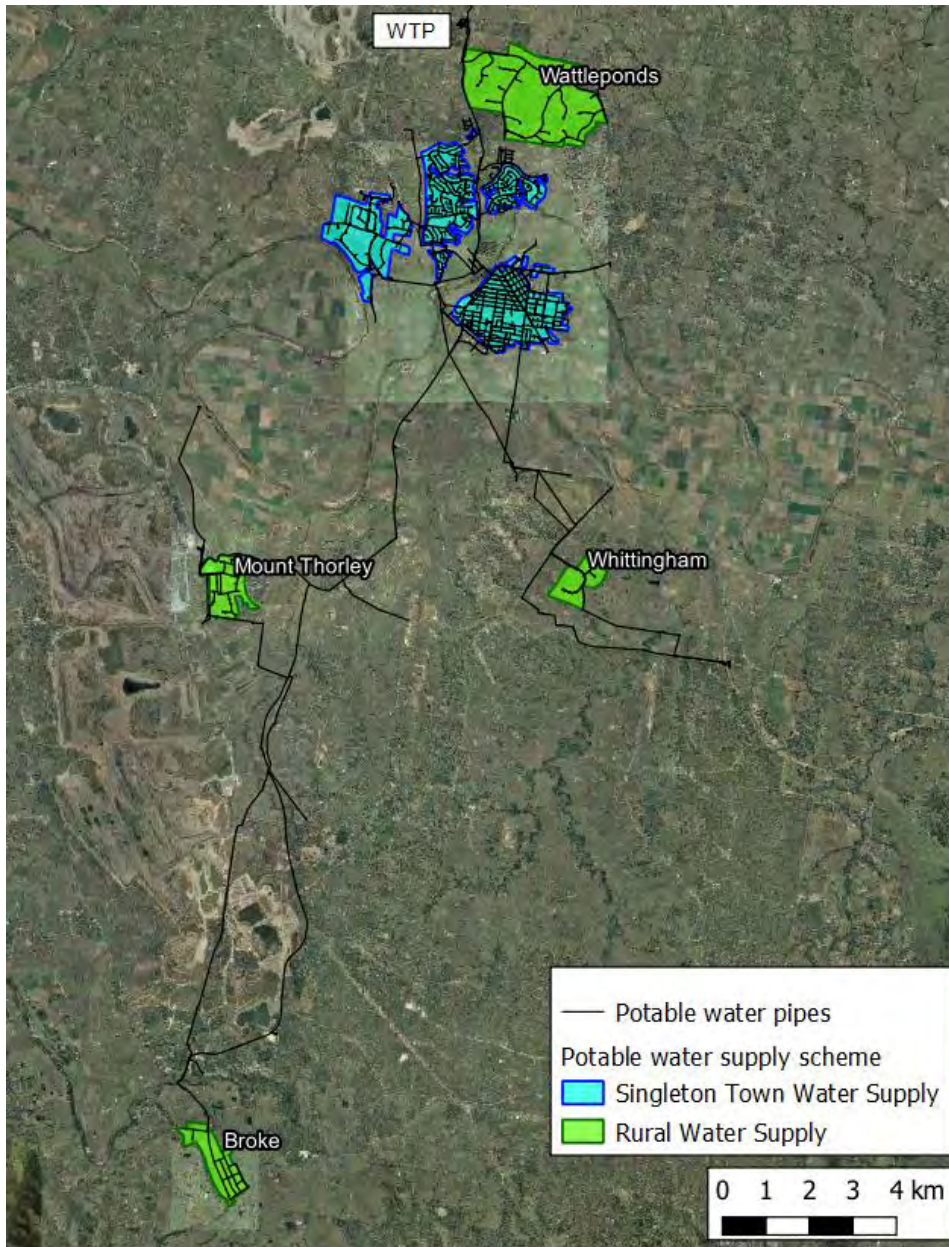


Figure 3-3: Broke Fordwich PID distribution system

### 3.4 Singleton potable water supply scheme

The Singleton Water Supply Scheme supplies the areas of Singleton, Mount Thorley and Broke with potable water. The Scheme is supplied from Glennies Creek Dam (Lake St Clair) and water is treated at the Obanvale Water Treatment Plant (WTP) before being fed by gravity to the town. A map of the Singleton water supply scheme is provided in Figure 3-4.

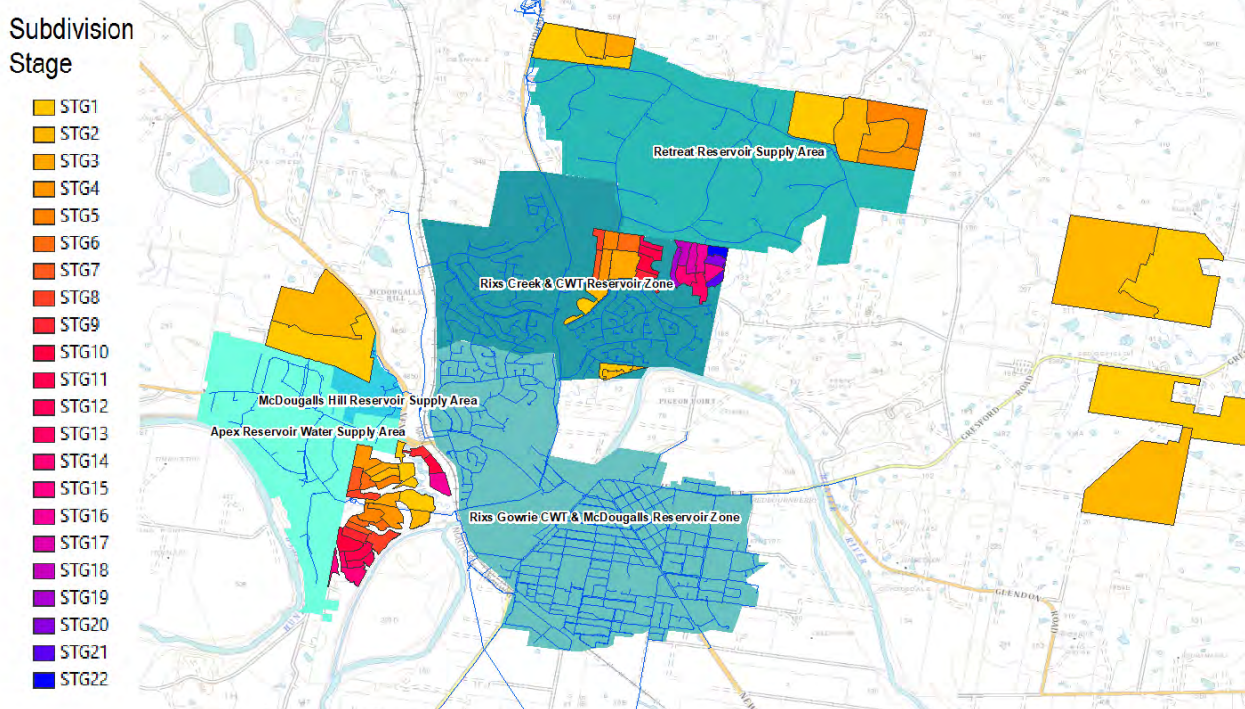




**Figure 3-4: Singleton Water Supply Scheme Map**

### Growth

The spatial distribution of the growth within the reservoir zones of the Singleton water supply scheme is shown in Figure 3-5.



**Figure 3-5: Spatial distribution of future growth within the Singleton WS reservoir zones**

The distribution of new lots by reservoir zone is given in Table 3-1.

**Table 3-1: New occupied dwellings by reservoir zone**

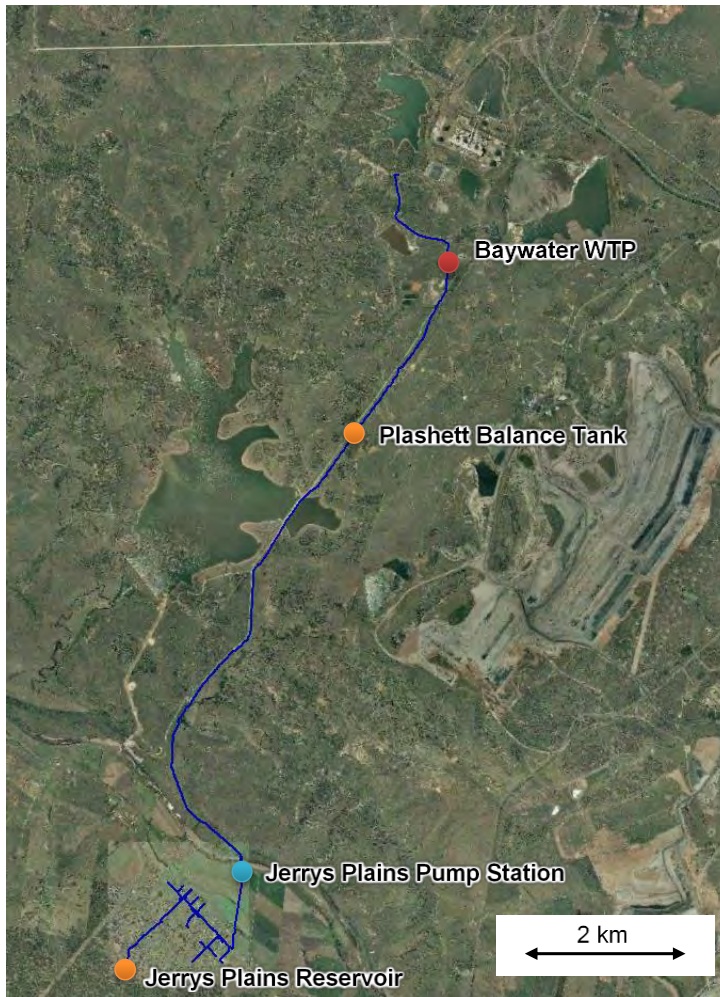
	2016	2021	2026	2031	2036	2041	2046	2047
Rixs Creek and CWT Reservoir Zone	0	97	192	269	325	411	523	551
Apex Reservoir Water Supply Area	0	140	266	392	522	605	646	646
Retreat Reservoir Water Supply Area	0	17	34	49	62	75	86	88
Rural, No Water Supply	0	5	9	14	17	21	24	25
Total	0	260	501	723	927	1,112	1,278	1,309

*The capacity of the Singleton water supply scheme is sufficient to service the forecast 30-year growth.*

### 3.5 Jerrys Plains potable water supply scheme

The Jerrys Plains scheme is subject to an agreement between Council and AGL Macquarie. AGL Macquarie draws raw water from the Hunter River and stores it in Plashett Dam prior to treatment. AGL Macquarie supplies treated water to the delivery point, where Council takes ownership and is responsible for distribution of water to its customers in Jerry Plains. A map of the water supply scheme is shown in Figure 3-6.





**Figure 3-6: Jerrys Plains Water Supply Scheme Map**

The key obligations of AGL Macquarie and Council under the agreement, are provided below:

AGL Macquarie's Obligations – Supply of Water

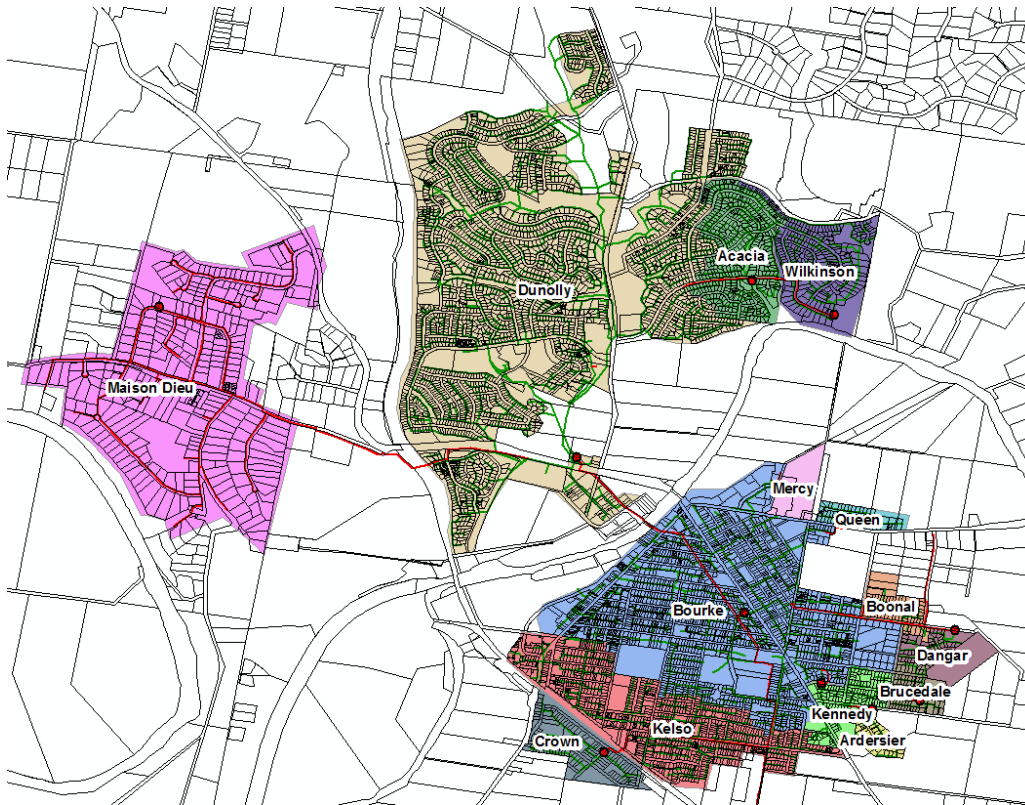
- AGL Macquarie will use its best endeavours to supply water in accordance with the agreement at no more than the Flow Rate of 4.5 L/s to the Delivery Point during the Term.
- AGL Macquarie is not required to supply water to the Delivery Point at any specific pressure, rate or speed or time but will use its best endeavours to make water available at the Flow Rate at the same times as water is available for the use in the Bayswater Power Station.
- Unless otherwise agreed by the parties, AGL Macquarie is required to use its best endeavours to supply no more than 32 ML of Water to the Delivery Point in any 12-month period.

Council's obligations – Treated water allocation

- Council must, during the term, hold a high security treated water supply allocation of Hunter River water of at least 32 ML/annum.
- For the purposes of obtaining and maintaining all necessary Approvals, Council must ensure the extraction point for Water is nominated as AGL Macquarie's water pumping station on the Hunter River near Jerry's Plains.
- On termination or expiry of the Agreement, Council must immediately do all things reasonably necessary to change the location for extraction of Water to a location other than AGL Macquarie's water pumping station.

### 3.6 Singleton Sewerage Scheme

The town of Singleton has the only conventional sewerage system in the Singleton LGA. The sewage collection and transfer system comprises three major sewage pumping stations and eleven minor pumping stations. The collection system comprises 136 km of mains (117 km of gravity and 19 km pressure mains). The major Sewage Pumping Stations (SPSs) are Dunolly, Bourke Street, Army Camp and Kelso Street SPS. A map of the SPS catchments is provided in Figure 3-7.



**Figure 3-7: Singleton Sewerage Scheme**

#### Sewage treatment plant

The sewage treatment plant is based on the intermittent decant extended aeration (IDEA) process and comprises of an inlet works, two extended aeration tanks, three sludge lagoons, two catch ponds, and an effluent pond.

Treated effluent is discharged to the Doughboy Hollow creek. Sludge from the sewage treatment plant is stabilised in lagoons, dried and disposed to landfill.

#### License requirements and non-compliances

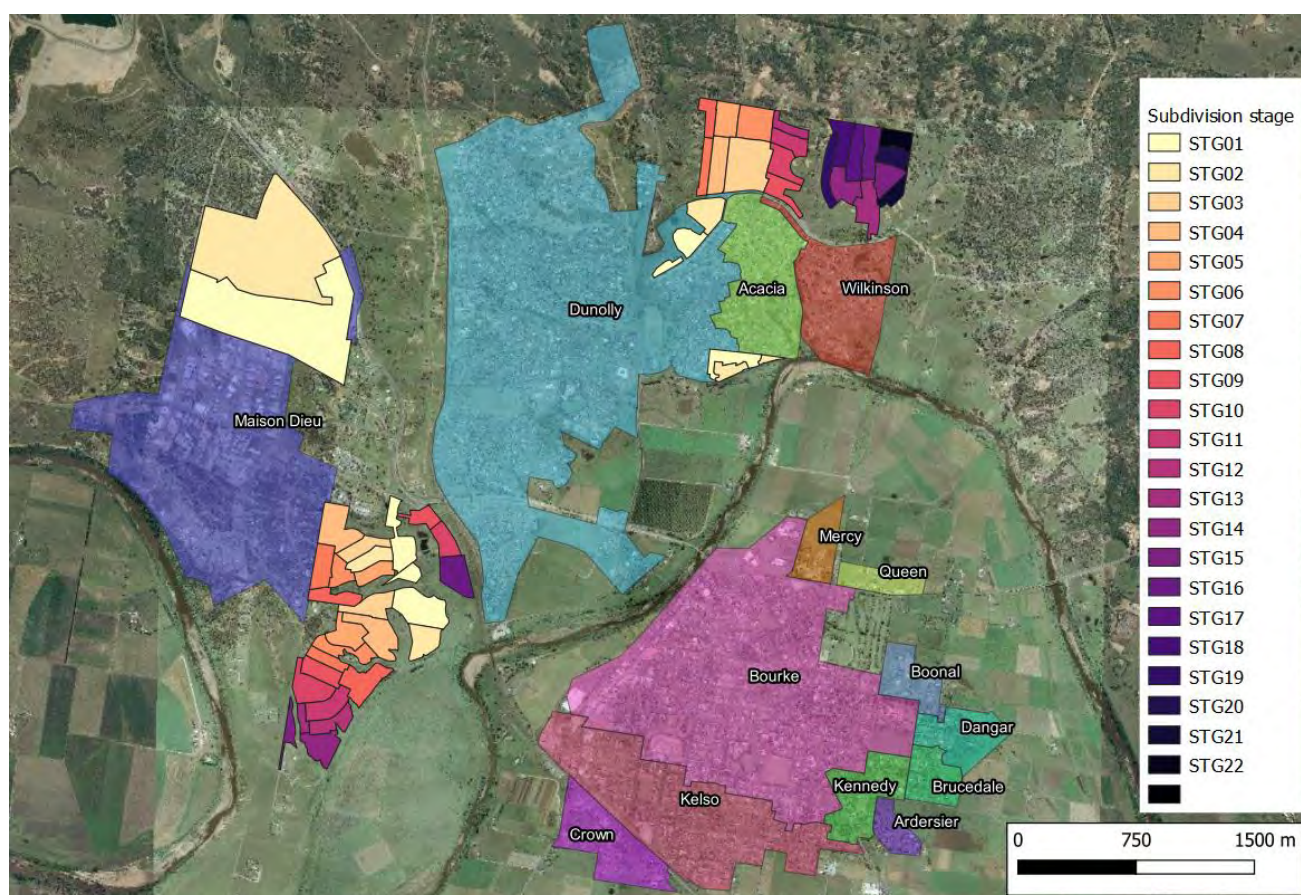
The Environmental Protection Licence (EPL) for this site specifies monitoring at the following EPA identification points:

- Total volume monitoring - The volume measuring flume at the inlet works.
- Discharge to waters Effluent quality monitoring - Outlet pit downstream of the maturation pond discharging to Doughboy Hollow.

#### Growth

The spatial distribution of the growth within the sewage pumping station catchments of the Singleton water supply scheme is shown in Figure 3-8.





**Figure 3-8: Spatial distribution of future growth within the sewage pumping station catchments**

The development zones outside of the area shown in Figure 3-8 are unlikely to be included in the sewer service area.

The forecast new dwellings by SPS catchment are given in Table 3-2.

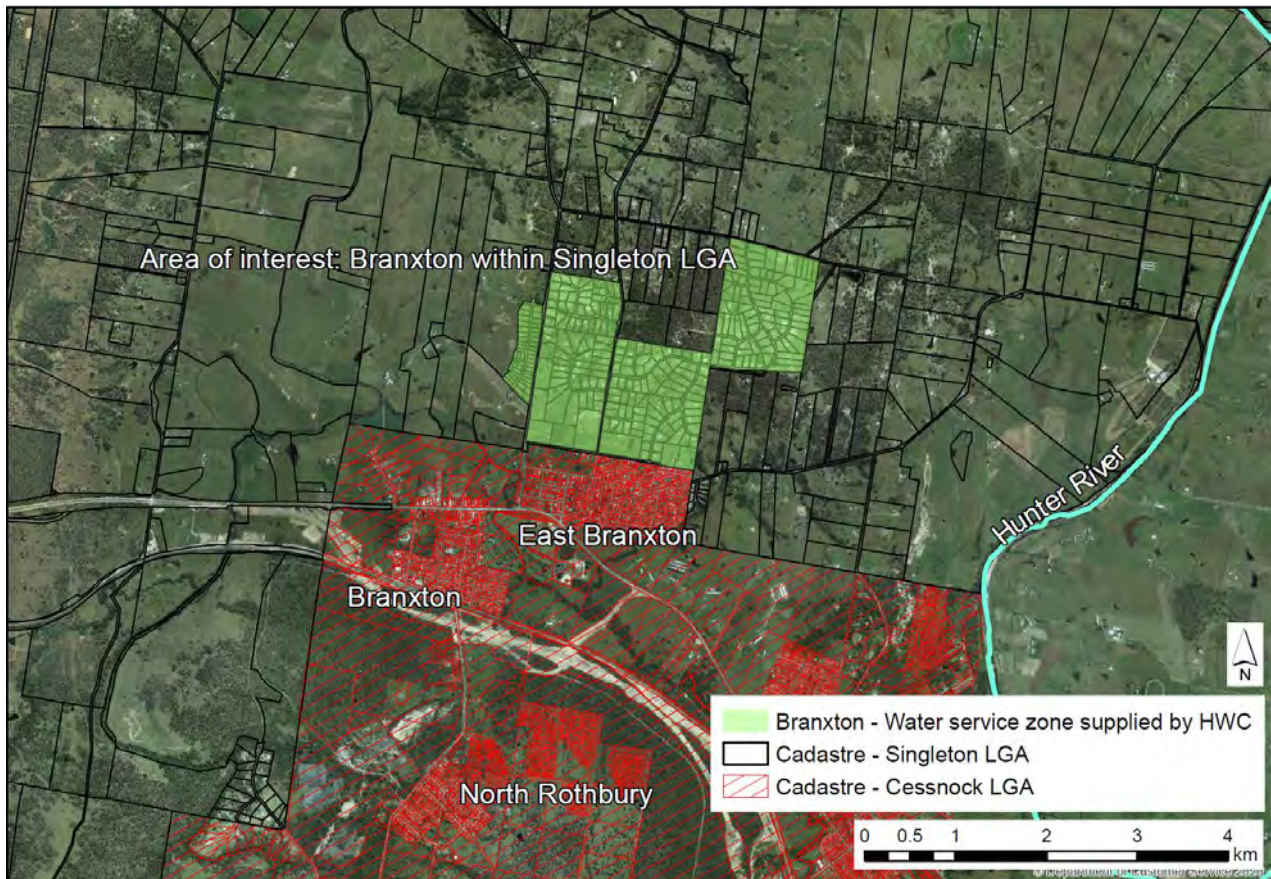
**Table 3-2: New occupied dwellings by SPS catchment**

	2016	2021	2026	2031	2036	2041	2046	2047
Bourke SPS	0	0	0	0	0	0	0	0
Dunnolly SPS	0	237	458	661	847	1,016	1,168	1,197
Kelso SPS	0	0	0	0	0	0	0	0
Army Base SPS	0	0	0	0	0	0	0	0
Outside the current service area	0	22	43	62	80	96	110	112
Total	0	260	501	723	927	1,112	1,278	1,309

### 3.7 Supply by Hunter Water Corporation

By agreement with Council, Hunter Water Corporation (HWC) provides water supply and sewerage services to a small part of Branxton within the Singleton LGA. North Rothbury, Branxton and East Branxton are outside of Singleton LGA (see Figure 3-9). This supply is legislated by Chapter 7 of the Local Government Act 1993.





**Figure 3-9: Braxton within Singleton LGA - HWC water supply area**

### 3.8 Urban Stormwater

Singleton has a fully functional stormwater drainage system. Stormwater discharge is typically to the Hunter River. Council also has a Stormwater Management Plan (2017) which deals primarily with stormwater quality management and environmental aspects.

Catchment boundaries of the stormwater system are shown in Figure 3-10.

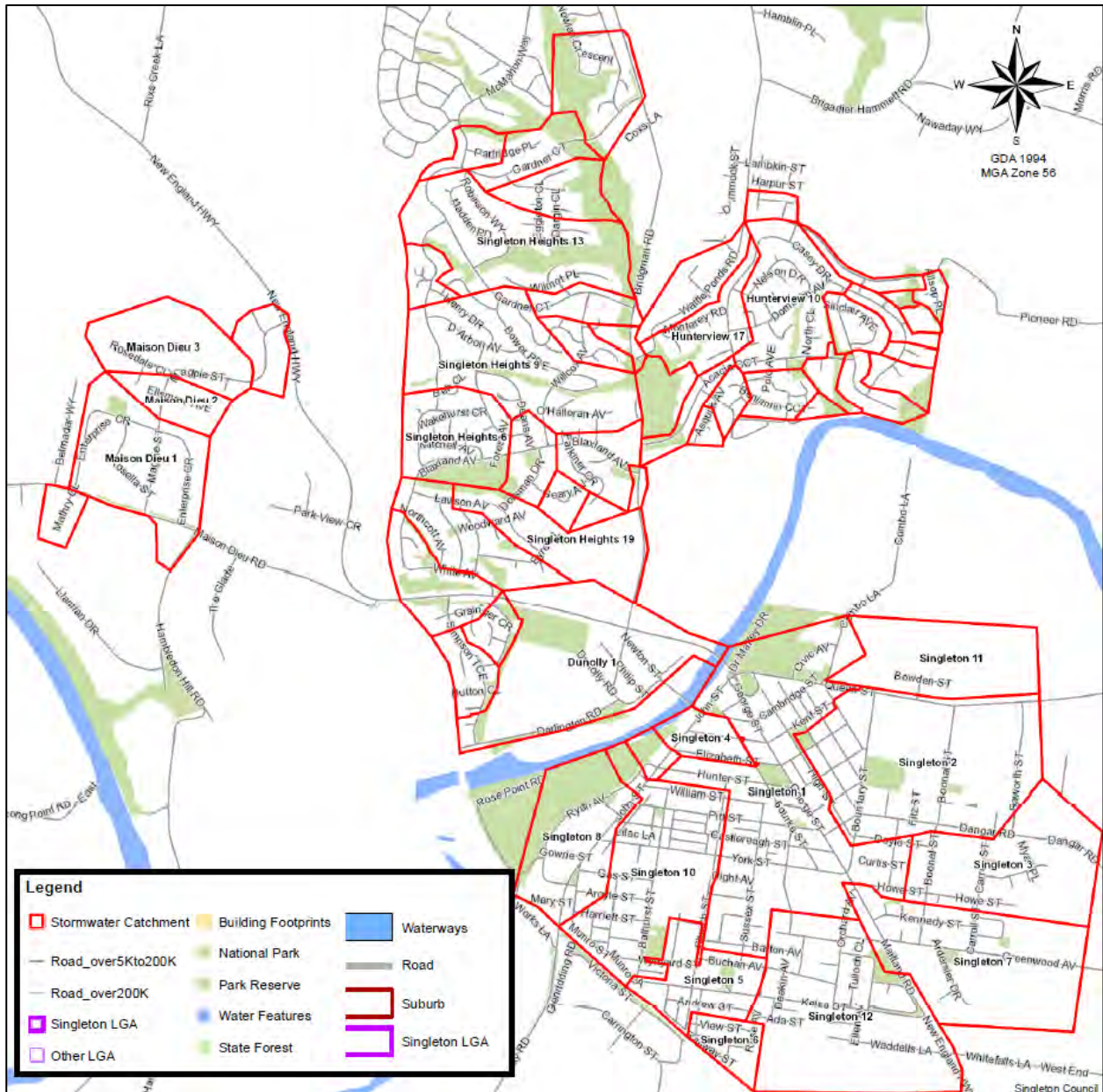


Figure 3-10: Stormwater Catchments Boundaries

## 4. Business Objectives and Targets

The list of water supply objectives has been outlined in the Water and Sewer Customer Service Plan provided in Appendix A. Each objective has one or more measurable performance indicators which relate to a Service Standard (or Design Basis) drawn from legislation, best practice guidelines, and industry practice. Council has nominated a target for each performance indicator against which the performance of Council's water supply and sewerage schemes will be assessed.



## 5. Performance review and risks

A review of Council's water and sewer systems performance was undertaken by analysing historical information. The IWCM Issues Paper presents the analysis that have been undertaken and the IWCM Issues that have been identified through the analysis. These are summarised below.

### 5.1 Water security review and risks

Water security and availability have been identified as potential constraints to the development of emerging industry in the Upper Hunter. A central issue for the Greater Hunter region is its inability to achieve a diverse mix of industries due to the available water resources being fully allocated, with large entitlements, especially water of higher reliability, restricted from being traded between different users. Drought security was confirmed as the primary economic risk facing the Upper Hunter. This risk extends to all sectors, including urban, agriculture, mining, and power generation (Greater Hunter Regional Water Strategy).

#### 5.1.1 Water licences

A summary of Singleton Council's water access licences which have a town water supply category, is provided in Table 5-1.

**Table 5-1: Summary of Singleton Council's Water Access Licenses**

Water Access License	Water Sharing Plan	Water Source	Management Zone	Entitlement (ML/year)
6433	Hunter regulated river water source	Hunter regulated river water source	Zone 2b (Hunter River from Wollombi Brook Junction to Oakhampton Rail Bridge)	5,000
6434	Hunter regulated river water source	Hunter regulated river water source	one 1b (Hunter River from Goulburn River Junction to Glennies Creek Junction)	32
18123	Hunter Unregulated and Alluvial Water Sources 2009	Hunter Regulated River Alluvial Water Source	D/S Glennies Creek Management Zone	4,090
18204	Hunter Unregulated and Alluvial Water Sources 2009	Hunter Regulated River Alluvial Water Source	U/S Glennies Creek Management Zone	12

#### 5.1.2 Singleton water supply security risk

As the Hunter River is a regulated river system, DPIE Water has undertaken a drought reliability assessment of the system. To investigate the security of urban water needs, the study defined a drought as a period when allocations of less than 100 per cent are made to local water utilities and high security licence categories. Of the total 17 droughts identified over the 122 years of record, the worst modelled drought was from 1937 to 1949 lasting 140 months. During this drought the modelled allocation was reduced by 25 percent of the licensed amount.

In the event that the allocation is reduced by 25 percent, the Singleton water supply scheme would not be able to supply the increased unrestricted demand due to growth past 2032.

### 5.1.3 Jerrys Plains water supply security

AGL Macquarie owns and operates a water treatment plant (WTP) which supplies water to Jerrys Plains. AGL does not plan to operate Liddell and Bayswater Power Stations past 2022 (for Liddell) and 2035 (for Bayswater). Once these plants cease to operate the operation of the water treatment plant will also cease.

## 5.2 Water quality review and risks

The water quality objective relates to supplying water that protects public health and is aesthetically fit for purpose. The following water supply risks have been identified.

### Potential Health Based Targets

Based on a sanitary survey undertaken for the catchment, the Singleton water supply may not be able to meet the water quality targets for a Category 4 catchment classification.

## 5.3 Environmental risks

Sewage needs to be 'safely managed' to prevent public health impacts and impacts to receiving waterway uses and values. The following environmental risks have been identified:

### **Singleton sewerage scheme**

#### Transfer and collection system

For the selected containment standard of a 1 in 5-year 12-hour ARI rainfall event, and the nominated growth there could be some surcharges in the system and a potential future overflow at the Dunolly sewage pumping station.

#### Sewage treatment plant

- There are uncertainties around the performance and capacity of the aeration system which may be insufficient for the forecast biological load.
- There is a risk to the aquatic ecology in Doughboy Hollow creek due to a deteriorated effluent quality caused by the formation of algae in the maturation pond.
- The sludge stabilisation process is inadequate due to the insufficient capacity and design of the sludge lagoons
- There is a risk of contamination through the temporary sludge drying beds, as they do not have the required performance

### **On-Site Sewage Management Systems**

There is a risk to public health and/or receiving waters due to the failure of on-site sewage management systems (OSSMS). The assessment and risk scores for the communities are provided in Table 5-2. The villages are ranked based on potential to cause public health or environmental issues, from low risk (score of 1) to very high risk (score of 4).

**Table 5-2: Performance risks for On-site Sewage Management Systems**

Village	Number of properties	% of high-risk OSSMS*	Properties with bores	% of properties < 4,000 m <sup>2</sup>	Reticulated water?	Soil type	Risk Score
Broke	132	87%	Around 13	70%	Yes	Sandy loam	4
Bulga	43	65%	0	26%	No	Sandy loam	3
Jerrys Plains	77	83%	2	86%	Yes	Sandy clay loam	4

Integrated Water Cycle Management Strategy

Village	Number of properties	% of high-risk OSSMS*	Properties with bores	% of properties < 4,000 m <sup>2</sup>	Reticulated water?	Soil type	Risk Score
Mount Thorley	56	90%	0	0	Yes	Sandy clay loam	1
Wattle Ponds	278	90%	1	0	Yes	Sandy loam	2
Whittingham	39	36%	0	0	Yes	Sandy loam	1

\* According to Council's OSSMS register

## 6. Options evaluation and assessment

Council engaged multiple consultants to evaluate and assess different options for the water supply and sewerage system issues identified. A consolidated Options Assessment Report was prepared with the outcomes of all the studies. These are summarised below.

### 6.1 Singleton water supply security

*In the event of a repeat of the worst modelled drought, the reduced allocation on Council's license would not meet the unrestricted dry year demands after 2032.*

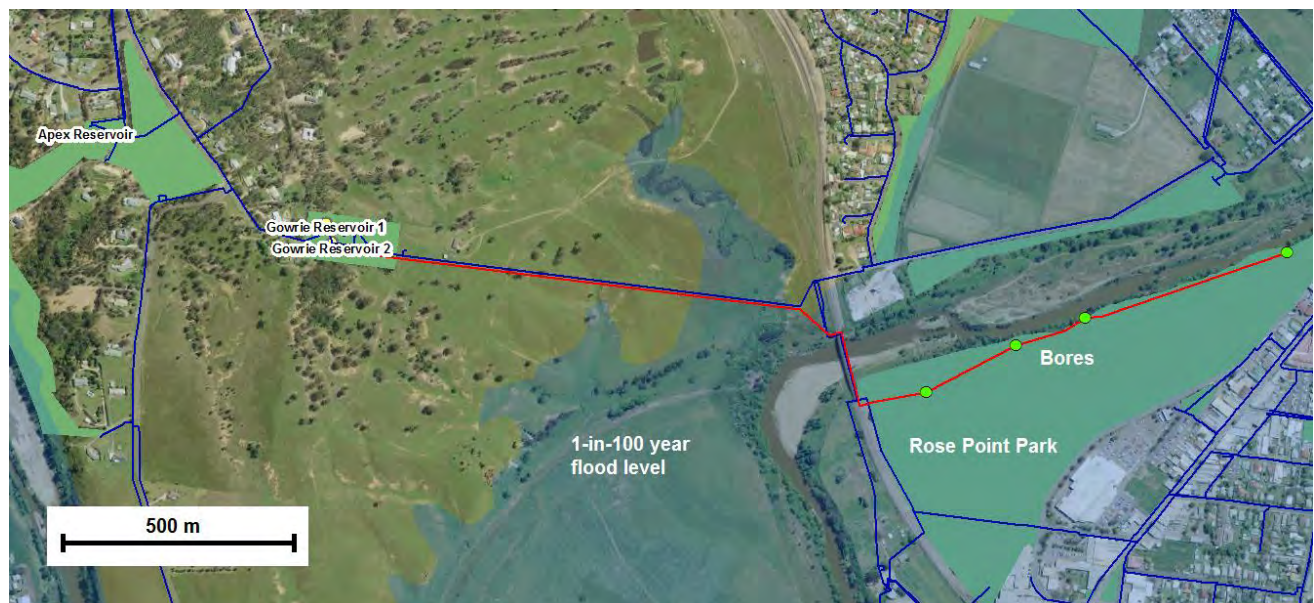
#### 6.1.1 Option 1 – Supplement with groundwater from Rose Point Park bores

Council has a groundwater access license that is summarised in Table 6-1.

**Table 6-1: Singleton groundwater access license**

Water Access License	Water Sharing Plan	Water Source	Management Zone	Entitlement (ML/year)
18123	Hunter unregulated and alluvial water source (emergency)	Hunter regulated alluvial water source	D/S of Glennies Creek Management Zone	4,090

The Rose Point Park bore that is attached to this groundwater access license can be developed to supplement the water supply during drought. If this option is pursued further investigations into the reliability and quality of the bore water will be required. The water could be blended with the water from the Singleton water supply scheme by connecting this water supply to Gowrie reservoir. The proposed Rose Point Park bore water supply scheme is shown in Figure 6-1



**Figure 6-1: Proposed Rose Point Park bore water supply scheme**

#### 6.1.2 Regional water strategy

The Greater Hunter Regional Water Strategy (GHRWS) is designed to manage the region's water needs over the next 30 years. The strategy outlines policy, planning and infrastructure options to improve water security within the Greater Hunter. The options in the GHRWS involve a combination of new infrastructure and improved utilisation of existing assets. The Multi-Criteria Assessment (MCA) identified the infrastructure options for further investigation as:



- Construction of a two-way pipeline between Lostock Dam and Glennies Creek Dam.
- Construction of a potable pipeline from Hunter Water Corporation (HWC) to Singleton.

### Option 2A – Connection of Lostock Dam to Glennies Creek dam

This project is currently being managed by WaterNSW. If the transfer system between Lostock dam and Glennies creek dam is constructed the water security would be improved and there will need to be a review of the drought reliability assessment for the Hunter River.

As this is a State Government project there will be no capital contribution by Singleton Council. However, a new Service Level Agreement will have to be negotiated with WaterNSW which may have an impact on the tariff structure. The cost impact to Council cannot be estimated at this stage without making significant assumptions.

At the time of this report, Gateway 0 and Gateway 1 reviews of the business case for this option have been completed. This project is progressing to a Gateway 2 review for the Final Business Case.

This is currently the preferred option by the State Government and has been included in the Lower Hunter Water Security Plan. Details of the proposal have not been made available to Council at the time of writing.

### Option 2B – Connection to Hunter Water supply

In this option the Singleton Water Supply Scheme is connected to Hunter Water's Water Supply Scheme at Branxton. Hunter Water is currently undertaking preliminary investigations into this option.

It is understood that "Scenario 4" from the Strategy Report was the preferred option. This scenario requires HWC to provide a nominated volume of water every day throughout a year including capability to supply during peak demand periods.

The main benefit from this option would be to reduce the constant draw on Glennies Creek dam. Once again, the construction of this transfer system would improve the water security and the drought reliability assessment of the Hunter River will need to be reviewed.

## 6.2 Jerrys Plains water supply security

*AGL Macquarie owns and operates a WTP which supplies water to Jerrys Plains. AGL does not plan to operate Liddell and Bayswater Power Stations past 2022 (for Liddell) and 2035 (for Bayswater).*

### 6.2.1 Use river water source

Council is licensed to extract 32 ML/year of water from the Hunter Regulated River Water Source at Jerrys Plains under Water Access License 6434. This can be used as a new water source for supply to Jerrys Plains.

### 6.2.2 Use groundwater source

Council is licensed to extract 12 ML/year of groundwater from the Hunter Regulated River Alluvial Water Source at Jerrys Plains under Water Access License 18204. This can be used as a new water source for supply to Jerrys Plains.

### 6.2.3 Connect to Singleton water supply scheme

In this option Jerrys Plains would be supplied from the Singleton water supply scheme by a 30 km pipeline from Apex reservoir connected to a balance tank at Jerrys Plains.

## 6.3 Assessment of Health Based Targets

The Glennies Creek catchment area has multiple sources of contamination including from humans (onsite septic system and recreation activities) and from livestock. The catchment is considered to be a category 3 surface water with poor levels of protection. The following recommendations are made:

- Raw water sampling (prior to pre chlorination) for E. coli on a weekly basis for a minimum of two years, including capturing event-based samples.
- Confirm source water category classification on receipt of microbial data
- Confirm that this HBT assessment meets the requirements of the ADWG finalised approach to microbial quality of drinking water once adopted.
- Review filtration critical limits to align with HBT requirements

## 6.4 Unserved areas water supply

### 6.4.1 Glennies Creek water supply

The supply to the Glennies Creek service area is classified as non-potable (stock and irrigation only) with a level of service that does not conform to the Levels of Service required under the Customer Service Agreement. This will require Council to have a Non-standard agreement with these customers.

An option was evaluated to connect the Glennies Creek service area to the Singleton potable water supply scheme. This would require the construction of a 19 km pipeline following the same alignment as the raw water main, to supply into a reservoir.

### 6.4.2 Bulga water supply

In February 2017, Council received grant funding of \$1.4M through Restart NSW as a 50% contribution towards costs for provision of a reticulated water supply to the rural village of Bulga (the Project). During development of the Project, it was determined that the original proposal to serve the community by extracting and treating ground water at a localised water treatment plant had high environmental risk and would create an unsustainable financial burden to the community.

Further feasibility investigations (*GHD 2018*) were carried out which identified that the village could be served by an extension of the Singleton water supply mains from Mount Thorley or from Broke. A review of these options determined that supply to Bulga from the Broke reservoir was the preferred option.

## 6.5 Assessment of sewage collection and transfer

Council has selected the 1 in 5-year 12-hour ARI as the containment standard for the sewer network so that during this rainfall event (and other lower rainfall events) there will be no overflows from the network.

The model simulations for this wet weather event with the current and 2047 loading scenarios indicate overflows from the catchments of Kennedy Street - SPS 10 (manhole 172) in 2020 and 2047, and from catchment of Dunolly Street SPS 08 (manhole 1096) in 2047.

Some gravity mains in the Bourke Street and Kennedy Street catchments need to be upgraded. The capacity of the pumps in the Kennedy street SPS need to be augmented in short-term whereas the Dunolly Street SPS capacity needs to be augmented in the long-term to service the expected growth.

## 6.6 Singleton STP capacity and performance assessment

The performance and capacity of the Singleton STP were evaluated.

### Aeration capacity

It was found that the aeration capacity is not enough during peak dry weather condition and a capacity upgrade is required in 8 to 10 years. Based on the assessment, no capacity related upgrades are required for the bioreactor tank, decanting weir, and sludge pump.

### Sludge management

To provide sufficient time for the sludge stabilisation process and for emptying the lagoon, a third sludge lagoon will be required. A new supernatant pump station is required to capture any overflow

from the sludge lagoon. A pontoon type transfer pump is recommended to transfer the stabilised sludge to the drying beds for further drying and stockpiling.

The sludge drying beds currently in-operation have not been lined and there is a risk of percolation. Also, there is lack of underdrains at the drying beds to transfer the filtrate back to the treatment plant. The existing sludge drying beds will be upgraded to improve their dewatering performance.

### Effluent Management

Following discussions with relevant agencies it was suggested that a staged approach would most likely provide the most benefit to Council, with short-term algae mitigation by phosphorus reduction (to 1 mg/L) in the effluent using chemical dosing to be considered as the preferred pathway. Following which the effluent quality results can be reviewed to determine if even further phosphorus reduction is required to achieve the desired outcome.

In addition, continuing the ongoing monitoring of helminths and exploring opportunities for fencing the wetland area would allow for a reassessment of helminth risks. If the risk can be adequately addressed, this may provide an opportunity to review the need for using the maturation ponds and allow for pond bypass (direct feed from the catch ponds to the UV system), which would prevent algae growth.

## **6.7 On-site sewage management system**

For those villages where the performance of the on-site sewage management systems was identified as a potential health or environmental risk, the options of improving the performance of the systems or providing reticulated sewerage, were assessed. The performance standards specified in Clause 47 of the Local Government Regulation were used to determine the improvements required for the on-site sewage management systems.

As a comparison, the options to provide reticulated sewerage systems were also evaluated. These included the evaluation of gravity, pressure and vacuum systems for sewage collection and transfer, and the oxidation pond and activated sludge sewage treatment systems. For the oxidation pond treatment process, agricultural reuse or evaporation were the effluent management options, whereas for activated sludge effluent discharge or reuse for public open space irrigation, was considered.

The preferred option was the gravity sewerage scheme with treatment in oxidation ponds and effluent reuse or evaporation.

The assessment has identified the on-site sewage management systems at Broke, Bulga and Jerrys Plains as having the highest risks. The recommendation is for Council to carry out periodic inspections and gather evidence of any public health or environmental issues with the OSSMS performance at Broke, Jerrys Plains and Bulga which will support a decision to provide a reticulated sewerage scheme in the long-term.



## 7. IWCM Scenarios

This report describes and evaluates the shortlisted opportunities/options that have been combined into three LGA wide IWCM scenarios using the bundling process.

Table 7-1 shows the bundled scenarios segregated for convenience into water supply and sewerage schemes. The issues that are being addressed by each option are also listed.

Table 7-1: LGA Wide IWCM Scenarios – infrastructure needs and staging

Target for Compliance	Issue	Option	Scenario		
			1	2	3
Water supply system issues					
Non-revenue water	The NRW for the Singleton Water Supply Scheme is significantly higher than the state-wide median.	Implement actions from Water Loss Management Plan	✓ (2021 – 2025)	✓ (2021 – 2025)	✓ (2021 – 2025)
Security of supply – Singleton water supply	In the event of a repeat of the worst modelled drought, the reduced allocation on Council's license would not meet the unrestricted dry year demands after 2036.	Use Rose Point Park bore water as a supplementary source	✓ 2035	✓ 2035	✓ 2035
		Support for connection of Lostock Dam to Glennies Creek dam	✓ 2035	✓ 2035	✓ 2035
		Support for connection to Hunter Water Supply	✓ 2035	✓ 2035	✓ 2035
Security of supply – Jerrys Plains	AGL Macquarie owns and operates a WTP which supplies water to Jerrys Plains. AGL does not plan to operate Liddell and Bayswater past 2022 (for Liddell) and 2035 (for Bayswater).	Build a new WTP at Jerrys Plains to treat groundwater			✓ 2030
		Build a new WTP at Jerrys Plains to treat River water	✓ 2030		
		Connect to the Singleton water supply scheme at Apex reservoir		✓ 2030	
Regulatory Compliance	Compliance with DWMS	Actions from DWMS Improvement plan	✓ 2022	✓ 2022	✓ 2022
	Compliance with potential future Health Based Targets (HBTs)	Undertake additional microbial testing. Confirm source water catchment classification. Add UV as additional process treatment unit, if required to meet target LRV.	✓ 2031	✓ 2031	✓ 2031
Unserviced areas					
Provide water supply to unserviced areas	Potential health risk due to the supply of unchlorinated non-potable water to Glennies Creek service area	Connect the Glennies Creek service area to the Singleton water supply scheme.			✓ 2027

Integrated Water Cycle Management Strategy

Target for Compliance	Issue	Option	Scenario		
			1	2	3
	Potential health risk due to the supply of non-potable water to Bulga	Provide water supply to the township of Bulga by connecting to the Broke reservoir (dependant on funding)	✓ <b>2024</b> (100% funded)	✓ <b>2026</b> (50% funded)	✓ <b>2024</b> (50% funded)
Sewerage system issues					
Levels of Service – Sewerage collection and transfer system	Prevent sewer main surcharges and overflows at manholes and pumping stations for a 1 in 5-year 12-hour ARI rainfall event.	Stage 1 upgrades (2021 – 2025)  1. Upgrade the gravity lines in the Bourke Street SPS catchment  2. Upgrade of Kennedy street pump  3. Upgrade the gravity line in the Kennedy SPS catchment	✓  (2021 – 2025)	✓  (2021 – 2025)	✓  (2021 – 2025)
		Stage 2 upgrades (2035 – 2040)  1. Upgrade Dunolly pumps.	✓  (2035 – 2040)	✓  (2035 – 2040)	✓  (2035 – 2040)
STP Issues					
Capacity and performance of the Singleton STP	Augment capacity of the plant to cater for the storm flows during a 1 in 5-year 12-hour ARI rainfall event	Augment capacity of the STP inlet works	✓ <b>2022</b>	✓ <b>2022</b>	✓ <b>2022</b>
	Improve sludge management at the plant and also cater for additional sludge due to chemical dosing for phosphorus removal	<ul style="list-style-type: none"><li>Recommission two sludge lagoons</li><li>Construct new sludge drying beds and new supernatant return pump station</li></ul>	✓ <b>2023</b>	✓ <b>2023</b>	✓ <b>2023</b>
	Manage trade waste within the LGA	Construct new septage receival facility	✓ <b>2045</b>	✓ <b>2045</b>	✓ <b>2045</b>
Protection of the Environment Operations Act	The EPA licence for the Singleton STP requires that Council complete a study that assesses and details the practicable options to improve or	Medium term option – Proceed with a chemical dosing facility which would be used to chemically reduce phosphorus levels to 1 mg/L in the effluent to reduce the extent of algae formation.	✓ <b>2023</b>	✓ <b>2023</b>	✓ <b>2023</b>



**Integrated Water Cycle Management Strategy**

Target for Compliance	Issue	Option	Scenario		
			1	2	3
	remove the discharge of treated effluent to/from Doughboy Hollow Creek.	Monitor the extent of algal formation in the effluent ponds and proceed with chemical dosing to reduce phosphorus levels to 0.1 mg/L if required.	✓ 2050	✓ 2050	✓ 2050
<b>Unserviced areas</b>					
Public Health Risks from On-site Sewage Management Systems	Broke – 87% of the systems are high risk and 70% of the dwellings have small lot sizes.	Pressure sewer system with oxidation ponds, maturation ponds and opportunistic reuse	✓ 2045	✓ 2045	✓ 2045
	Jerrys Plains – 83% of the systems are high risk and 86% of the dwellings have small lot sizes.	Pressure sewer system with oxidation ponds, maturation ponds and opportunistic reuse	✓ 2045	✓ 2045	✓ 2045
	Bulga – Will be connected to reticulated water supply that can lead to system overload. 65% of the systems are high risk and 26% of the dwellings have small lot sizes.	Pressure sewer system with oxidation ponds, maturation ponds and opportunistic reuse	✓ 2050	✓ 2050	✓ 2050
	Wattle Ponds – 90% of the systems are classified as high risk by Council.	Improve OSSMS performance	✓ 2050	✓ 2050	✓ 2050
	Mount Thorley –90% of the systems are classified as high risk by Council. There is potential for trade waste generation.	Pressure sewer system with oxidation ponds, maturation ponds and opportunistic reuse	✓ 2050	✓ 2050	✓ 2050

## 7.1 Present Value Analysis of IWCM Scenarios

The detail net present value cost estimate for the three scenarios is provided in Appendix B.

### 7.1.1 Water supply service

Table 7-2 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 based on 2020-21 dollars.

**Table 7-2: Capital and present value costs – water supply service component**

Scenario	Total Capital Cost \$K (over 30 years)	Present Value of capital cost \$K @7%	Total present value \$K @7%
Scenario 1	16,257	11,473	12,594
Scenario 2	21,872	13,458	14,506
Scenario 3	16,335	11,515	12,671

### 7.1.2 Sewerage service

Table 7-3 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 sewerage service in each IWCM Scenario based on 2020-21 dollars.

**Table 7-3: Capital and present value costs – sewerage service component**

Scenario	Total Capital Cost \$K (over 30 years)	Present Value of capital cost \$K @7%	Total present value \$K @7%
Scenario 1	25,743	10,810	12,757
Scenario 2	25,743	10,810	12,757
Scenario 3	25,743	10,810	12,757

A present value analysis of each scenario 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.

## 7.2 Typical Residential Bill Analysis of 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. The approximate TRBs for the IWCM scenarios have been established by way of developing water and sewer fund financial models using FINMOD 4, the financial modelling software developed by DPIE Water. 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 have been built upon the base line TRB which corresponds to the baseline (business as usual - BAU) scenario for Council's 30-year asset renewal plan, and the estimated capital costs of the IWCM initiatives for each of the scenarios incorporated for the analysis. The 30-year capital works program for water supply and sewerage for the IWCM scenarios and the 'business-as-usual' scenario are compared in Figure 7-1 and Figure 7-2. 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 presented in Figure 7-3 and Figure 7-4.

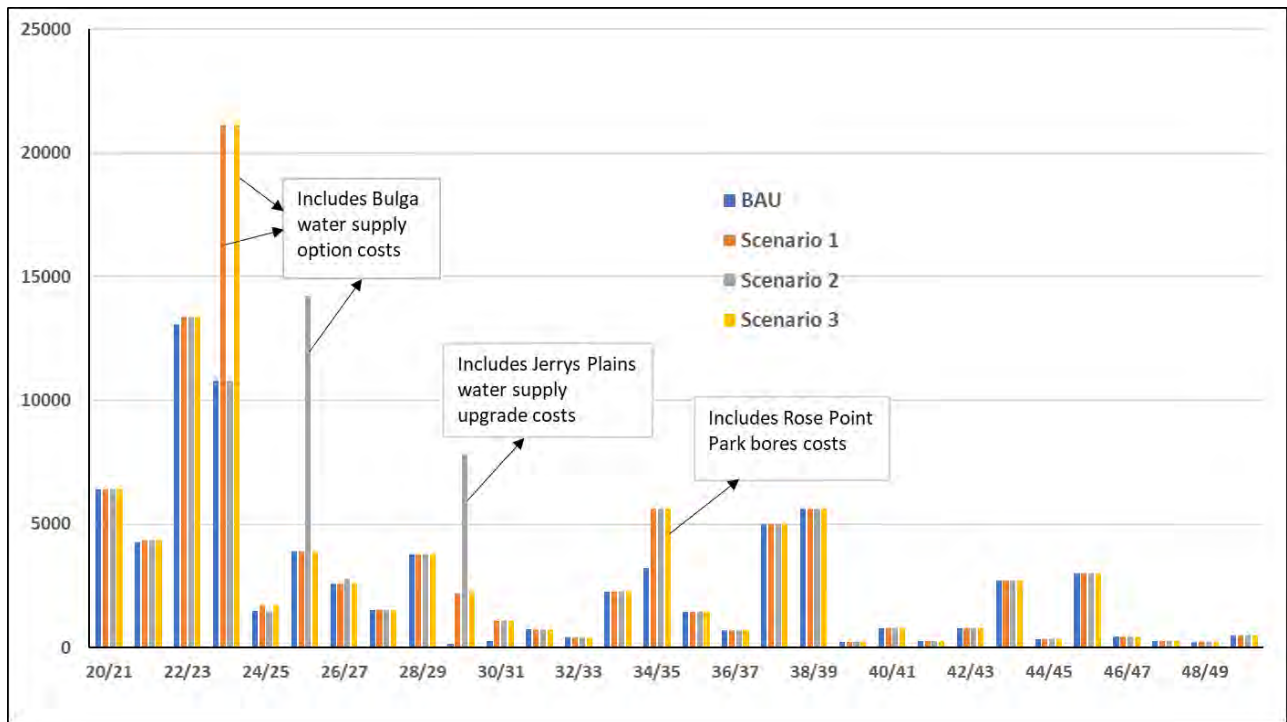


Figure 7-1: Comparison of 30-year Capital Works Programs – Water Supply

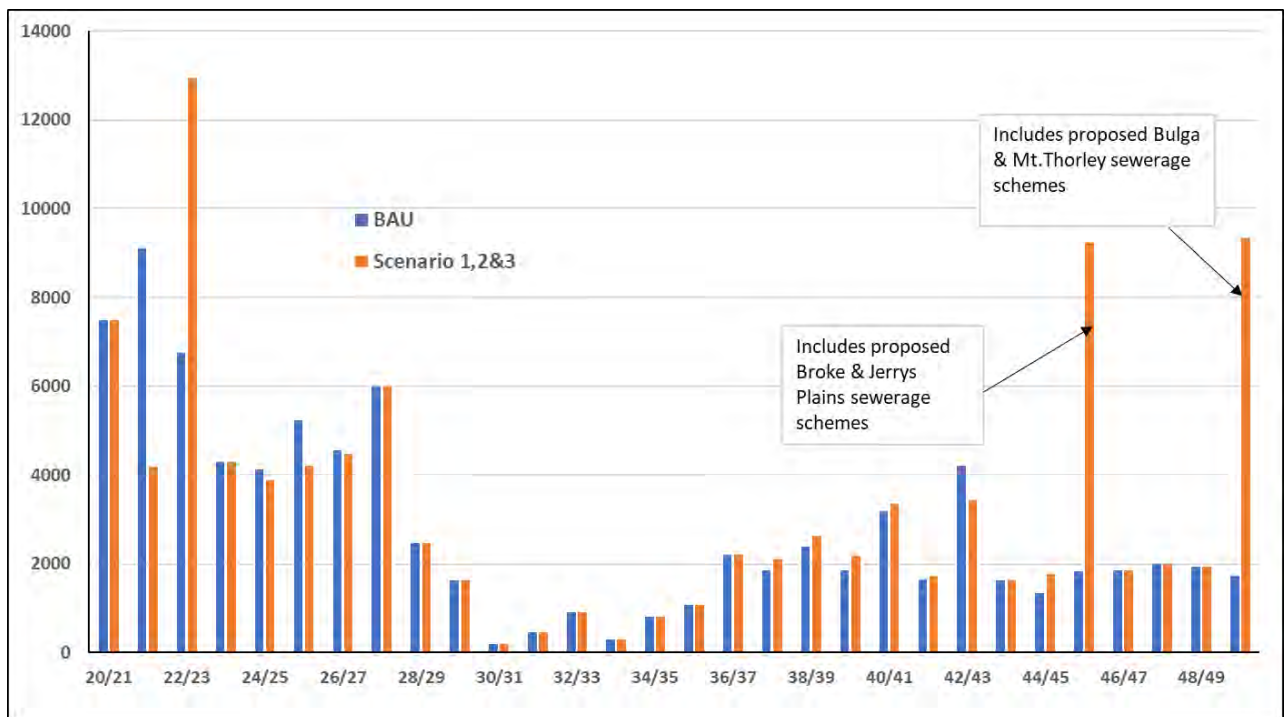
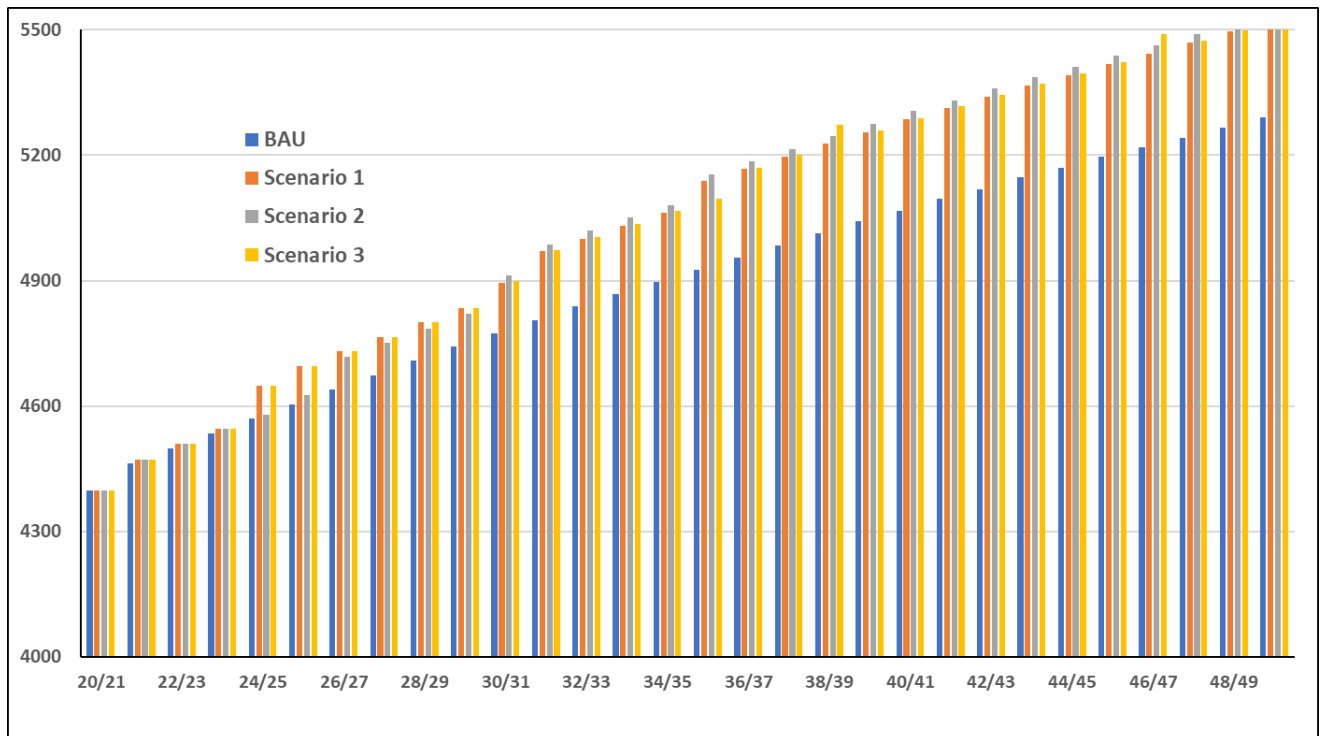
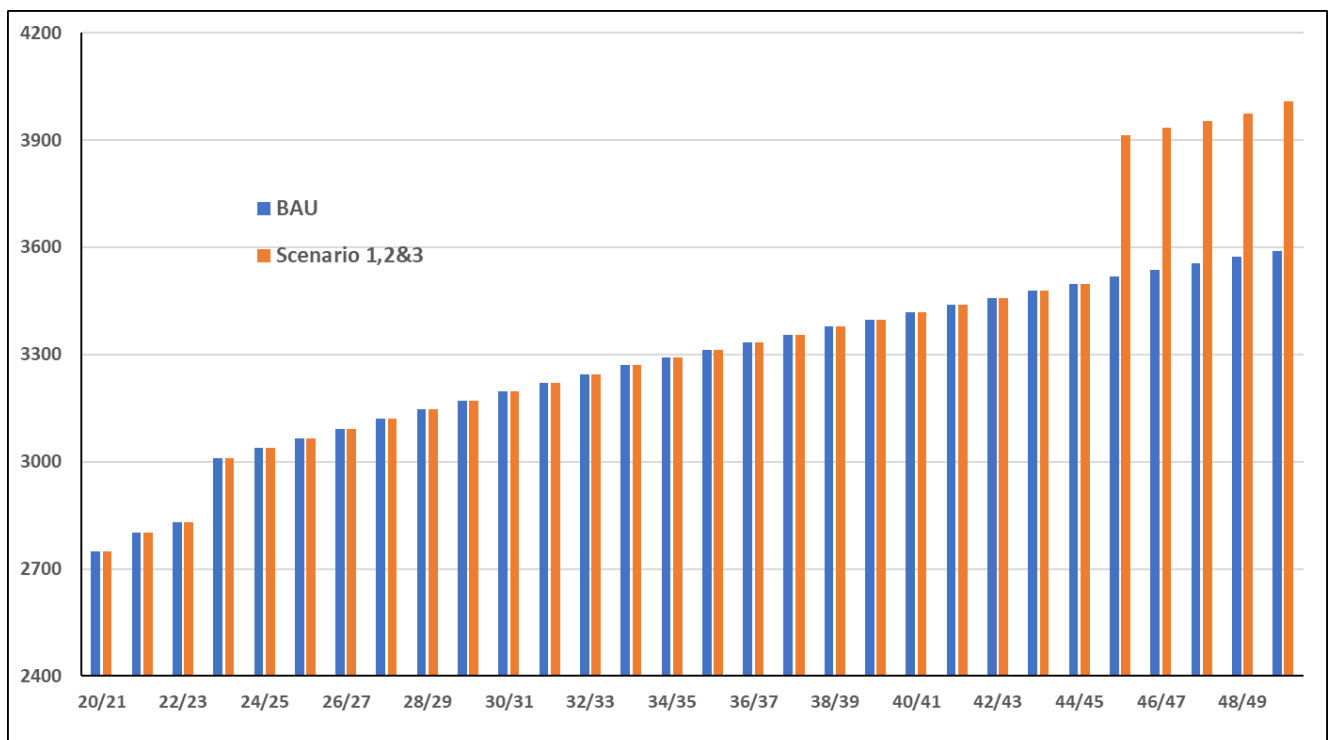


Figure 7-2: Comparison of 30-year Capital Works Programs – Sewerage





**Figure 7-3: Comparison of 30-year OMA Costs – Water Supply**



**Figure 7-4: Comparison of 30-year OMA Costs – Sewerage**

Developer charges for water supply and sewerage services constitute significant revenue stream to the water and sewer funds and are impacted by the future capital work expenditure for service level improvements and service extensions to future service areas. The developer charge, therefore, is an important input parameter in the financial model for TRB forecasts. For the purpose of the IWCM scenario assessment, ‘first-cut’ DCs in consideration of the estimated costs and

timings of major capital work initiatives for the scenarios have been calculated in accordance with the 2016 Developer Charges Guidelines for Water Supply, Sewerage and Stormwater, and used in the TRB forecasts. 'First-cut' DCs are the preliminary developer charge estimates that need to be reviewed and refined for the preferred IWCM strategy in consideration of additional service areas and agglomerations, cross-subsidy requirements etc., before adoption by the Council.

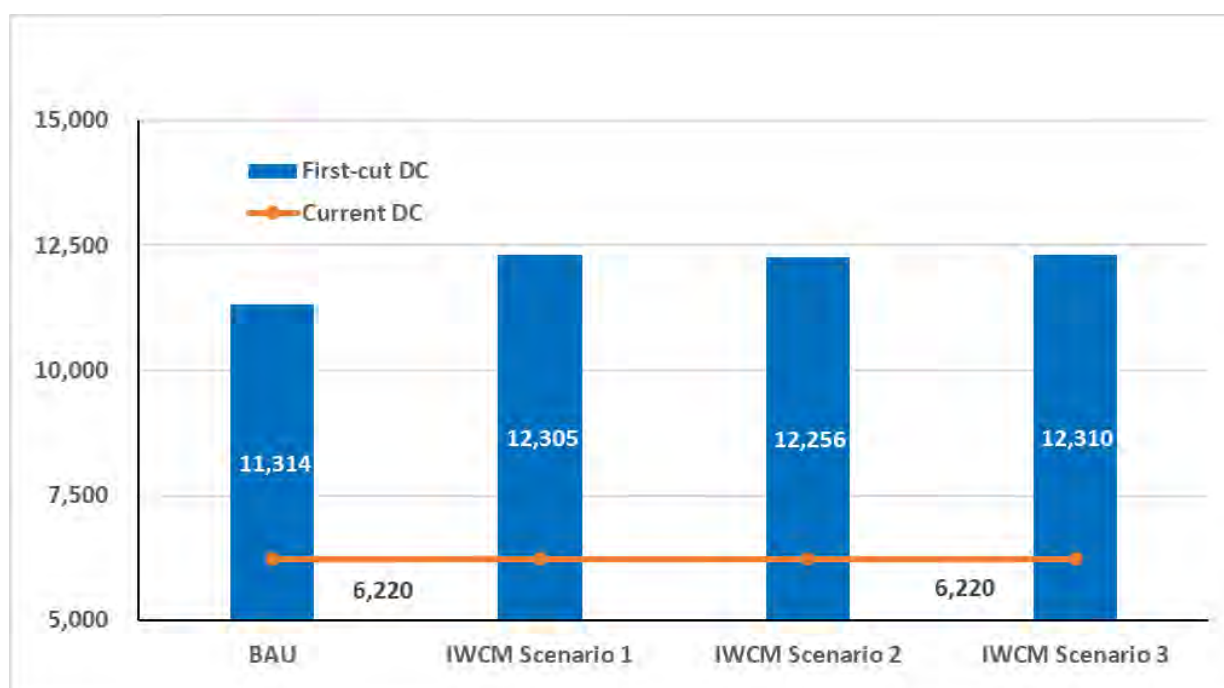
## 7.2.1 Water Supply service

### First-cut developer charges

First-cut water supply developer charges have been calculated considering the areas serviced by the two independent water supply schemes, namely the Singleton and Jerrys Plains schemes, as two separate DSP areas. The calculated DCs for the respective IWCM scenarios that have been used for the forecast of TRBs for the IWCM scenarios are presented and compared in Table 7-4 and in Figure 7-5. Note, all the values are in 2020-21 dollars. Calculation details are shown in Appendix C.

**Table 7-4: First-cut water supply DCs per ET (2020/21\$)**

Scenario	First-cut Developer Charge		Currently adopted Developer Charge for 2020/21
	Singleton	Jerrys Plains	
Business-as-Usual	11,314	1,403	6,220
Scenario 1	12,305	12,305	6,220
Scenario 2	12,256	41,105	6,220
Scenario 3	12,310	12,310	6,220

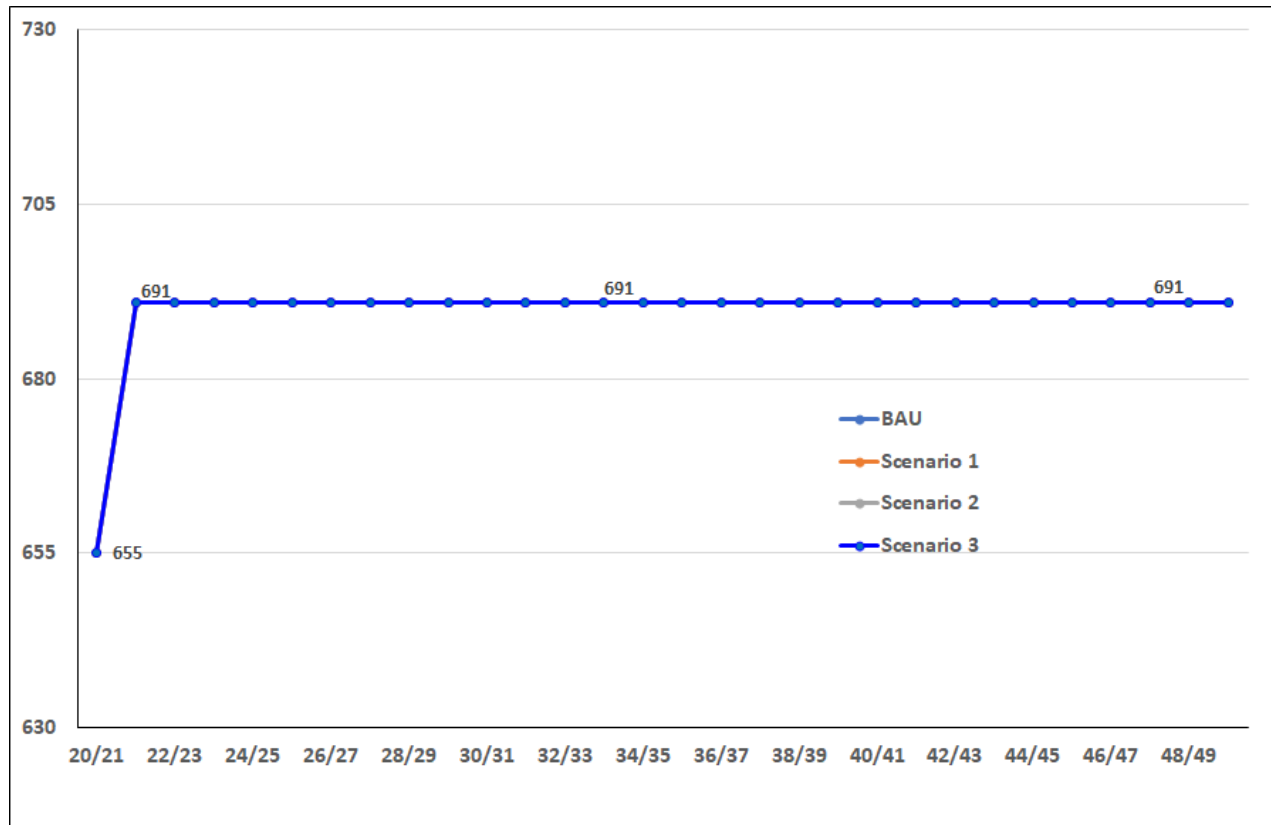


**Figure 7-5: Comparison of First-cut Water Supply DCs for IWCM Scenarios**

### TRBs forecasts - water supply

The water fund financial model has been developed with reference to the historic input details based on Council's 2018-19 and 2019-20 water income and financial position statements submitted as part of the financial data returns to the Office of Local Government.

The water supply TRBs forecast by the model for each of the IWCM scenarios are compared in Figure 7-6. The model forecasts demonstrate that there is no impact on typical residential bills for water supply due to any of IWCM scenarios compared to the 'business-as-usual' baseline scenario. Council can maintain the 2021-22 TRB of \$691 p.a. (in 2020-21\$) residential water supply charges for all the remaining forecast years.



**Figure 7-6: Comparison of TRB Forecasts for IWCM Scenarios – Water Supply**

Also, there is no need for any new loans as all the identified capital works, after due consideration of expected levels of government grant/ subsidy, in all the IWCM scenarios and can be fully funded by Council at the forecast level of TRB while maintaining a minimum of \$10 Million cash and investments in the water fund. The forecast cash reserve associated with each scenario is shown in Figure 7-7.

The minimum reserve considered in the financial model is in line with current water industry practice for financial planning purposes. It is noted that a higher reserve is usually maintained within the water fund in Singleton Council's Long-term Financial Plan. The financial modelling in this report however is meant to provide a means of comparison between scenarios for 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.



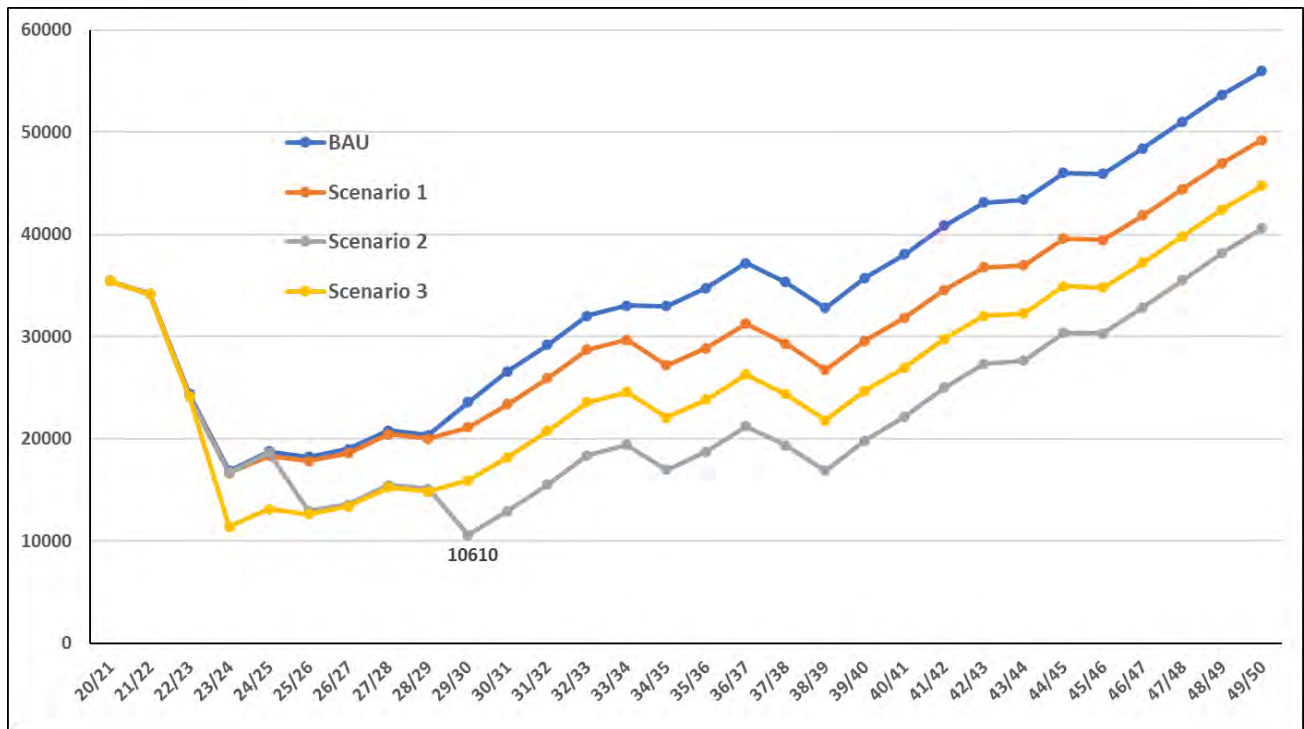


Figure 7-7: Comparison of Cash Reserves for IWCM Scenarios – Water Supply

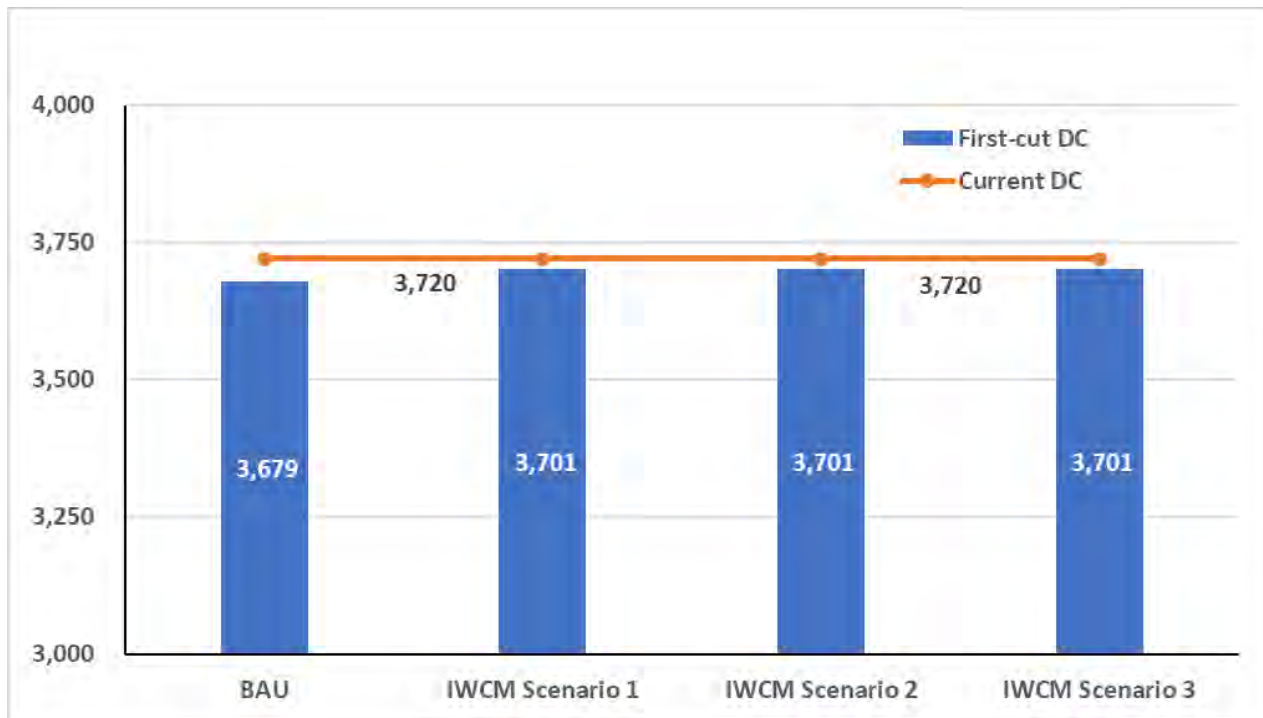
## 7.2.2 Sewerage service

### First-cut developer charges

First-cut sewerage developer charges have been calculated considering all the areas serviced by the Singleton sewerage scheme as one DSP area. The calculated DCs for sewerage for the respective IWCM scenarios that have been used for the forecast of TRBs for the IWCM scenarios are presented and compared in Table 7-5 and in Figure 7-8. Note, all the values are in 2020-21 dollars. Calculation details are shown in Appendix C.

Table 7-5: First-cut sewerage DCs per ET (2020/21\$)

Scenario	First-cut Developer Charge	2020/21 Developer Charge
Business-as-Usual	3,679	3,720
Scenario 1	3,701	3,720
Scenario 2	3,701	3,720
Scenario 3	3,701	3,720



**Figure 7-8: Comparison of First-cut Sewerage DCs for IWCM Scenarios**

### TRBs forecasts - Sewerage

The sewer fund financial model has been developed with reference to the historic input details based on Council's 2018-19 and 2019-20 water income and financial position statements submitted as part of the financial data returns to the Office of Local Government.

The sewerage TRBs forecast by the financial model for each of the IWCM scenarios are compared in Figure 7-9. The model forecasts demonstrate that Council can maintain the 2021-22 TRB of \$690 p.a. (in 2020-21\$) residential sewerage charges for all the remaining forecast years and there is no impact on typical residential sewerage bills due to initiatives considered by any of IWCM scenarios compared to the 'business-as-usual' baseline scenario.

Note, the model does not consider any grant or subsidy for any of the capital works for all the IWCM scenarios. At the forecast level of TRB, new loans to the tune of \$ 6 Million over a 3-year period starting 2025/26 has been considered for all the IWCM scenarios including the baseline scenario. New borrowings have been considered towards sewer mains relining and replacement in the model forecasts primarily to maintain the minimum level of cash and investment reserve of \$2.5 Million in the sewer fund. The forecast cash reserve associated with each scenario is shown in Figure 7-10.

The minimum reserve considered in the financial model is in line with current water industry practice for financial planning purposes. It is noted that a higher reserve is usually maintained within the sewer fund in Singleton Council's Long-term Financial Plan. The financial modelling in this report however is meant to provide a means of comparison between scenarios for 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.

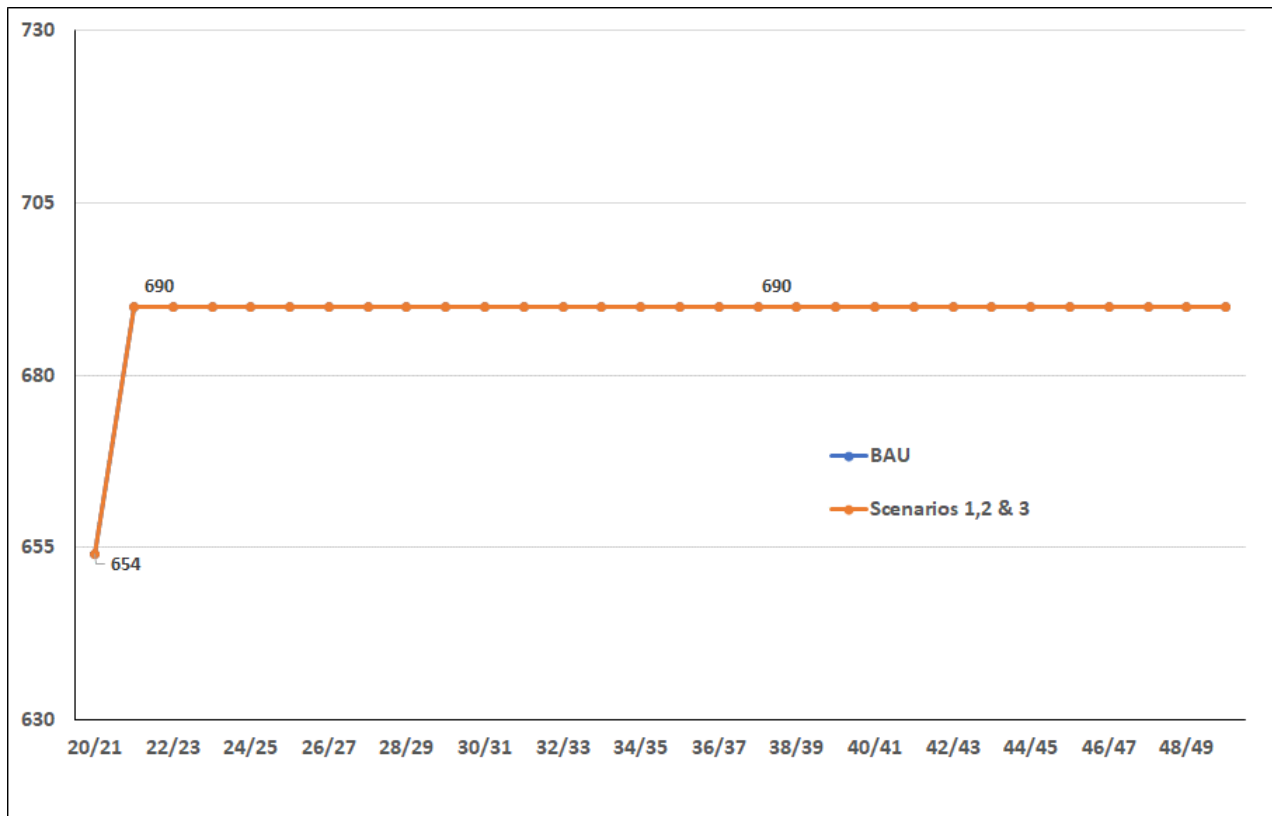


Figure 7-9: Comparison of TRB Forecasts for IWCM Scenarios - Sewerage

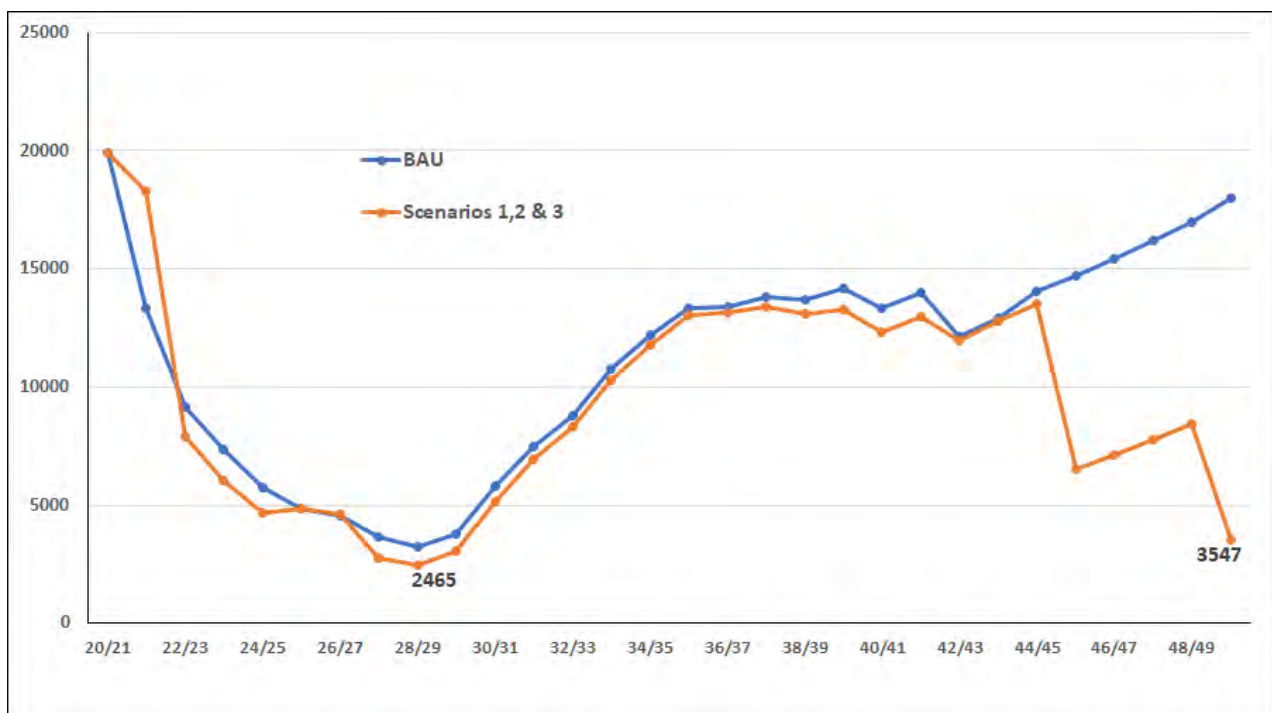


Figure 7-10: Comparison of Cash Reserves Forecasts for IWCM Scenarios - Sewerage



### 7.3 Triple Bottom Line Assessment of Scenarios

A total of 11 environmental and social targets have been used to score the IWCM Scenarios as to how they address the IWCM 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 7-6.

**Table 7-6: Social and Environmental Performance Targets and Objectives**

		Objective	Key performance Targets	Weighting
TBL CATEGORY	ENVIRONMENTAL	Collaborate to enhance, protect and improve our environment	Plan for and implement strategies that enhance, protect and improve the environment in the delivery of the 1 year, 4 year and 10 year Capital Works Programs for 5 asset classes	0.30
			Reduce the risk of environmental harm and adverse health impacts through a structured Environmental Risk Management process	0.20
		AFFORDABLE CLEAN ENERGY Objective: Work with the community to achieve reduction in Greenhouse Gas Emissions	Adopt best practice energy efficiency measures across all Council buildings, and support community facilities to adopt these measures.	0.20
		Singleton Sustainability Strategy - Responsible Consumption and Production - Improve Efficiency In Water Use	Improve water efficiency of council, households and businesses	0.15
		Singleton Sustainability Strategy - Responsible Consumption and Production - Improve Efficiency In Water Use	Improved recycling practices including maintaining a sustainability focussed recycling shop ( <b>Minimising waste production</b> )	0.15
		<b>(1) Total weighted environmental score</b>		<b>1.0</b>
	SOCIAL	Provide safe and reliable water and sewer services	Deliver planned Potable Water Supply Schemes for Villages	0.1
		Provide safe and reliable water and sewer services	Implement improvements to the Sewerage Treatment Plant in line with regulatory requirements	0.1
		Provide safe and reliable water and sewer services	Maintain compliance with NSW Best Practice Framework for water and sewer	0.2
		Singleton Sustainability Strategy	Create a healthy community	0.2
		Council's service delivery is aligned with our community's needs and delivered the best way possible	Demonstrate delivery of services aligned to community needs	0.2
		Council's service delivery is aligned with our community's needs and delivered the best way possible	Manage Water and Sewerage operations in compliance with regulatory requirements and customer service level agreements	0.2
		<b>(2) Total weighted social score</b>		<b>1.0</b>

The environmental and social scoring for all the scenarios is provided in Appendix D. The outcome of the environmental and social scoring for each IWCM Scenario across the targets is shown in Table 7-7.

**Table 7-7: Summary of TBL Score for IWCM Scenarios**

Scenario	Environmental Score	Social Score	Environmental and Social Score(ESS)
Scenario 1	2.4	3.7	6.05
Scenario 2	3.0	3.7	6.70
Scenario 3	1.5	4.0	5.50

Table 7-8 presents the ranking of the IWCM Scenarios following the DPIE Water ranking methodology.

**Table 7-8: IWCM Scoring Ranking**

Scenario	Total PV (\$M) – Water and Sewer	ESS	ESS/NPV	Rank
Scenario 1	25.23	6.05	0.24	<b>2</b>
Scenario 2	27.14	6.70	0.25	<b>1</b>
Scenario 3	25.31	5.50	0.22	<b>3</b>

Based on the triple bottom line assessment, although Scenario 2 has a higher score, due to the closeness of the scores both Scenario 1 and 2 could be considered as joint top ranked Scenarios.

Council have advised that Scenario 1 be considered as the preferred Scenario for development of the draft Strategy.

## 8. The recommended scenario

The works that are included in the recommended Scenario 1 and the timeframe for their implementation, are presented below.

### 8.1 Short-term works

These are the works identified to be required in the next 5 to 10 years and are presented in Table 8-1.

**Table 8-1: Short-term works (5 to 10 years) for recommended scenario**

Issue	Identified work	year
Address non-revenue water	Implement water loss management plan <ul style="list-style-type: none"> <li>Install additional flowmeters to create Demand Management Areas</li> <li>Install pressure reducing valves to create pressure managed areas</li> </ul>	2021 – 25
Continuous improvement of DWMS	Implement actions listed in the DWMS improvement plan <ul style="list-style-type: none"> <li>Upgrade baffles in the Obanvale WTP clear water tank</li> <li>Optimise feedback loop for the re-chlorinator chlorine analyser</li> <li>Include additional monitoring at the Jerrys Plains water supply handover point from AGL.</li> <li>Reinstate the on-line turbidity meter at the Plashett break tank.</li> </ul>	2022
Un-serviced water supply for Bulga	Connect Bulga to the Singleton water supply at Broke <i>(subject to funding)</i>	2024
Non-potable water supply for Glennies Creek area	Prepare a Non-standard Contract for non-potable water supply which includes Council's obligation and Levels of Service  Connect Glennies Creek area to the Singleton water supply	2027
Address sewerage collection and transfer system performance for selected service standard	<ul style="list-style-type: none"> <li>Upgrade the gravity lines in the Bourke Street SPS catchment</li> <li>Upgrade of Kennedy street pump</li> <li>Upgrade the gravity line in the Kennedy SPS catchment</li> </ul>	2022 – 25
Address capacity and performance issues at the STP	Improve sludge management at STP <ul style="list-style-type: none"> <li>Re-commissioning two (2) old sludge lagoons with a new supernatant return pumping station, and</li> <li>Refurbishing existing sludge drying beds with lining, underdrains and a new sub-natant pumping station.</li> </ul>	2022  2023
Comply with the EPA requirement for STP effluent management	Reduce phosphorus levels in effluent to 1 mg/L <ul style="list-style-type: none"> <li>design and construction of a chemical dosing facility</li> <li>On-going monitoring of system performance to identify opportunities for improvement in the longer term,</li> <li>On-going monitoring of helminths and fencing of portions of property to limit cattle access</li> </ul>	2023
Assess performance of on-site sewage management system	Carry out periodic inspections and gather evidence of any public health or environmental issues with the OSSMS performance at Broke, Jerrys Plains and Bulga.	On-going



## 8.2 Medium-term works

These are the works identified to be required in the next 10 to 20 years and are presented in Table 8-2.

**Table 8-2: Medium-term works (10 to 20 years) for recommended scenario**

Issue	Identified work	year
Jerrys Plains water supply security	Construct a new water treatment plant to treat surface water	2030
Singleton water supply security	Construct the Rose Point Park bore water supply as a supplementary source	2035
Compliance with potential introduction of Health Based Targets for potable water quality	Construct a UV disinfection system at the Obanvale water treatment plant, if required	2030 – 35
Address sewerage collection and transfer system performance for selected service standard	Augment the capacity of the Dunolly sewage pumping station	2035 – 40

## 8.3 Long-term works

These are the works identified to be required in the next 20 to 30 years and are presented in Table 8-3.

**Table 8-3: Long-term works (20 to 30 years) for recommended scenario**

Issue	Identified work	year
Manage trade waste within the LGA	Construct a septage receival facility at the STP	2045
Comply with the EPA requirement for STP effluent management	Reduce the phosphorus levels in the effluent to 0.1 mg/L.	2050
Performance of On-site Sewage Management Systems	Construct a reticulated sewerage scheme for Broke	2045
	Construct a reticulated sewerage scheme for Jerrys Plains	2045
	Construct a reticulated sewerage scheme for Bulga	2050
	Construct a reticulated sewerage scheme for Mount Thorley	2050

## 9. Total Asset Management Plan

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.

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.

### 9.1 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 – Improved Level of Service (ILOS), including backlog works	Works to provide better public health and environmental standards, better service, higher reliability, or an extension of services to currently unserved existing development. Works in this category may be eligible for Government grants.
Asset renewal	Renewal and replacement of existing assets which have aged and reached the end of their effective economic service life

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 works in a timely manner.

#### 9.1.1 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 maintains the records of the water supply and sewerage assets in the Civica-Authority asset management system.
- 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 of the current replacement costs of the assets/ components based on the latest revaluation records to the 2020-21 financial year using the relevant Construction Cost Index (CCI) prescribed by the NSW Reference Rates Manual – Valuation of water supply, sewerage, and stormwater assets (2020 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).

## Integrated Water Cycle Management Strategy

- Estimation of 'condition adjusted' remaining useful lives as a % of adopted useful lives of components as listed in the asset registers. Where condition rating details of asset component levels are unavailable (underground assets), age based remaining useful lives has been considered.
- For the purpose of prioritisation of renewal timing, the estimated remaining useful lives have been further adjusted for 'criticality' of the assets/ facilities in consideration of the consequence of asset failure. The assets/ facilities with severe consequences of failure as identified by the Council have been assigned higher criticality and have been prioritised for earlier renewal to avoid probable major failures to service provision
- Following the adjustment to the remaining useful life in consideration of criticality, the scheme/ facility-wise timing and cost (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 capital funding requirements.

The details of asset condition and criticality rating classifications and the ratings assigned to Council's above-ground water supply and sewerage assets are provided in Appendix E.

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 capital works program for water supply and sewerage (Table 9-1 and Table 9-2). Summaries of capital works program are shown in Figure 9-1 and Figure 9-3 for water supply and sewerage, respectively.

## 9.2 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.
Model cost overrides	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.

Details of overrides include additional recurrent expenditure and are as follows:

- Administration – as estimated and adopted by Council.
- Engineering and supervision – as estimated and adopted by Council. Additional operator costs for the initiatives identified in the IWCM scenarios also included.
- Operation and maintenance expenses – as estimated and adopted by the Council. Additional OM costs for the initiatives identified in the IWCM scenarios also 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 – bulk water supply revenues from major customers such as abattoir, army camp and mines, as estimated by Council.

Summaries of 30-year OMA cost forecasts are presented in Table and Figure 9-2 and Figure 9-4 for water supply and sewerage services, respectively.



CAPITAL WORKS IN 2020/21 (\$'000)

41

**Table 9-2: 30-Year Capital Works Schedule for Sewerage – IWCM Scenario 1 (Recommended)**

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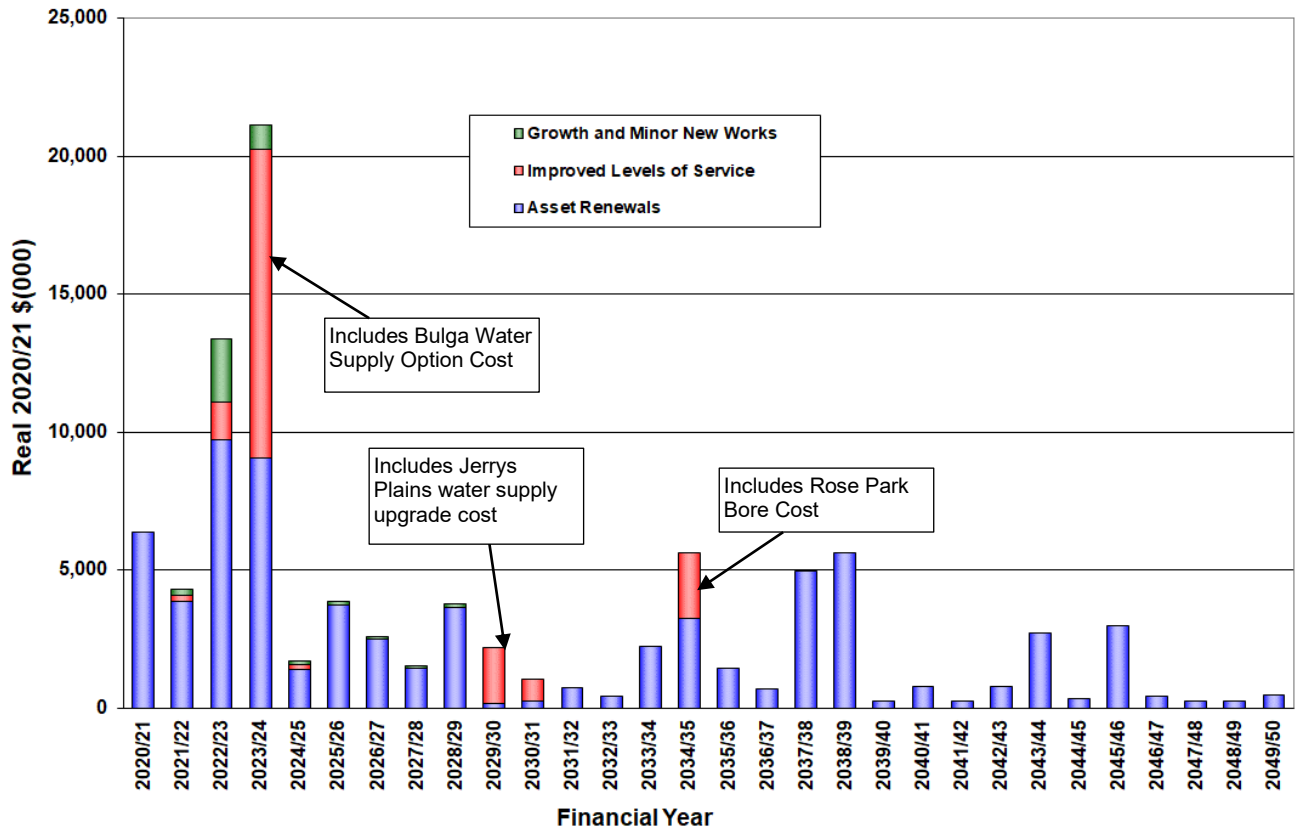


Figure 9-1: 30-year Capital Works Summary – Water Supply (\$'000)

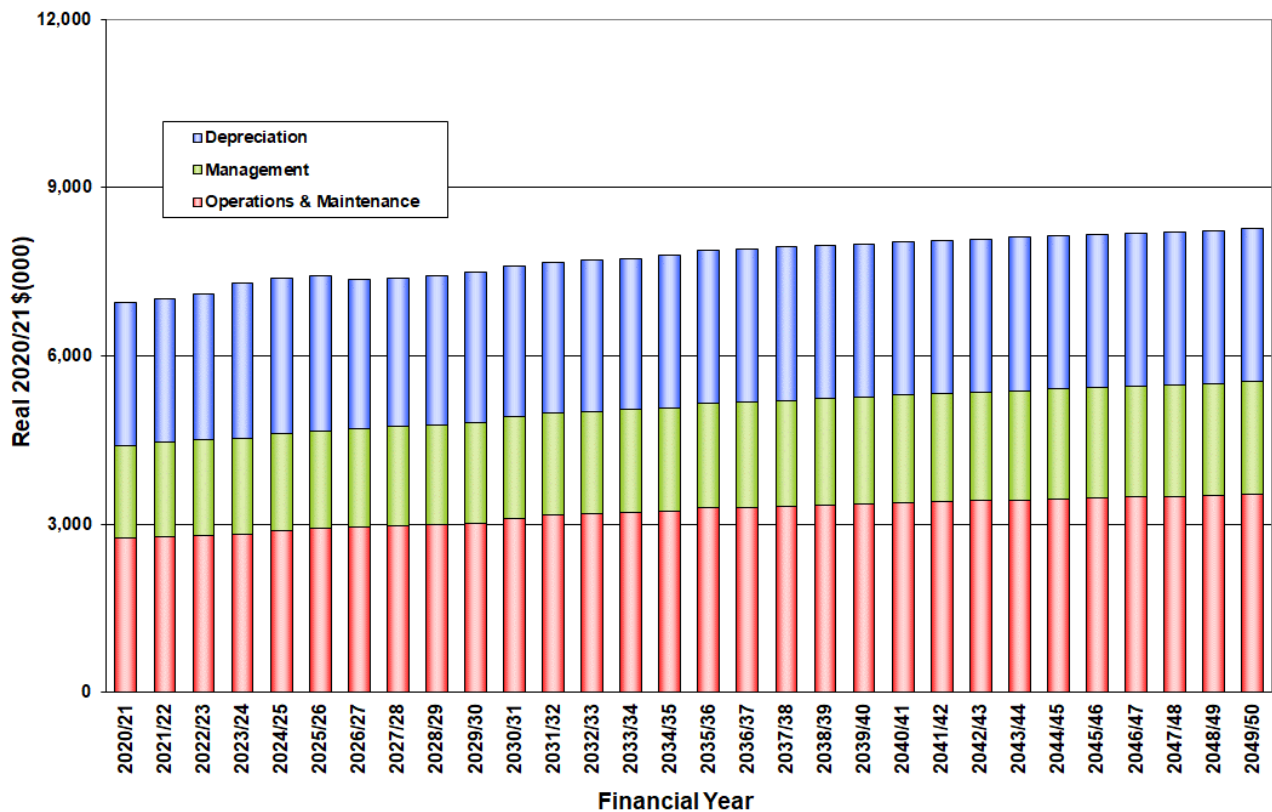


Figure 9-2: 30-year Recurrent O&M Expenditure Summary – Water Supply (\$'000)

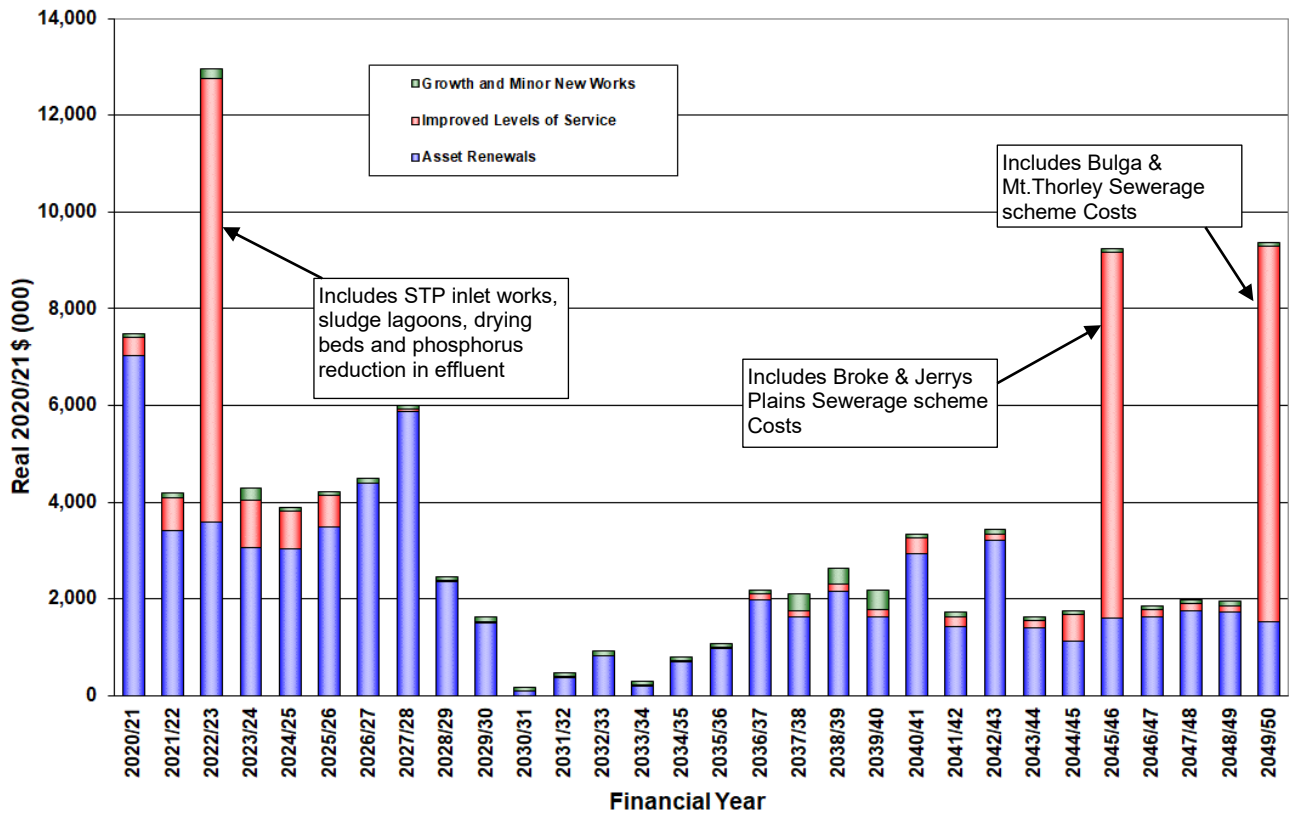


Figure 9-3: 30-year Capital Works Summary - Sewerage (\$'000)

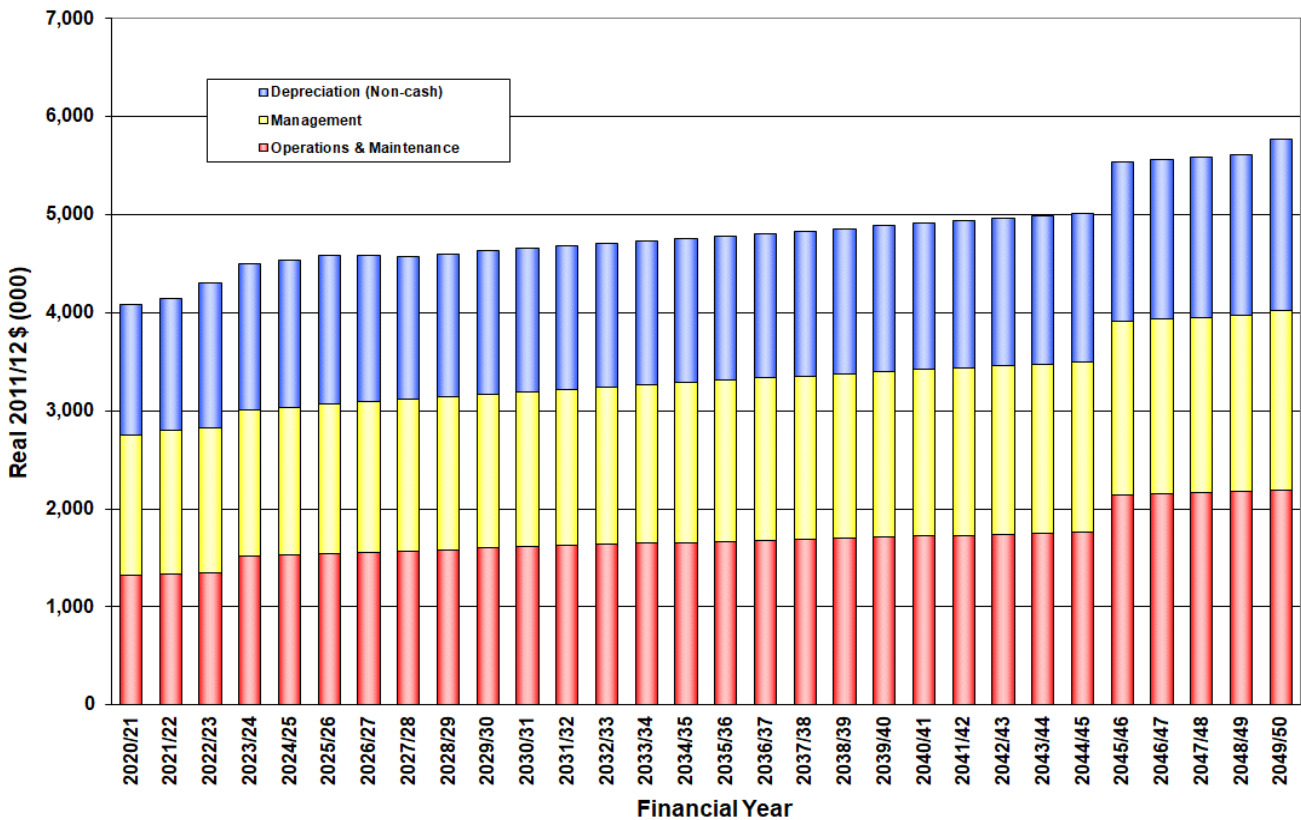


Figure 9-4: 30-year Recurrent O&M Expenditure Summary – Sewerage (\$'000)



## 10. Financial Plan

### 10.1 Overview

This section presents the details of long-term financial plans for water supply and sewerage services for recommended IWCM scenario (scenario 1). The overall goal of financial planning is to determine the lowest, sustainable price path for the water supply and 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.

### 10.2 Financial Modelling Methodology

FINMOD 4.0, the software developed by the Department of Primary Industries Water was used to develop the financial models. For a particular Level of Service (LOS), FINMOD enables an examination of a range of funding options to determine the best mix of borrowing and internal funding.

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 programme and day-to-day operations, while ensuring a minimum level of cash liquidity. The financial models have been developed for a 30-year planning horizon.

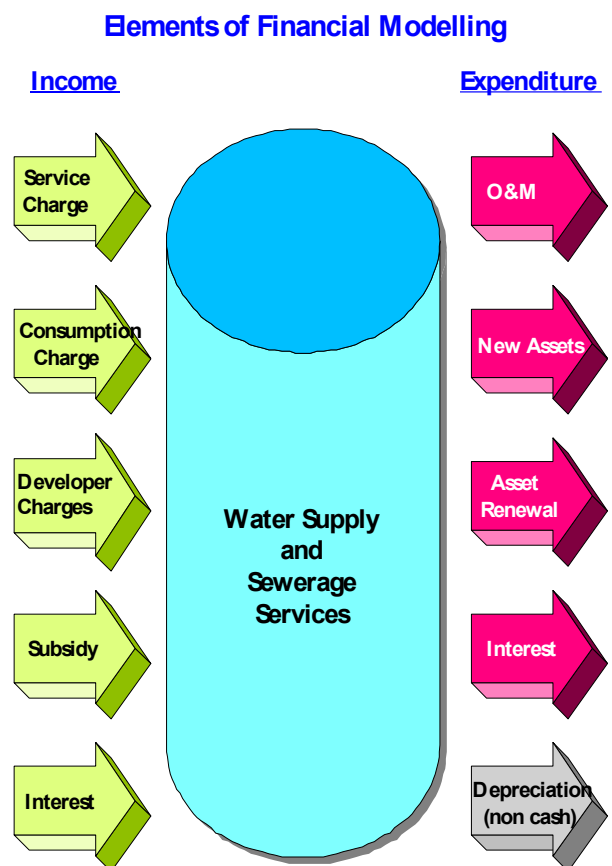
The financial model balances the forecast income and expenditure for each service delivery option over the projected modelling period. Figure 10-1 illustrates the main elements which affect the financial modelling.

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 average 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 10-1 – Elements of Financial**

### Modelling

Renewal programmes 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. The Department of Planning, Industry and Environment (DPIE) Water encourages the use of long-term loans because they support the idea of intergenerational equity, and thereby reduce the demand for funds 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 solution 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 a number of sensitivities should be carried out to test the robustness of the plan. 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 an increase in interest rates, or lower than expected 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 models 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 DPIE Water.

## **10.3 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 F and Appendix G) and are summarised in Table 10-1 and Table 10-2.

The model assumptions are based on a representative view of the impact of a number of factors. They have been grouped into 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 10-1: Key Input Parameters – Water Fund Financial Model**

	Input Data/ Assumption
Historical Data	Singleton Council water fund income statements and financial position statements from the Financial Data Return for 2018-19 and 2019-20.
Financial Data	Average annual long-term inflation rate: 2.5% p.a. Annual Investment Interest Rate: 5.5% p.a. (default) – 3.0% p.a. adopted Annual Borrowing Interest Rate: 6.5% p.a. (default) – 4.0% p.a. adopted
Demographic Base Data (2019-20)	No. of Residential Assessments: 6,275 (196 vacant/unoccupied) No. of Non-Residential Assessments: 786 (213 vacant/unoccupied) Pensioner Assessments: 831 (13.24%) Assessment Growth Rate – As forecast for IWCM strategy development  At the adopted levels of growth rate, an average 50 new customers per year across the Council's service areas have been estimated to be connecting to water supply services for the first 10 years of forecast period. Thereafter, the forecast no. of new customers connecting to the water services are 40 per year.
Opening Balances (as of June 2020)	Outstanding Loan: Nil Total Cash and Investments: \$38.13 Million Minimum cash and investment (for modelling): \$15 Million Term of new loans: 20 years
Revenue Splits	From 2020-21 onwards – 73.9%: 26.1% (Residential: Non-residential)
Current Charges (2020-21)	Access Charge: \$167.50 p.a. (20mm meter size) Usage Charge: \$2.12 per KL - For 450 KL/year or less \$3.18 per KL - Above 450 KL/year
	Typical Residential Bill (TRB) 2020-21: \$655 p.a. (Based on an estimated average residential consumption of 230 KL/year)
	Sec.64 Developer Charges for Water Supply: \$6,220/ET From 2022-23 onwards, a 'first-cut' calculated developer charge of \$12,305/ET has been considered.

\* - 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. Refer to the current adopted version of the Revenue Policy.

Table 10-2: Key Input Parameters – Sewer Fund Financial Model

	Input Data/ Assumption
Historical Data	Singleton Council sewer fund income statements and financial position statements from the Financial Data Return for 2018-19 and 2019-20.
Financial Data	Average annual long-term inflation rate: 2.5% p.a. Annual Investment Interest Rate: 5.5% p.a. (default) – 3.0% p.a. adopted Annual Borrowing Interest Rate: 6.5% p.a. (default) – 4.0% p.a. adopted
Demographic Base Data (2019-20)	No. of Residential Assessments: 5,555 (146 vacant/unoccupied) No. of Non-Residential Assessments: 481 (61 vacant/unoccupied) Pensioner Assessments: 769 (13.84%) Assessment Growth Rate – As forecast for IWCM strategy development  At the adopted levels of growth rate, an average 50 new customers per year across the Council's service areas have been estimated to be connecting to sewerage services for the first 10 years of forecast period. Thereafter, the forecast no. of new customers connecting to the sewerage services are 40 per year.
Opening Balances (as of June 2020)	Outstanding Loan: Nil Total Cash and Investments: \$ 24.51 Million Minimum cash and investment (for modelling): \$7.5 Million Term of new loans: 20 years
Revenue Splits	From 2020/21 onwards – 76%: 24% (Residential: Non-residential)
Current Charges (2020-21)	Residential: Availability Charge (Vacant): \$654 p.a. Availability Charge (Occupied): \$654 p.a. Non-residential: Availability Charge (Vacant): \$654 p.a. Availability Charge (Occupied – 20mm): \$624 p.a. Usage Charge: \$2.12 per KL  Sec.64 Developer Charges for Water Supply: \$3,720/ET From 2022-23 onwards, a 'first-cut' calculated developer charge of \$3,701/ET has been considered.

\* - 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. Refer to the current adopted version of the Revenue Policy.

### 10.3.1 Charges

#### Charging Structure

The projection of typical residential bills (TRBs) for water supply and sewerage are made in real (2020-21) dollars and, where feasible, a stable price path in real terms is maintained to demonstrate the lowest long-term price path that can be achieved based on assumptions made. The forecast TRBs 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**

Current (2020-21) Sec.64 developer charges for the new developments are \$6,220/ET and \$3,720/ET for water supply sewerage services, respectively. Council has already published the Sec.64 charges of \$6,345/ET and \$3,795/ET for these services, respectively for 2021-22. For the remaining forecast years, the 'first-cut' of developer charges for the preferred IWCM scenario 1 estimated in accordance with the NSW Developer Charges Guidelines, 2016 for the purpose of TRB analysis (refer to sections 7.2.1 and 7.2.2) have been used.

### **Cash and Investments**

Minimum cash levels of \$15 Million for water fund and \$7.5 Million for the sewer fund have been considered, as required by the Council.

## **10.3.2 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 water supply and sewerage models.

### **Interest Rates**

The interest rates adopted in this analysis are 4.00% p.a. for all new borrowing from 2020-21 onwards and 3.0% p.a. for all investments.

### **Capital Works**

The capital work expenses form a significant component of the inputs. The capital works programme adopted for financial modelling includes all the capital works for the preferred IWCM Scenario (scenario 1) as incorporated in the 30-year Total Asset Management Plan (refer to Section 9.1).

### **Recurrent Costs**

The financial models for water supply and sewerage consider 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 9.2.

## **10.3.3 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 53 new customers per year across the Council's service areas have been estimated to be connecting to water supply and sewerage services.

In line with Council's adopted development policy, the growth has been assumed to occur mainly in Singleton. The same growth rates have been adopted for water supply and sewerage models.

### **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.

### 10.3.4 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 general practice to fully fund renewal programs out of internally generated cash (where practicable) and to borrow against 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 to maintain the adopted minimum cash levels for the water and sewer funds.

Revenue – Typical Residential Bills are maintained at constant level in real terms, unless where an increase is required for long-term financial viability.

### 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 Primary Industries and 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 has considered that a State Government grant/ subsidy of \$10.347 Million for the Bulga water supply scheme will be available.

The financial model for the sewer fund has considered no Government grant or subsidy for any of the planned capital works over the 30-year planning horizon.

## 10.4 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 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 normal budgeting, (i.e., short-term financial planning). The model assumes that all expenses and income occur at the beginning of the year and it is therefore not appropriate to track cash flow throughout the year. It is important, however, that the budgeting process is carried out within the framework of the long-term financial plan.

The Total Asset Management Plan (refer to Section 9) 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.

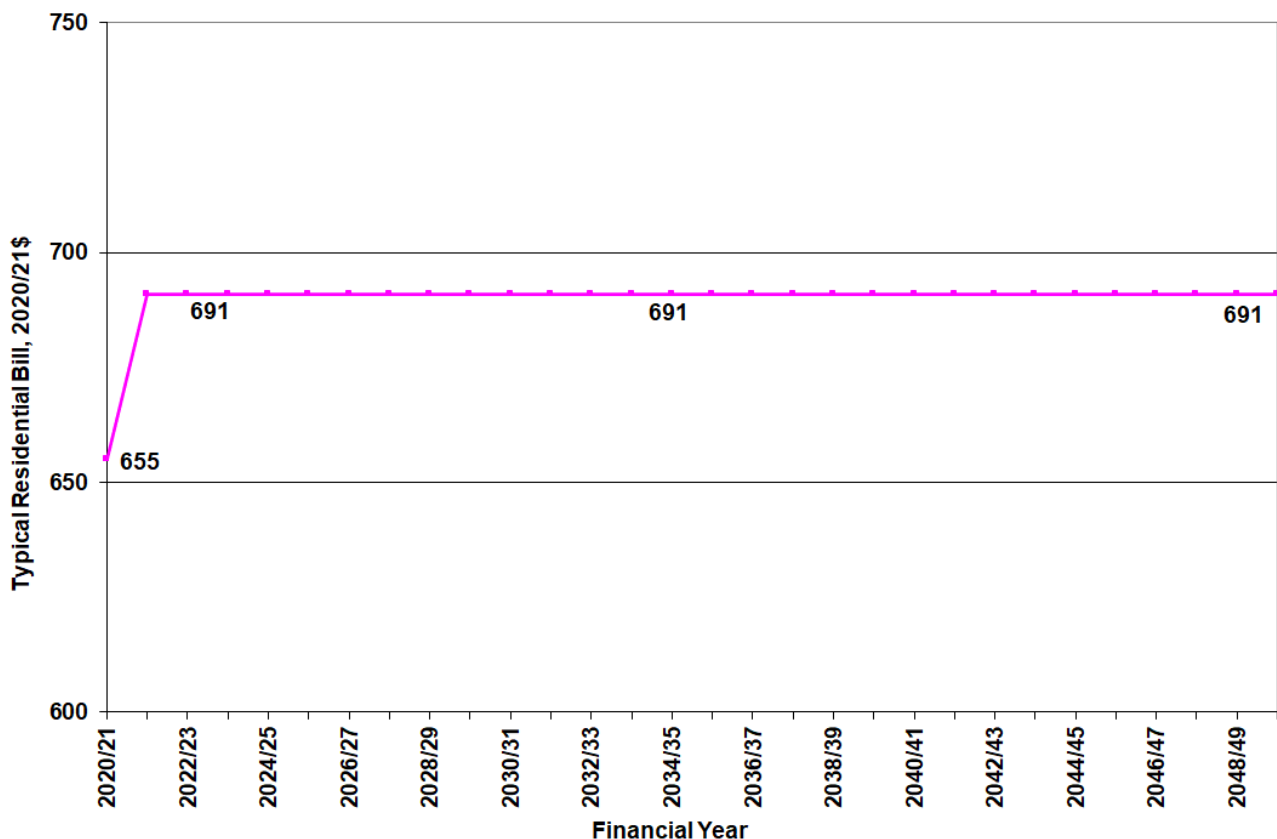
## 10.5 Financial Model Outcomes – Water Supply

### 10.5.1 Projected Financial Position

All costs and revenues in the input data and the model outcomes are in 2020-21 dollars unless stated otherwise. The first year of model projections is 2020-21 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 the water fund financial model considers the NSW Government grant of \$10.347 Million anticipated by Council for the Bulga water supply scheme capital works. Accordingly, the Typical Residential Bill (TRB) forecasts determined by the model for the next 30 years is presented in Figure 10-2 below.

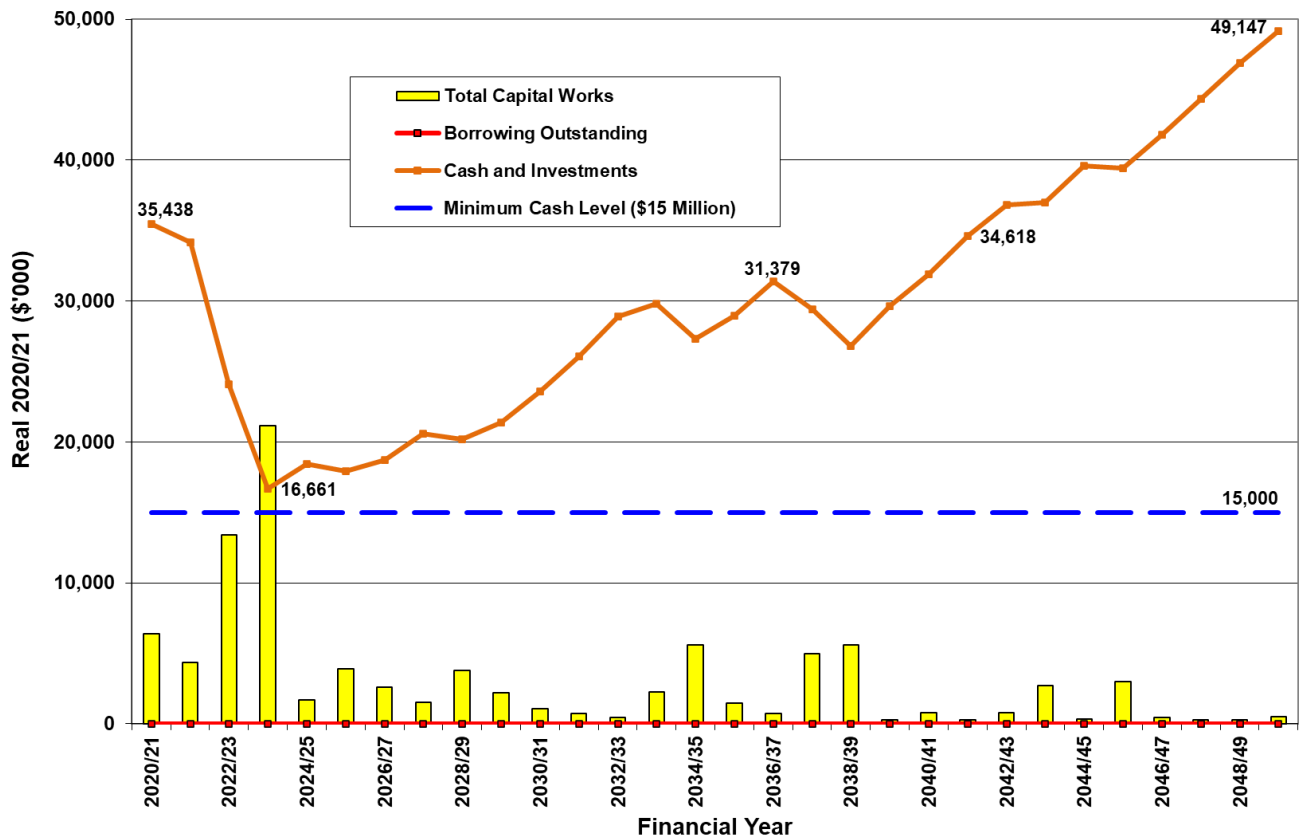
The model demonstrates that the current (2020-21) water supply TRB of \$655 p.a. needs to be increased by \$35 to \$691 p.a. from 2021-22. Thereafter, the TRB can be maintained throughout the forecast period with ongoing annual adjustments for CPI / inflation. It is to be noted that Council has already published the water supply tariff structure for 2021-21 with a view to achieve the forecast increase in the TRB.



**Figure 10-2: Typical Residential Bill for Water Supply**

There is no current outstanding borrowing for water fund as of 30 June 2020. The model forecasts demonstrate that, with the recommended price path, there will not be any need for new loans during the forecast period. All the planned capital works for growth, improved levels of service and renewal/replacement can be internally funded throughout the projection period.

The projected level of charges is sufficient to maintain liquidity with a Council required minimum of \$15 Million of cash and investments over the forecast period. The levels of cash and borrowing outstanding during the forecast period are presented in Figure 10-3.



**Figure 10-3: Cash & Borrowing Projections for Water Supply**

Projected financial results for the water fund are presented in Table 10-3. 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 F.

### 10.5.2 Sensitivity of Financial Projections

Sensitivity of the model forecasts were analysed for lower than expected levels of government grant and lower growth rates and the impact of these variables on the water supply TRB forecasts, borrowing requirements and cash levels as summarised in Table 10-4 and in Figure 10-4 and Figure 10-5.



Table 10-3: Projected Financial Results – Water Fund

2020/21 (\$'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
2020/21	8,166	6,951	1,215	6,395	0	35,438	0	143,847	304	143,543	179,355	73,942	105,413	655
2021/22	8,451	7,020	1,431	4,326	0	34,170	0	143,517	306	143,211	179,820	72,502	107,318	691
2022/23	8,707	7,105	1,602	13,369	0	24,109	0	143,897	308	143,589	183,458	65,244	118,214	691
2023/24	18,871	7,308	11,563	21,130	0	16,661	0	154,786	310	154,476	195,514	58,814	136,700	691
2024/25	8,530	7,385	1,145	1,689	0	18,406	0	154,933	315	154,618	195,798	60,056	135,741	691
2025/26	8,567	7,431	1,136	3,876	0	17,925	0	155,218	318	154,900	195,952	58,986	136,966	691
2026/27	8,608	7,359	1,249	2,601	0	18,723	0	155,487	321	155,166	196,049	59,134	136,915	691
2027/28	8,652	7,393	1,259	1,523	0	20,590	0	155,550	323	155,227	196,149	60,365	135,784	691
2028/29	8,705	7,431	1,274	3,757	0	20,194	0	155,921	325	155,596	196,251	59,366	136,885	691
2029/30	8,726	7,495	1,232	2,200	0	21,350	0	155,975	327	155,648	198,280	61,879	136,400	691
2030/31	8,803	7,603	1,199	1,062	0	23,594	0	155,695	329	155,366	199,090	64,323	134,767	691
2031/32	8,860	7,678	1,182	734	0	26,095	0	155,207	332	154,875	199,090	66,284	132,805	691
2032/33	8,941	7,709	1,231	423	0	28,895	0	154,549	334	154,215	199,090	68,557	130,533	691
2033/34	8,981	7,741	1,240	2,243	0	29,815	0	154,256	336	153,920	199,090	69,009	130,082	691
2034/35	8,980	7,804	1,176	5,616	0	27,309	0	154,858	338	154,520	201,477	68,509	132,968	691
2035/36	8,996	7,880	1,116	1,450	0	28,971	0	154,271	340	153,931	201,477	69,787	131,690	691
2036/37	9,065	7,909	1,156	701	0	31,379	0	153,393	342	153,051	201,477	71,814	129,663	691
2037/38	9,049	7,939	1,110	4,981	0	29,404	0	153,847	344	153,503	201,477	69,562	131,915	691
2038/39	9,042	7,969	1,073	5,614	0	26,807	0	154,610	346	154,264	201,477	66,677	134,800	691
2039/40	9,071	7,999	1,072	243	0	29,643	0	153,493	348	153,145	201,477	69,163	132,314	691
2040/41	9,131	8,028	1,103	800	0	31,882	0	152,493	350	152,143	201,477	71,091	130,386	691
2041/42	9,177	8,056	1,122	269	0	34,618	0	151,203	351	150,852	201,477	73,550	127,926	691
2042/43	9,237	8,083	1,154	772	0	36,815	0	150,034	353	149,681	201,477	75,507	125,970	691
2043/44	9,239	8,110	1,129	2,720	0	36,987	0	149,614	355	149,259	201,477	75,515	125,961	691
2044/45	9,299	8,134	1,164	324	0	39,585	0	148,148	357	147,791	201,477	77,919	123,557	691
2045/46	9,295	8,162	1,134	2,998	0	39,415	0	147,804	358	147,446	201,476	77,650	123,827	691
2046/47	9,334	8,186	1,148	445	0	41,816	0	146,279	359	145,920	201,476	79,933	121,543	691
2047/48	9,386	8,212	1,174	269	0	44,361	0	144,602	361	144,241	201,477	82,392	119,084	691
2048/49	9,440	8,238	1,202	243	0	46,898	0	142,844	363	142,481	201,477	84,878	116,598	691
2049/50	9,485	8,265	1,221	487	0	49,147	0	141,141	365	140,776	201,477	87,120	114,357	691

Table 10-4: 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 100% grant for the Bulga water supply scheme.	No impact on TRB, however, a new loan of \$10 Million for Bulga water supply scheme will be required.
Lower than forecast assessment growth rate	0.3% p.a. instead of 0.6% p.a. long-term average customer growth rate during the forecast period.	No impact on TRB.

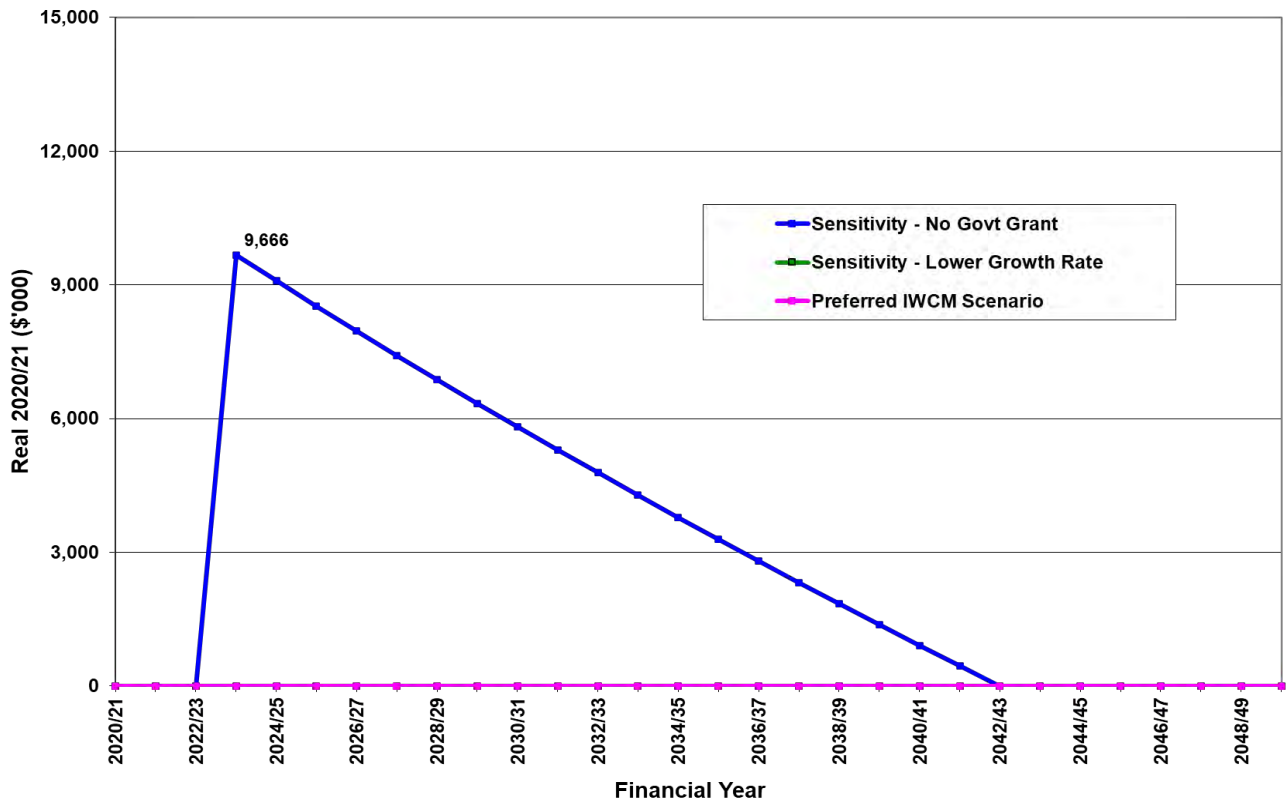


Figure 10-4: Sensitivity of Borrowing Levels for Water Supply

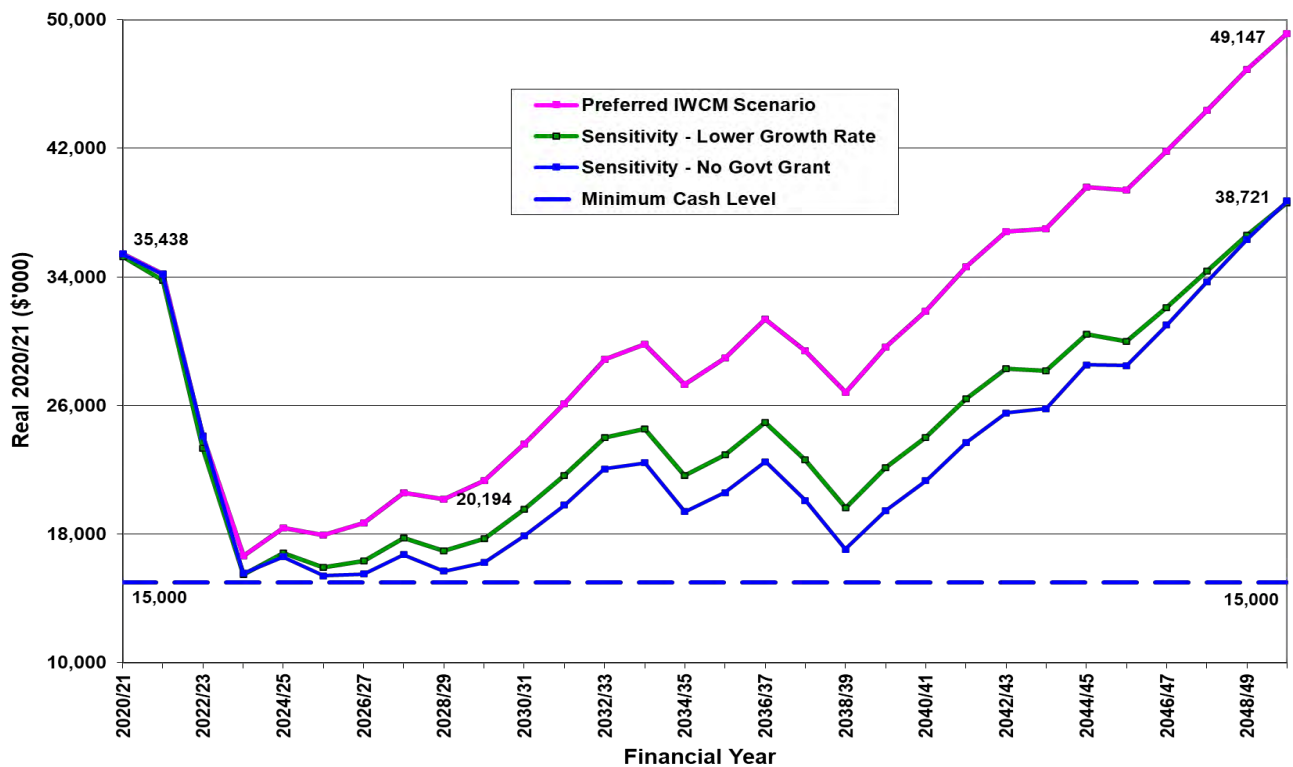


Figure 10-5: Sensitivity of Cash and Investment Levels for Water Supply

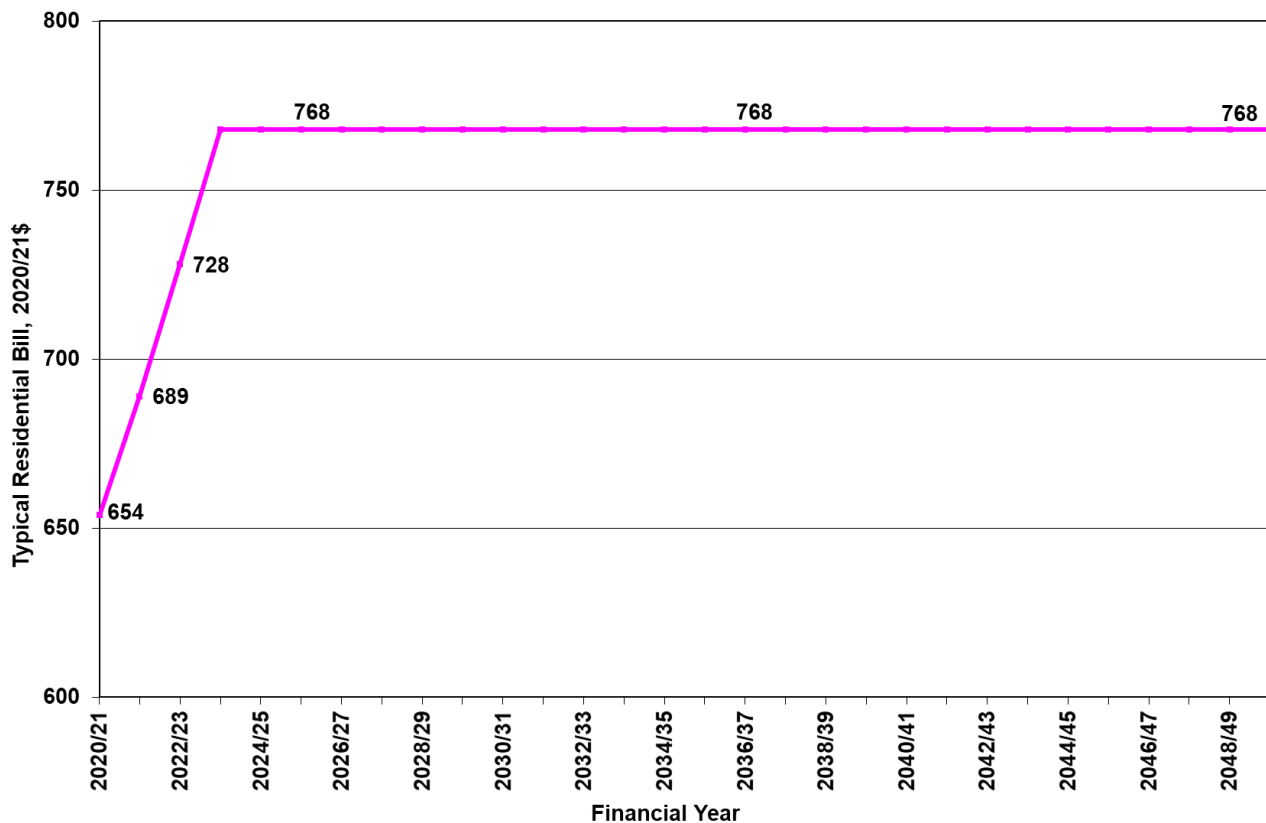
## 10.6 Financial Model Outcomes – Sewerage

### 10.6.1 Projected Financial Position

The first year of model projections is 2020-21 and CPI should be applied accordingly. All costs and revenues in the input data and the model outcomes are in 2020-21 dollars unless stated otherwise. 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 sewer fund financial model does not consider any government grant or subsidy for any of the planned capital works during the forecast period. Accordingly, the TRB forecasts determined by the model for the next 30 years is presented in Figure 10-6.

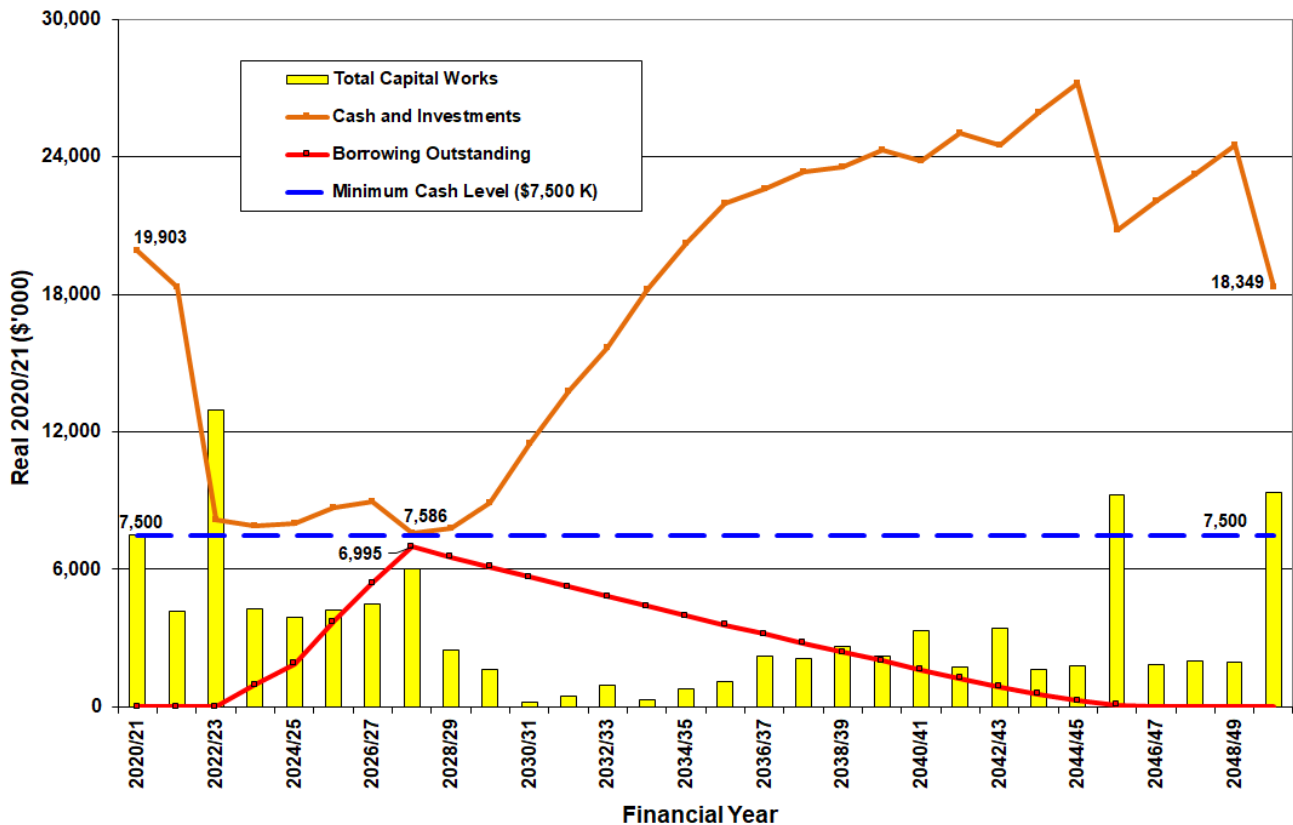
Council has already published an increased level of TRB of \$689 p.a. for 2021-22 (inflated \$706 p.a.). The model forecasts show that the sewerage TRB needs to be increased from the current level of \$654 p.a. to \$768 p.a. in 2023-24 over a period of three years. Therefore, for the following two years, the TRB needs to be increased by \$40 per year to achieve a TRB of \$768 p.a. in 2023-24. Thereafter, it can be maintained at that level for the remaining forecast period.



**Figure 10-6: Typical Residential Bill for Sewerage**

The projected level of charges is sufficient to maintain liquidity with a Council required minimum of \$7.5 Million of cash and investments in the sewer fund over the forecast period.

There is no current outstanding borrowing for sewer fund as of 30 June 2020. The model forecast shows that with the adopted price path and the minimum cash and investment levels, new loans to the tune of \$8.0 Million will be required for funding the planned capital works during the period from 2023-24 to 2027-28. The maximum outstanding borrowing will be in year 2027-28 and will be fully retired within the forecast period. The levels of cash and borrowing outstanding during the forecast period are depicted in Figure 10-7.



**Figure 10-7: Cash & Borrowing Projections for Sewerage**

Projected financial results for the sewer fund are presented in Table 10-5. Note that all the projected values are in (2020-21) dollars and will require indexing for CPI in future years. More detailed financial output statements are presented in Appendix G.

### 10.6.2 Sensitivity of Financial Projections

Sensitivity of the sewer fund model forecasts were analysed for lower growth rates and the impact on the sewerage TRB forecasts as summarised in Table 10-6 and in Figure 10-8, Figure 10-9, and Figure 10-10.



Table 10-5: Projected Financial Results for Sewer Fund

2020/21 (\$'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
2020/21	5,838	4,279	1,559	7,492	0	19,903	0	81,412	204	81,208	88,302	27,677	60,625	654
2021/22	6,079	4,341	1,738	4,180	0	18,312	0	82,657	206	82,451	89,063	25,537	63,527	689
2022/23	6,287	4,504	1,783	12,948	0	8,169	0	83,980	207	83,773	98,433	23,370	75,063	728
2023/24	6,528	4,742	1,786	4,288	33	7,919	967	86,521	1,177	85,344	99,668	21,747	77,922	768
2024/25	6,579	4,820	1,759	3,885	68	8,029	1,875	89,011	2,087	86,924	100,511	20,146	80,365	768
2025/26	6,636	4,935	1,701	4,212	134	8,693	3,695	92,375	3,909	88,466	101,240	18,115	83,126	768
2026/27	6,699	5,015	1,684	4,482	204	8,965	5,401	95,637	5,617	90,020	101,335	15,181	86,155	768
2027/28	6,734	5,070	1,664	5,997	274	7,586	6,995	98,803	7,212	91,591	101,454	10,758	90,696	768
2028/29	6,774	5,082	1,692	2,465	278	7,798	6,546	100,028	6,765	93,263	101,555	9,852	91,703	768
2029/30	6,837	5,093	1,743	1,617	283	8,900	6,104	101,292	6,325	94,967	101,656	9,795	91,861	768
2030/31	6,924	5,104	1,819	184	287	11,480	5,668	102,601	5,890	96,711	101,752	11,166	90,585	768
2031/32	7,019	5,115	1,905	467	291	13,797	5,238	103,928	5,462	98,466	101,848	12,256	89,592	768
2032/33	7,103	5,125	1,979	918	295	15,679	4,815	105,270	5,041	100,229	101,944	12,897	89,048	768
2033/34	7,185	5,136	2,049	295	300	18,204	4,398	106,630	4,626	102,004	102,041	14,162	87,878	768
2034/35	7,260	5,145	2,115	803	306	20,222	3,985	107,989	4,215	103,774	102,137	14,921	87,216	768
2035/36	7,327	5,154	2,174	1,081	309	21,967	3,579	109,354	3,809	105,545	102,233	15,402	86,832	768
2036/37	7,380	5,165	2,214	2,192	313	22,601	3,179	110,714	3,411	107,303	102,454	14,901	87,554	768
2037/38	7,435	5,177	2,258	2,100	318	23,357	2,783	112,096	3,017	109,079	102,929	14,751	88,177	768
2038/39	7,474	5,192	2,282	2,633	323	23,587	2,392	113,478	2,627	110,851	103,402	14,076	89,326	768
2039/40	7,517	5,205	2,312	2,188	328	24,289	2,005	114,880	2,243	112,637	103,960	13,938	90,022	768
2040/41	7,542	5,219	2,323	3,340	333	23,835	1,624	116,271	1,863	114,408	104,369	12,504	91,865	768
2041/42	7,591	5,230	2,361	1,728	339	25,039	1,246	117,705	1,485	116,220	104,677	12,585	92,091	768
2042/43	7,623	5,236	2,386	3,427	343	24,540	872	119,132	1,114	118,018	104,898	10,884	94,014	768
2043/44	7,663	5,248	2,415	1,627	303	25,925	548	120,639	791	119,848	105,119	10,987	94,132	768
2044/45	7,710	5,265	2,445	1,766	263	27,218	272	122,182	516	121,666	105,765	11,385	94,380	768
2045/46	7,854	5,789	2,065	9,235	176	20,817	90	123,407	341	123,066	113,396	11,408	101,988	768
2046/47	7,885	5,806	2,079	1,855	89	22,065	-2	124,882	252	124,630	113,617	11,405	102,213	768
2047/48	7,937	5,827	2,110	1,988	0	23,271	-2	126,446	253	126,193	113,839	11,271	102,568	768
2048/49	7,983	5,852	2,131	1,944	0	24,516	-2	128,002	254	127,748	114,060	11,185	102,875	768
2049/50	8,077	6,020	2,057	9,359	0	18,349	-1	129,459	259	129,200	121,901	11,415	110,486	768

Table 10-6: Sensitivity Analysis – Sewer Fund

Sensitivity	Values of Variables for Analysis	Effect on TRB compared to the Preferred Scenario
Lower than forecast assessment growth rate	0.3% p.a. instead of 0.6% p.a. long-term average customer growth rate during the forecast period.	The TRB needs to be increased by \$47/year for two years to \$783 p.a. in 2023-24 and to be maintained at that level for the remainder of the forecast period. Will also require an additional \$1 Million borrowing.
Higher capital work costs	Estimated costs of capital works during the planning period increase by 20%	The TRB needs to be increased by \$65/year for two years to \$819 p.a. in 2023-24 and to be maintained at that level for the remainder of the forecast period. Will also require an additional \$11 Million borrowing.

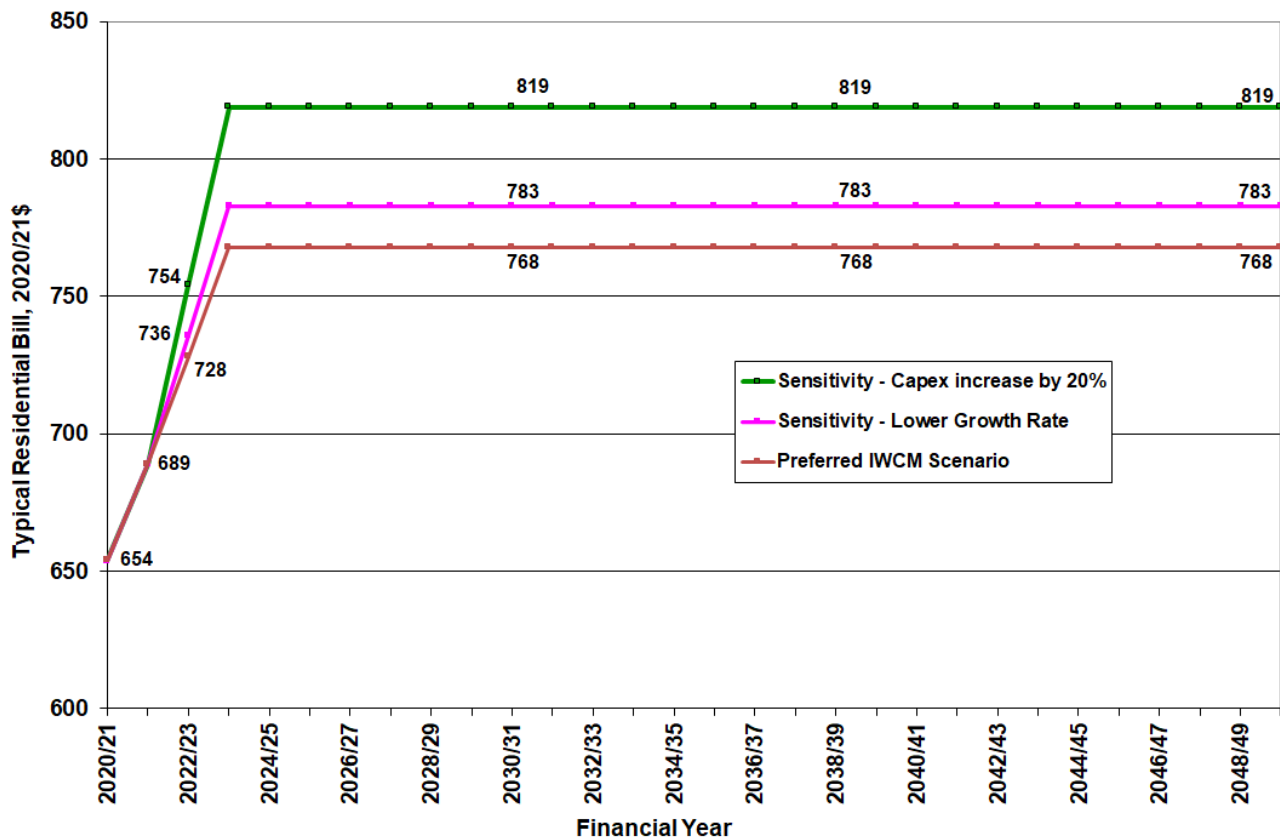


Figure 10-8: Sensitivity of Typical Residential Bill for Sewerage

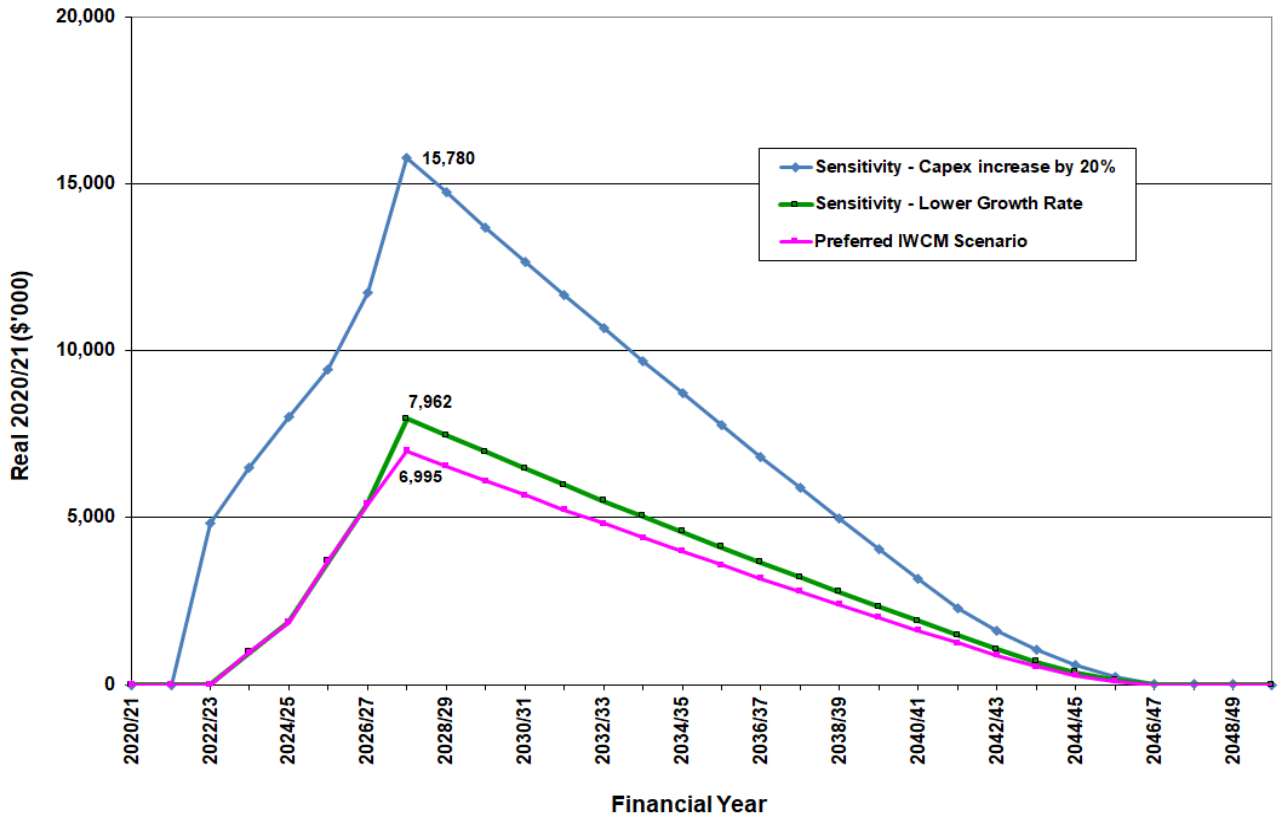


Figure 10-9: Sensitivity of Borrowing Levels for Sewerage

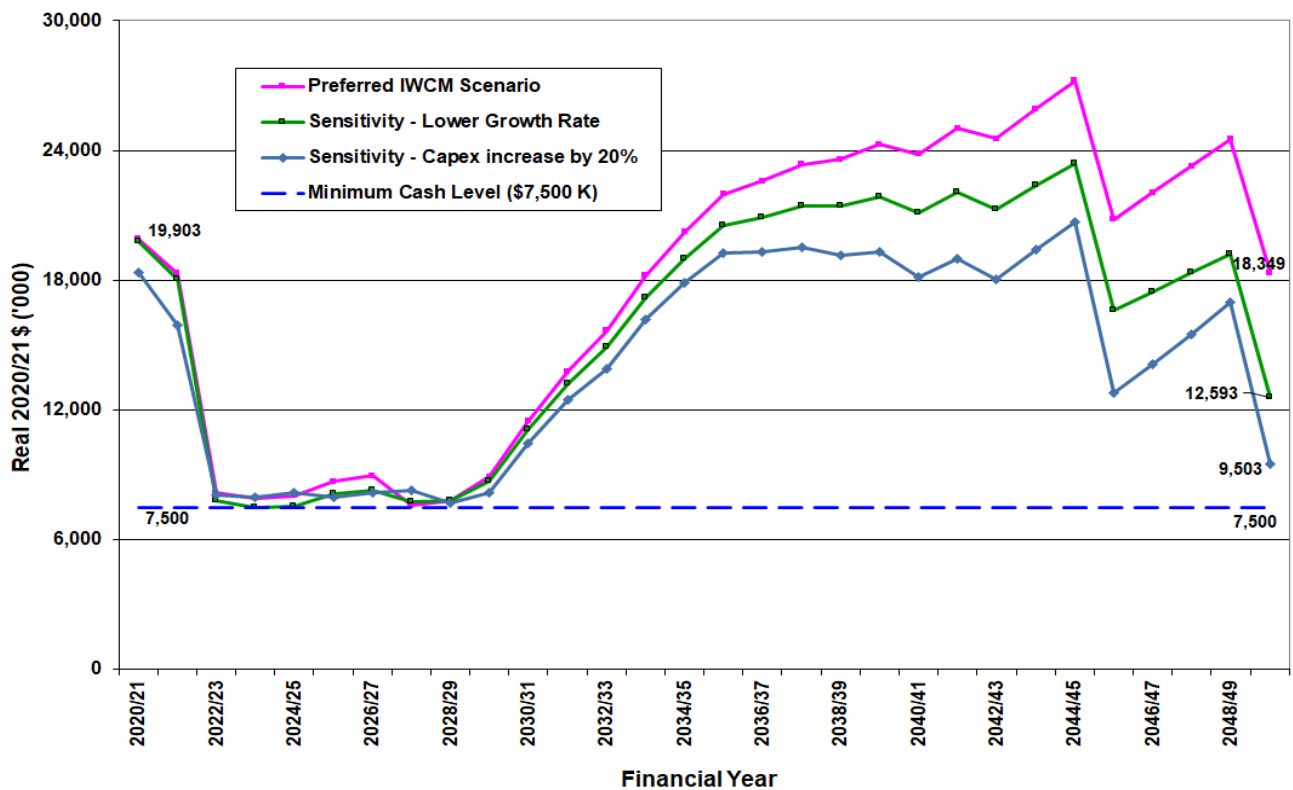


Figure 10-10: Sensitivity of Cash and Investment Levels for Sewerage

## 11. References

1. IWCM Issues Paper – *Public Works, Advisory November 2020*
2. Water Loss Management Plan – *ATOM Consulting*
3. Health Based Targets – *ATOM Consulting, December 2020*
4. Singleton Sewage Treatment Plant STP Issues - *hunterh<sub>2</sub>O, June 2021*
5. Recycled Water IWCM Investigations - *hunterh<sub>2</sub>O, March 2021*
6. Singleton Bulk Water Distribution – *Public Works Advisory, March 2021*
7. Hydraulic Modelling of Sewer Network – *Public Works Advisory, June 2021*
8. Serviced and Unserviced Area – *Public Works Advisory, May 2021*
9. Consolidated Options Assessment Report – *Public Works Advisory, July 2021*





## Appendices

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## Appendix A      Customer Service Plan



**SINGLETON**  
COUNCIL

## Appendix One

# **Water and Sewer - Customer Service Plan**

## **Customer Service Standards – Priorities and Timeframes - Levels of Service**



# Water and Sewer

## Standard and Levels of Service

### 1.1. WATER SUPPLY SERVICE

This section outlines the standard Levels of Service which meet minimum requirements for water supply serving Singleton. A special set of Levels of Service may be developed in the future, for smaller villages where it is not cost effective to provide these standards. Levels of Service with respect to the water supply systems typically cover four areas:

- Availability of supply;
- Water quality;
- Response times to supply failures; and
- Customer complaints.

In this document, whenever **Levels of Service** are mentioned, it is assumed that statutory, regulatory and licencing requirements are met.

### WATER SUPPLY - CUSTOMER SERVICE STANDARDS

The following table outlines the Customer Service standards for the essential service aspect of the Council Water Supply Service. The target, priority and response times indicated are for Potable Supply Customers only and do not extend to those special customers on specific agreements. Targets are set on an annual basis and are based on the median result of other similar Council's for each performance measure.

Standards	Description	Target	Priority	Benchmark
Drinking water pressure to boundary	Provide between 12 metres and 90 metres head of water in the reticulation system. The	95% of all residential properties during	2	Industry standard



Standards	Description	Target	Priority	Benchmark
	<p>minimum water pressure is based on minimum firefighting requirements and the maximum pressure protects Council and house plumbing from bursting.</p> <p>The minimum drinking water pressure provided by Council will fill a standard 9 L bucket in 1.5 mins.</p>	summer whilst conveying a minimum of 6 L/min		
Extent of unplanned drinking water interruptions, including their number, duration and cause (e.g. water main breaks).	<p>An unplanned water supply interruption occurs when a property is without a service due to any cause. This excludes the following:</p> <ul style="list-style-type: none"> <li>• Property service connection interruptions (unless the burst or leak requires the main to be shut down for repairs which affect multiple customers)</li> <li>• Interruptions that cause some reduction to the service but where normal activities are still possible</li> <li>• Planned interruptions except where the customer has not received notification.</li> </ul>	<ul style="list-style-type: none"> <li>• C15 – Unplanned interruption duration &lt; 120 mins</li> <li>• C10 – &lt; 4 water service complaints per 1,000 properties</li> <li>• A8 – &lt; 12 main breaks per 100km of water main</li> <li>• C17 – &lt; 32 unplanned interruption per 1,000 properties</li> </ul>	1	<p>National Performance Benchmarking Report</p> <ul style="list-style-type: none"> <li>• C15 – Average Duration of unplanned interruptions water in minutes</li> <li>• C10 – Water Service, complaints no. per 1000 properties</li> <li>• A8 – Water main breaks no. per 100 km of water main</li> <li>• C17 – Average frequency of unplanned interruptions – water no. per 1,000 properties</li> </ul>
Time for restoration of water service – unplanned interruptions	Restoration occurs where all interrupted connections are restored to normal service.	• A8 – < 12 main breaks per 100km of water main	1	National Performance Benchmarking Report



Standards	Description	Target	Priority	Benchmark
		<ul style="list-style-type: none"> <li>• C15 – Unplanned interruption duration &lt; 120 mins</li> </ul>		<ul style="list-style-type: none"> <li>• A8 – Water main breaks no. per 100 km of water main</li> <li>• C15 – Average Duration of unplanned interruptions water in minutes</li> </ul>
Notification for planned water service interruptions	<ul style="list-style-type: none"> <li>• Provide notice, where possible, via doorknocking/letter box drops, social media, Council's website and/or variable message board.</li> <li>• If interruption will be less than four hours, notice via doorknocking will only be given to those customers who are put at extreme inconvenience.</li> <li>• Provide alternative water supplies, where possible, through temporary connections and/or emergency bottled drinking water for outages predicted to be greater than 8 hours.</li> <li>• Prioritise notification and resumption of supply to Critical and Extremely Critical Customers (e.g. dialysis patients)</li> </ul>	N/A	2	Industry standard
Drinking water quality and/or complaints*	Supply drinking water in the reticulated system which meet the Australian Drinking Water Guidelines and minimise the number of water quality complaints resulting from operational practices.	<ul style="list-style-type: none"> <li>• H3 – 100% of the service population for which population microbiological compliance is achieved</li> </ul>	2	National Performance Benchmarking Report <ul style="list-style-type: none"> <li>• H3 - % of population where microbiological compliance was achieved</li> </ul>



Standards	Description	Target	Priority	Benchmark
		<ul style="list-style-type: none"> <li>• C9 – &lt; 3 water quality complaints per 1,000 properties</li> </ul>		<ul style="list-style-type: none"> <li>• C9 – Water quality complaints per 1,000 properties</li> </ul>
Water for firefighting	<p>Properties connected to the town water supply receive potable water at a guaranteed level of service and meets the NSW Brigade requirements for firefighting in accordance with AS2419.</p> <p>Council has committed to progressively replacing sub 100mm water mains to provide the minimum firefighting pressure by 2030.</p>	Available in all urban areas**	N/A	N/A
Consumption restrictions	<p>The adopted consumption trigger levels are aimed at ensuring that Singleton is affected by water restrictions for less than 10% of the time and no more than 5 times per 100 years. Restrictions are only applied when severe water shortages are evident.</p> <p>There are six categories of restrictions (1 – low level restrictions to 6 – emergency restrictions), each with an increasing impact on consumption, in accordance with the current Drought Management Plan.</p> <p>Restrictions will be widely advertised to ensure total awareness by all customers.</p>	No more than 5 times per 100 years	1	N/A



\* Excludes non-potable supply including Glennies Creek Trunk Water Main and Mount Thorley Raw Water Scheme

\*\* Excludes water mains less than 100mm consistent with Clause 142 of the *Local Government (General) Regulations, 2005 (NSW)* (for example downtown Singleton and water supply to the Abattoir).and Jerrys Plains Water Supply Scheme.

## WATER SUPPLY SERVICE - RESPONSE AND REPAIR TIMEFRAMES AND PRIORITY DETAILS

The following table outlines the Water Supply Response and Repair Timeframes and Priority Details for the essential service aspect of the Council Water Supply Service. The target, priority and response times indicated are for Potable Supply Customers only and do not extend to those special customers on specific agreements.

	Priority 1	Priority 2	Priority 3	Priority 4
<b>Definition</b>	A complete failure to maintain continuity of quality of supply to large number of customers or a critical user at a critical time. Traffic or safety hazard.	Partial failure to maintain continuity of supply to a small group of customers or a critical user at a non-critical time.	Failure to maintain continuity or quality of supply to a single customer.	Known fault, non-urgent minor problem or complaint which can be dealt with at a time convenient to the customer and Council
<b>Typical cause</b>	<ul style="list-style-type: none"> <li>• Pump station failure</li> <li>• Water Treatment Plant malfunction</li> <li>• Control valve failure</li> <li>• Major water main break</li> <li>• No water</li> <li>• Stop cock faulty (flooding house – urgent shutdown required)</li> </ul>	<ul style="list-style-type: none"> <li>• Minor main or service break</li> <li>• Leaking main</li> <li>• Partial valve failure</li> <li>• Poor pressure</li> <li>• Leak causing a safety/traffic issue,</li> <li>• Stop cock faulty (need to be shut off supply today)</li> </ul>	<ul style="list-style-type: none"> <li>• Minor leak from main or service line (not causing safety/traffic issue)</li> <li>• Partial failure of connections</li> <li>• Minor leak from a hydrant point</li> <li>• Water hammer (stops when taps are turned off)</li> </ul>	<ul style="list-style-type: none"> <li>• Faulty water meter</li> <li>• Damaged meter (unable to read)</li> <li>• Missing/faulty Stop cock (no work being carried out)</li> <li>• Faulty valve or hydrant</li> </ul>



	Priority 1	Priority 2	Priority 3	Priority 4
	<ul style="list-style-type: none"> <li>• Suspected waterborne illness (potable water supplies)</li> </ul>	<ul style="list-style-type: none"> <li>• Water hammer (where only turning off the stop cock stops the hammer)</li> <li>• Asset location – plant and machinery on-site</li> </ul>	<ul style="list-style-type: none"> <li>• Asset locations – no plant or machinery on-site</li> <li>• Install temporary service</li> <li>• Dirty water (colour/odour/taste)</li> </ul>	
<b>Typical effects</b>	<ul style="list-style-type: none"> <li>• Major property damage</li> <li>• Water Treatment Plant output diminished</li> <li>• Personal risk to public health</li> <li>• Significant depletion of service reservoir</li> <li>• Major environmental impact</li> <li>• Reduced water supply to Critical Water Supply Customers</li> </ul>	<ul style="list-style-type: none"> <li>• Minor property damage</li> <li>• Minor environmental impact</li> </ul>	<ul style="list-style-type: none"> <li>• No property and/or minor environmental impact</li> </ul>	<ul style="list-style-type: none"> <li>• No property impact or financial disadvantage to the customer</li> </ul>
<b>Response time</b>	<p>Within 2 hours (business hours)</p> <p>Within 4 hours (after hours)</p>	<p>Within 4 hours (business hours)</p> <p>Within 6 hours (after hours)</p>	Within 24 hours	Within 72 hours
<b>Fault repair (i.e. asset functioning)</b>	Within 5 hours	Within 24 hours	Within 24 hours	Within 5 business days





	Priority 1	Priority 2	Priority 3	Priority 4
and back in service) objective				
Surface reinstatement and clean-up completion (if applicable)	Within 10 business days	Within 10 business days	Within 10 business days	Within 10 business days

## WATER SUPPLY SERVICE – LEVELS OF SERVICE

The following table outlines the Water Supply Levels of Service for the essential service aspect of the Council Water Supply Service. These target response times indicated are for standard service requests for Potable Supply Customers only and do not extend to those more complex developments and servicing arrangements. In complex developments and servicing requirements, every effort will be made to meet these levels of service, deviations from these levels of service will be communicated with the applicant.

Water Supply Response and Repair Timeframes and Priority Details are available in Table 3.

Standards	Description	Target	Comments	Benchmark
Water connection quotation – domestic	Quotation for standard domestic water connection	3 working days	From date of registration with Council; where requested through customer service centre and registered by CRM	
Water connection quotation – Commercial	Quotation for commercial water connections, including fire service installation quotations	5 working days	From date of registration with Council; where requested	



Standards	Description	Target	Comments	Benchmark
			through customer service centre and registered by CRM	
Water connection and meter installation (Domestic and Commercial)	Supply and installation of meter on existing property service line or supply and installation of meter including construction of property service line	20 working days	From date of payment of applicable fees and/or all reasonable terms and conditions imposed by Council are complied with.	
Fire Service (Installation of Tee and Valve)	Installation of tee and valve on Council's water main. Building of fire service frame (including valving) to be completed by developer/property owner's plumber.	20 working days	From date of payment of applicable fees and/or all reasonable terms and conditions imposed by Council are complied with.	
Statement of Available Pressure	Provision of available pressure at nominated hydrant; typically, by undertaking a site visit and performing a pressure test at the hydrant.	20 working days	From date of payment of applicable fees and/or all reasonable terms and conditions imposed by Council are complied with.	
Water Meter Disconnection	Includes removal of water meter and capping of service pipes.	20 working days	From date of payment of applicable fees and/or all reasonable terms and conditions imposed by Council are complied with.	
Water Main (new) Connections	Scheduling requirements in Technical Specifications	20 working days	From date of payment of applicable fees and/or all reasonable terms and conditions imposed by Council are complied with.	



Standards	Description	Target	Comments	Benchmark
Water Carter Approvals	Non-potable and private use approval	10 working days	Potable user allows for Environmental Health Officer (EHO) inspection	Internal benchmarks
	Potable user approval	20 working days		

All timeframes are from the date of payment of all associated fees as quoted and the provision of sufficient information.

For services that require ordering of special or custom items, every effort will be made to meet these levels of service, deviations from these levels of service will be communicated with the applicant.

## 1.2. SEWERAGE SYSTEM

This section outlines the standard Levels of Service which meet minimum requirements for sewerage system serving Singleton. Levels of Service with respect to the sewerage systems are typically concerned with the following areas:

- Availability of supply;
- System failures;
- Response times to supply failures;
- Customer complaints and inquiries;
- Odours/vectors (flies, vermin etc.);
- Impact of Sewage treatment works on surrounding residents; and
- Effluent and biosolid management.

The discharge of effluent, and biosolids, noise and odours are covered by environmental protection statutory, and regulatory obligations, and licence requirements. In this document, whenever **Levels of Service** are mentioned, it is assumed that statutory, regulatory and licencing requirements are met.



## SEWERAGE SYSTEM - CUSTOMER SERVICE STANDARDS

The following table outlines the Customer Service standards for the essential service aspect of the Council Sewerage System. Targets are set on an annual basis and are based on the median result of other similar Council's for each performance measure.

Standards	Description	Target	Priority*	Benchmark
Sewerage overflows to customer properties.	Sewerage overflows to customer properties may occur either as a result of onsite plumbing or offsite sewerage issues. Customers are advised in the first instance to contact their plumber. If the plumber identifies the issue is with the sewerage system, Council will reimburse the plumber/customer for the work and undertake rectification.	•A14 – < 38 Sewerage main breaks and chokers per 100 km of sewer main	1	National Performance Benchmarking Report •A14 – Sewerage main breaks and chokers per 100 km of sewer main
Sewer odour complaints	Sewer odour complaints can be generated as a consequence of a range of shortcomings with operational maintenance of the system. Action is taken to minimise the disruption from such occurring.	•21 – < 0.9 odour complaints per 1,000 properties	2	National Performance Benchmarking Report •21 – Odour Complaints per 1,000 properties
Effluent quality from Sewage Treatment Plant	To meet and ensure ongoing compliance with licence regulations by the EPA for the operation of the Sewage Treatment Plants (STPs).	•E5 – > 98% of sewage volume treated compliant with EPA licence	N/A	National Performance Benchmarking •E4 – Percentage of sewage volume treated was compliant (%)



## SEWERAGE SYSTEM - RESPONSE AND REPAIR TIMEFRAMES AND PRIORITY DETAILS

The following table outlines the Sewerage System Response and Repair Timeframes and Priority Details for the essential service aspect of the Council Sewerage System.

	Priority 1	Priority 2	Priority 3	Priority 4
<b>Definition</b>	<ul style="list-style-type: none"> <li>• A complete failure to contain sewage within the system or any problem affecting customers or a critical user at a critical time</li> <li>• Traffic or safety hazard</li> </ul>	A minor failure to contain sewage within the sewer system or any problem affecting multiple customers	A minor failure to contain sewage affecting a single property	A minor problem, request or complaint which can be dealt with at a time convenient to the customer and Council
<b>Typical cause</b>	<ul style="list-style-type: none"> <li>• Manhole overflowing</li> <li>• Pump station failure</li> <li>• Broken gravity/rising main</li> <li>• Missing manhole lids</li> <li>• Break, collapse, choke overloading the system and extended wet weather</li> <li>• Subsidence causing immediate danger</li> <li>• Sewerage Treatment Plant critical alarms</li> </ul>	<ul style="list-style-type: none"> <li>• Cracked pipe or partial blockage of the sewer</li> <li>• Pump station fault,</li> <li>• Partial sewer blockage</li> <li>• Subsistence causing danger,</li> <li>• Asset location – plant and machinery onsite</li> </ul>	<ul style="list-style-type: none"> <li>• Sudden extra hydraulic load which backs up but then clears itself</li> <li>• Partial main line choke</li> <li>• Partial house service choke</li> <li>• Broken junction connection</li> <li>• Minor subsidence</li> <li>• Noisy or odorous manhole or pump station</li> </ul>	<ul style="list-style-type: none"> <li>• Pump station/manhole noisy (not causing major concern to customer's peace and quiet)</li> <li>• Sewer odour not occurring now</li> <li>• Planned work</li> <li>• System investigation</li> </ul>
<b>Typical effects</b>	<ul style="list-style-type: none"> <li>• Personal injury or risk to public health</li> </ul>	<ul style="list-style-type: none"> <li>• Surcharge outside a building, not posing a health risk</li> </ul>	<ul style="list-style-type: none"> <li>• Slow moving toilet flush</li> <li>• Minimal or environmental impact</li> </ul>	<ul style="list-style-type: none"> <li>• Minor inconvenience or disruption</li> </ul>





	Priority 1	Priority 2	Priority 3	Priority 4
	<ul style="list-style-type: none"> <li>• Surcharge to overflow in dry weather</li> <li>• Surcharge or overflow wet weather</li> <li>• Surcharge inside a building</li> <li>• Surcharge outside a building, if posing a health risk</li> <li>• Major property damage e.g. subsidence</li> <li>• Major environmental impact</li> </ul>	<ul style="list-style-type: none"> <li>• Minor property damage</li> <li>• Minor environmental impact, ie odour problems</li> </ul>		
<b>Response time</b>	Within 2 hour (business hours) Within 4 hours (after hours)	Within 4 hours (business hours) Within 6 hours (after hours)	Within 24 hours of a normal working day	Within 5 business days
<b>Fault repair (ie asset functioning and back in service) objective</b>	Within 5 hours	Within 8 hours	Within 48 hours of a normal working day	Within 5 business days
<b>Surface reinstatement and clean-up</b>	Within 10 business days	Within 10 business days	Within 10 business days	Within 10 business days



	Priority 1	Priority 2	Priority 3	Priority 4
completion (if applicable)				

## SEWERAGE SYSTEM – LEVELS OF SERVICE

The following table outlines the Sewerage System Levels of Service for the essential service aspect of the Council Sewerage System. These target times indicated are for standard service requests only and do not extend to those more complex developments and servicing arrangements. In complex developments and servicing requirements, every effort will be made to meet these levels of service, deviations from these levels of service will be communicated with the applicant.

Standards	Description	Target	Comments	Benchmark
Sewer connection	Connection of property to Council's sewer system, known as new junction. This is typically undertaken by the Developer or plumber but can be undertaken by Council.	20 working days	From date of payment of applicable fees and/or all reasonable terms and conditions imposed by Council are complied with.	
Pressure Sewer System Installation	Installation and connection of pressure sewer system and connection to Council's sewer system.	90 working days	From date of payment of applicable fees and/or all reasonable terms and conditions imposed by Council are complied with.	Time to install from date of payment and signing of installation agreement.
Sewer Disconnection	Disconnection and capping of property discharge line at Council's sewer main. This is typically undertaken by the Developer or plumber except in the case of a dep sewer main.	20 working days	From date of payment of applicable fees and/or all reasonable terms and conditions imposed by Council are complied with.	



Standards	Description	Target	Comments	Benchmark
Adjustment to Maintenance Chambers	Raise / Lower Maintenance Chamber.	20 working days	From date of payment of applicable fees and/or all reasonable terms and conditions imposed by Council are complied with.	
Depth of Sewer Maintenance Chamber	Provide depth of Sewer Maintenance Chamber; typically by undertaking measurement during site visit.	5 working days	From date of registration with Council; where requested through customer service centre and registered by CRM	
Location of assets	Locate Council's underground assets.	5 working days	From date of registration with Council; where requested through customer service centre and registered by CRM	
Liquid Trade Waste	Classification A and B Classification C – referral to DPIE required	5 working days 40 working days	From date of payment of applicable fees and/or all reasonable terms and conditions imposed by Council are complied with.	Internal benchmark Where concurrence is required, 40 days is permitted as per LGA 1993, chapter 7 part 1 division 3.

All timeframes are from the date of payment of all associated fees as quoted and the provision of sufficient information.

For services that require ordering of special or custom items, every effort will be made to meet these levels of service, deviations from these levels of service will be communicated with the applicant.



### 1.3. WATER AND SEWER - DEVELOPMENT ENGINEERING SERVICES

As the Local Water Utility, any proposed development located within Council's Water Supply and/or Sewerage System areas requires an assessment of the proposed development, to identify potential impacts on water and/or sewer infrastructure in the area and any Water and Sewer related applications and approvals. This is in accordance with the provisions of section 305 of the *Water Management Act 2000* or section 109 of the *Environmental Planning and Assessment Act 1979* or at the time of issuing a notice or other form of written advice, e.g. under the *SEPP (Exempt and Complying Development Codes) 2008*.

Levels of Service with respect with development engineering services within the Water and Sewer Group are typically concerned with the following areas:

- Protection of existing infrastructure; and
- Response times to provide advice and approvals.

#### DEVELOPMENT ENGINEERING SERVICES – LEVELS OF SERVICE

The following table outlines the Water and Sewer Development Engineering Services Levels of Service for the essential aspect of the Council Water and Sewer building and development services. These target times indicated are for standard developments only and do not extend to those more complex developments and servicing arrangements. In complex developments and servicing requirements, every effort will be made to meet these levels of service, deviations from these levels of service will be communicated with the applicant.

Standards	Description	Target	Comments	Benchmark
WMA S306 Notice Requirement	Review of application and determination of requirements for development to be able to obtain WMA S307 Certificate of Compliance	20 working days	From date of payment of applicable fees and/or all reasonable terms and conditions imposed by Council are complied with.	



Standards	Description	Target	Comments	Benchmark
WMA S307 Certificate of Compliance	Review of compliance against S306 Notice of Requirements and provision of Certificate of Compliance	20 working days	From date of payment and provision of all required documentations	S307 of the Water Management Act legislative requirement to provide within 60 days
Building in Vicinity of Sewer and Water Trunk Mains	Assessment of applications to build in the vicinity of water and sewer mains; typically including review of design drawings.	20 working days	From date of payment of applicable fees and/or all reasonable terms and conditions imposed by Council are complied with.	
Design Review Response	Response to customer on additional information and timeframe for design approval	10 working days	From date of payment of applicable fees and/or all reasonable terms and conditions imposed by Council are complied with.	
Building Plan Assessment	Assessment of application building plans for impact on Council's water and sewer	5 working days	From date of registration with Council; where requested through customer service centre and registered by CRM	





## Appendix B      Present Value Cost estimates

Singleton Council IWCM - Scenario 1

Water Supply Service																																										
ITEM	ILOS %	Growth %	DESCRIPTION	Qty	[UNIT]	AMT \$K	PRESENT WORTH (\$K)			2021	2022	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		
							4%	7%	10%																																	
1.0	100%	0%	Actions from DWMS Improvement Plan																																							
			Upgrade baffles in Obanvale CWT		300	\$300	\$277	\$262	\$248	\$0	\$0	\$300																														
			Optimise feedback loop for the re-chlorinator chlorine analyser		30	\$30	\$29	\$28	\$27		\$30																															
			Additional monitoring at the Jerrys Plains Handover poir		50	\$50	\$48	\$47	\$45	\$0	\$50																															
			Reinstate the on-line turbidity meter at the Plashett break tank		15	\$15	\$14	\$14	\$14	\$0	\$15																															
2.0	100%	0%	Actions from Water Loss Management Pla																																							
			Install additional flowmeters to create DMAs	1	50	\$50	\$48	\$47	\$45	\$0	\$50																															
			Install pressure reducing valves to crate pressure managed areas and monitoring at CV1, CV2 and CV3.	1	50	\$50	\$46	\$44	\$41	\$0	\$0	\$50																														
			Install smart water meters at the new Bulga development	1	190	\$190	\$162	\$145	\$130	\$0	\$0	\$0	\$0	\$190																												
3.0	100%	0%	Singleton Water Supply - Water Security																																							
			Rose Point Park bore water - as supplementary source (capex)	1	2,387	\$2,387	\$1,378	\$926	\$629	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$2,387	\$0																
4.0	100%	0%	Jerrys Plains Water supply																																							
			Construct a new WTP to treat River water	1	2,028	\$2,028	\$1,425	\$1,103	\$860	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$2,028																						
5.0			Compliance with Health Based Targets																																							
			Install UV disinfection system	1	810	\$810	\$547	\$412	\$312	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$810																					
6.0	100%	0%	Servicing unserved communities																																							
			Supply reticulated water to Bulga (100% funded)	1	10,347	\$10,347	\$9,198	\$8,446	\$7,774	\$0	\$0	\$0	\$10,347																													
			TOTAL CAPITAL COST (including 30% contingency, 10% SID & 10% PM & CM)			\$16,257	\$13,174	\$11,473	\$10,126																																	
2.0			OPERATION AND MAINTENANCE COSTS																																							
			Water loss management plan - smart meter data management	1	\$11.2	\$291	\$153	\$101	\$70	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$11.2	\$11.2	\$11.2	\$11.2	\$11.2	\$11.2	\$11.2	\$11.2	\$11.2	\$11.2	\$11.2	\$11.2	\$11.2	\$11.2	\$11.2	\$11.2	\$11.2	\$11.2	\$11.2	\$11.2	\$11.2	\$11.2	\$11.2	\$11.2	\$11.2	\$11.2		
			Rose Point Park bore water scheme	1	\$40.0	\$600	\$247	\$132	\$73	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$40.0	\$40.0	\$40.0	\$40.0	\$40.0	\$40.0	\$40.0	\$40.0	\$40.0	\$40.0	\$40.0	\$40.0	\$40.0	\$40.0	\$40.0	\$40.0	
			Jerrys Plains water supply - Construct a new WTP to treat River water	1	\$33.0	\$693	\$325	\$194	\$121	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$33.0	\$33.0	\$33.0	\$33.0	\$33.0	\$33.0	\$33.0	\$33.0	\$33.0	\$33.0	\$33.0	\$33.0	\$33.0	\$33.0	\$33.0	\$33.0	\$33.0	\$33.0	\$33.0	\$33.0	\$33.0		
			Jerrys Plains new WTPP - Operator salary	1	\$35.0	\$742	\$351	\$212	\$133	\$0.0	\$1.0	\$1.0	\$1.0	\$1.0	\$1.0	\$1.0	\$1.0	\$0.0	\$0.0	\$35.0	\$35.0	\$35.0	\$35.0	\$35.0	\$35.0	\$35.0	\$35.0	\$35.0	\$35.0	\$35.0	\$35.0	\$35.0	\$35.0	\$35.0	\$35.0	\$35.0	\$35.0	\$35.0	\$35.0	\$35.0		
			HBT compliance - operation of UV unit	1	\$38.0	\$760	\$349	\$205	\$125	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$38.0	\$38.0	\$38.0	\$38.0	\$38.0	\$38.0	\$38.0	\$38.0	\$38.0	\$38.0	\$38.0	\$38.0	\$38.0	\$38.0	\$38.0	\$38.0	\$38.0	\$38.0	\$38.0	\$38.0		
			Supply reticulated water to Bulga	1	\$22.3	\$0	\$324	\$218	\$155	\$0.0	\$0.0	\$0.0	\$0.0	\$22.3	\$22.3	\$22.3	\$22.3	\$22.3	\$22.3	\$22.3	\$22.3	\$22.3	\$22.3	\$22.3	\$22.3	\$22.3	\$22.3	\$22.3	\$22.3	\$22.3	\$22.3	\$22.3	\$22.3	\$22.3	\$22.3	\$22.3	\$22.3	\$22.3	\$22.3	\$22.3		
			TOTAL OPERATION & MAINTENANCE COSTS			\$3,688	\$1,749	\$1,062	\$677	\$0	\$1	\$1	\$1	\$23	\$35	\$35	\$35	\$34	\$34	\$102	\$140	\$140	\$140	\$140	\$140	\$180	\$180	\$180	\$180	\$180	\$180	\$180	\$180	\$180	\$180	\$180	\$180	\$180	\$180	\$180		
			Avoided Costs																																							
			Bulk water supply charges paid to AGL for supply to Jerrys Plains			\$210	\$99	\$59	\$37	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$10	\$10	\$10	\$10	\$10	\$10	\$10	\$10	\$10	\$10	\$10	\$10	\$10	\$10	\$10	\$10	\$10	\$10	\$10	\$10	\$10		
			TOTAL AVOIDED COSTS			\$210	\$99	\$59	\$37	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$10	\$10	\$10	\$10	\$10	\$10	\$10	\$10	\$10	\$10	\$10	\$10	\$10	\$10	\$10	\$10	\$10	\$10	\$10	\$10	\$10		
			TOTAL PRESENT VALUE			\$19,735	\$15,022	\$12,594	\$10,839																																	

Singleton Council IWCM - Scenario 1

Sewerage Service																																														
ITEM	ILOS %	Growth %	DESCRIPTION	Qty	[UNIT] 4K	AMT \$K	PRESENT WORTH (\$K)			2021	2022	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						
							4%	7%	10%																																					
1.0	70%	30%	Sewage collection and transfer upgrade (for 1 in 5 year 24 hour ARI)																																											
			Stage 1 by 2025	1	858	\$944	\$813	\$741	\$682	\$0	\$0	\$343	\$515	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0			
			Upgrade the gravity lines in the Bourke St and Kennedy St SPS catchment																																											
			Upgrade Kennedy St pumps																																											
	0%	100%	Stage 2 (2035 to 2040)	1	843	\$843	\$415	\$248	\$151	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$253	\$253	\$337																
			Augment Dunolly Street pump:																																											
2.0	100%	0%	Capacity and Performance of Singleton STP																																											
			Augment capacity of inlet works	1	4,300	\$4,300	\$3,976	\$3,756	\$3,554	\$0	\$0	\$4,300																																		
			Recommission two sludge lagoons	1	2,230	\$2,380	\$2,130	\$1,987	\$1,865	\$0	\$0	\$2,230	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$150	
			Refurbish existing sludge drying beds and construct new supernatant recycle pumps	1	944	\$994	\$896	\$837	\$788	\$0	\$0	\$944	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$50			
			Construct new septage receive facility	1	425	\$425	\$166	\$84	\$43	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$425		
3.0	100%	0%	Comply with the EPA requirements for STP Effluent disposal																																											
			Chemical dosing facility to reduce phosphorus and the extent of algae formation	1	812	\$1,512	\$975	\$808	\$715	\$0	\$0	\$812	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$700	
			Fencing for Helminth control	1	15	\$15	\$13	\$12	\$11	\$0	\$0	\$0	\$15																																	
4.0	100%	0%	Renewable energy generation																																											
			PV cells for solar power generation at the STP	1		\$0	\$0	\$0	\$0																																					
5.0	100%	0%	Sewering of unsewered areas																																											
			Broke	1	4,390	\$4,390	\$1,647	\$809	\$405	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$4,390		
			Jerrys Plains	1	3,020	\$3,020	\$1,133	\$556	\$279	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$3,020			
			Bulga	1	1,980	\$1,980	\$635	\$278	\$125	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,980		
			Mount Thorley (improved system performance) - no capital cos!	1	4,940	\$4,940	\$1,584	\$694	\$311	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,980	
			Wattle Ponds (improved system performance) - no capital cost		-																																						\$4,940			
			TOTAL CAPITAL COST (including 30% contingency, 10% SID & 10% PM & CM)			\$25,743	\$14,382	\$10,810	\$8,929																																					
2.0			OPERATION AND MAINTENANCE COSTS																																											
			Sewage collection and transfer (assume no increase in existing O&M cost)	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	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
			Recommission two sludge lagoons	1	0.5%	\$312	\$172	\$118	\$86	\$0	\$0	\$0	\$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	\$11	\$11	\$11	\$11	\$11	\$11	\$11	\$11	
			Refurbish existing sludge drying beds	1	1.0%	\$264	\$145	\$100	\$73	\$0	\$0	\$0	\$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	\$9	\$9	\$9	\$9	\$9	\$9	\$9		
			Construct new septage receive facility	1	0.5%	\$13	\$4	\$2	\$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	\$0	\$0	\$2	
			Chemical dosing facilities for phosphorus removal up to 1 mg/L	1	\$128	\$0	\$2,024	\$1,379	\$994	\$0	\$0	\$0	\$128	\$128	\$128	\$128	\$128	\$128	\$128	\$128	\$128	\$128	\$128	\$128	\$128	\$128	\$128	\$128	\$128	\$128	\$128	\$128	\$128	\$128	\$128	\$128	\$128	\$128	\$128	\$128	\$128	\$128	\$128	\$128	\$298	
			Fencing for Helminth control	1	0.5%	\$0	\$1	\$1	\$1	\$0	\$0	\$0	\$0	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1		
			O&M Costs for new serviced areas																																											
			Broke		\$170	\$0	\$348	\$160	\$75	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$170		
			Jerrys Plains		\$119	\$0	\$243	\$112	\$53	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$119		
			Bulga		\$94	\$94	\$29	\$12	\$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	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$94		
			Mount Thorley		\$166	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
			Wattle Ponds		\$442	\$442	\$142	\$62	\$28	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$442		
			TOTAL OPERATION & MAINTENANCE COSTS			\$6,615	\$3,109	\$1,946	\$1,315	\$0	\$0	\$0	\$149	\$149	\$149	\$149	\$149	\$149	\$149	\$149	\$149	\$149	\$149	\$149	\$149	\$149	\$149	\$149	\$149	\$149	\$149	\$149	\$149	\$149	\$149	\$149	\$149	\$149	\$149	\$149	\$149	\$149	\$149	\$149	\$440	
			Avoided Costs	0.00		\$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	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
			TOTAL PRESENT VALUE			\$32,358	\$17,490	\$12,757	\$10,244																																					

Singleton Council IWCM - Scenario 2  
Water Supply Service

ITEM	ILOS %	Growth %	DESCRIPTION	Qty	[UNIT] \$K	AMT \$K	PRESENT WORTH (\$K)			2021	2022	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
							4%	7%	10%																															
1.0	100%	0%	Actions from DWMS Improvement Plan																																					
			Upgrade baffles in Obanvale CW1		300	\$300	\$277	\$262	\$248	\$0	\$0	\$300																												
			Optimise feedback loop for the re-chlorinator chlorine analyser		30	\$30	\$29	\$28	\$27			\$30																												
			Additional monitoring at the Jerrys Plains Handover poir		50	\$50	\$48	\$47	\$45	\$0	\$50																													
			Reinstate the on-line turbidity meter at the Plashett break tank		15	\$15	\$14	\$14	\$14	\$0	\$15																													
2.0	100%	0%	Actions from Water Loss Management Pla																																					
			Install additional flowmeters to create DMAs	1	50	\$50	\$48	\$47	\$45	\$0	\$50																													
			Install pressure reducing valves to crate pressure managed areas and monitoring at CV1, CV2 and CV3.	1	50	\$50	\$46	\$44	\$41	\$0	\$0	\$50																												
			Install smart water meters at the new Bulga development	1	190	\$190	\$162	\$145	\$130	\$0	\$0	\$0	\$0	\$190																										
3.0	100%	0%	Singleton Water Supply - Water Security																																					
			Rose Point Park bore water - as supplementary source (capex)	1	2,387	\$2,387	\$1,378	\$926	\$629	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$2,387	\$0														
4.0	100%	0%	Jerrys Plains Water supply																																					
			Connect to the Singleton water supply scheme at Apex reservoir	1	7,643	\$7,643	\$5,370	\$4,157	\$3,241	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$7,643																			
5.0			Compliance with Health Based Targets																																					
			Install UV disinfection system	1	810	\$810	\$547	\$412	\$312	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$810																			
6.0	100%	0%	Servicing unserviced communities																																					
			Supply reticulated water to Bulga (50% funded)	1	10,347	\$10,347	\$8,504	\$7,377	\$6,425	\$0	\$0	\$0	\$0	\$0	\$10,347																									
			TOTAL CAPITAL COST (including 30% contingency, 10% SID & 10% PM & CM)			\$21,872	\$16,425	\$13,458	\$11,158																															
2.0			OPERATION AND MAINTENANCE COSTS																																					
			Water loss management plan - smart meter data management	1	\$11.2	\$291	\$153	\$101	\$70	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$11.2	\$11.2	\$11.2	\$11.2	\$11.2	\$11.2	\$11.2	\$11.2	\$11.2	\$11.2	\$11.2	\$11.2	\$11.2	\$11.2	\$11.2	\$11.2	\$11.2	\$11.2	\$11.2	\$11.2	\$11.2	\$11.2	\$11.2	\$11.2	\$11.2	
			Rose Point Park bore water scheme	1	\$40.0	\$600	\$247	\$132	\$73	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$40.0	\$40.0	\$40.0	\$40.0	\$40.0	\$40.0	\$40.0	\$40.0	\$40.0	\$40.0	\$40.0	\$40.0	\$40.0	\$40.0	\$40.0	\$40.0
			Jerrys Plains water supply - Connect to the Singleton water supply scheme	1	\$62.0	\$1,302	\$611	\$365	\$227	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$62.0	\$62.0	\$62.0	\$62.0	\$62.0	\$62.0	\$62.0	\$62.0	\$62.0	\$62.0	\$62.0	\$62.0	\$62.0	\$62.0	\$62.0	\$62.0	\$62.0	\$62.0	\$62.0	\$62.0	
			HBT compliance - operation of UV unit	1	\$38.0	\$760	\$349	\$205	\$125	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$38.0	\$38.0	\$38.0	\$38.0	\$38.0	\$38.0	\$38.0	\$38.0	\$38.0	\$38.0	\$38.0	\$38.0	\$38.0	\$38.0	\$38.0	\$38.0	\$38.0	\$38.0	\$38.0	
			Supply reticulated water to Bulga	1	\$22.3	\$0	\$286	\$185	\$126	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$22.3	\$22.3	\$22.3	\$22.3	\$22.3	\$22.3	\$22.3	\$22.3	\$22.3	\$22.3	\$22.3	\$22.3	\$22.3	\$22.3	\$22.3	\$22.3	\$22.3	\$22.3	\$22.3	\$22.3	\$22.3	\$22.3	\$22.3	\$22.3	
			TOTAL OPERATION & MAINTENANCE COSTS			\$3,511	\$1,646	\$988	\$621	\$0	\$0	\$0	\$0	\$0	\$11	\$34	\$34	\$34	\$34	\$96	\$134	\$134	\$134	\$134	\$134	\$174	\$174	\$174	\$174	\$174	\$174	\$174	\$174	\$174	\$174	\$174	\$174	\$174	\$174	
			Avoided Costs																																					
			Bulk water supply charges paid to AGL for supply to Jerrys Plains			\$210	\$99	\$59	\$37	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$10	\$10	\$10	\$10	\$10	\$10	\$10	\$10	\$10	\$10	\$10	\$10	\$10	\$10	\$10	\$10	\$10	\$10	\$10	\$10	
			TOTAL AVOIDED COSTS			\$210	\$99	\$59	\$37	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$10	\$10	\$10	\$10	\$10	\$10	\$10	\$10	\$10	\$10	\$10	\$10	\$10	\$10	\$10	\$10	\$10	\$10	\$10	\$10	
			TOTAL PRESENT VALUE			\$25,173	\$18,170	\$14,506	\$11,815																															

Singleton Council IWCM - Scenario 2  
Sewerage Service

ITEM	ILOS %	Growth %	DESCRIPTION	Qty	[UNIT] 4K	AMT \$K	PRESENT WORTH (\$K)			2021	2022	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			
							4%	7%	10%																																		
1.0	70%	30%	Sewage collection and transfer upgrade (for 1 in 5 year 24 hour ARI)	1	858	\$944	\$813	\$741	\$682	\$0	\$0	\$343	\$515	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$86			
			Stage 1 by 2025																																								
			Upgrade the gravity lines in the Bourke St and Kennedy St SPS catchment																																								
	0%	100%	Upgrade Kennedy St pump																																								
			Stage 2 (2035 to 2040)	1	843	\$843	\$415	\$248	\$151	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$253	\$253	\$337														
			Augment Dunolly Street pump																																								
2.0	100%	0%	Capacity and Performance of Singleton STP																																								
			Augment capacity of inlet works	1	4,300	\$4,300	\$3,976	\$3,756	\$3,554	\$0	\$0	\$4,300																															
			Recommission two sludge lagoons	1	2,230	\$2,380	\$2,130	\$1,987	\$1,865	\$0	\$0	\$2,230	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$150												
			Refurbish existing sludge drying beds and construct new supernatant recycle pumps	1	944	\$994	\$896	\$837	\$788	\$0	\$0	\$944	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$50											
			Construct new septage receiveil facility	1	425	\$425	\$166	\$84	\$43	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$425			
3.0	100%	0%	Comply with the EPA requirements for STP Effluent disposal																																								
			Chemical dosing facility to reduce phosphorus and the extent of algae formation	1	812	\$1,512	\$975	\$808	\$715	\$0	\$0	\$812	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$700		
			Fencing for Helminth control	1	15	\$15	\$13	\$12	\$11	\$0	\$0	\$0	\$15																														
4.0	100%	0%	Renewable energy generation																																								
			PV cells for solar power generation at the STP	1		\$0	\$0	\$0	\$0																																		
5.0	100%	0%	Sewering of unsewered areas																																								
			Broke	1	4,390	\$4,390	\$1,647	\$809	\$405	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$4,390			
			Jerrys Plains	1	3,020	\$3,020	\$1,133	\$556	\$279	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$3,020			
			Bulga	1	1,980	\$1,980	\$635	\$278	\$125	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,980			
			Mount Thorley (improved system performance) - no capital cos	1	4,940	\$4,940	\$1,584	\$694	\$311	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$4,940			
			Wattle Ponds (improved system performance) - no capital cost		-																																						
			TOTAL CAPITAL COST (including 30% contingency, 10% SID & 10% PM & CM)			\$25,743	\$14,382	\$10,810	\$8,929																																		
2.0			OPERATION AND MAINTENANCE COSTS																																								
			Sewage collection and transfer (assume no increase in existing O&M cost)	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	\$0	\$0			
			Recommission two sludge lagoons	1	0.5%	\$312	\$172	\$118	\$96	\$0	\$0	\$0	\$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	\$11	\$11	\$11			
			Refurbish existing sludge drying beds	1	1.0%	\$264	\$145	\$100	\$73	\$0	\$0	\$0	\$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	\$9	\$9	\$9			
			Construct new septage receiveil facility	1	0.5%	\$13	\$4	\$2	\$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	\$2			
			Chemical dosing facilities for phosphorus removal up to 1 mg/L	1	\$128	\$0	\$2,024	\$1,379	\$994	\$0	\$0	\$0	\$128	\$128	\$128	\$128	\$128	\$128	\$128	\$128	\$128	\$128	\$128	\$128	\$128	\$128	\$128	\$128	\$128	\$128	\$128	\$128	\$128	\$128	\$128	\$128	\$128	\$128	\$128	\$298			
			Fencing for Helminth control	1	0.5%	\$0	\$1	\$1	\$1	\$0	\$0	\$0	\$0	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1				
			O&M Costs for new serviced areas																																								
			Broke		\$170	\$0	\$348	\$160	\$75	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$170	\$170	\$170	\$170			
			Jerrys Plains		\$119	\$0	\$243	\$112	\$53	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$119	\$119	\$119	\$119			
			Bulga		\$94	\$94	\$29	\$12	\$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	\$0	\$0	\$0	\$0	\$0	\$94				
			Mount Thorley		\$166	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0				
			Wattle Ponds		\$442	\$442	\$142	\$62	\$28	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$442				
			TOTAL OPERATION & MAINTENANCE COSTS			\$6,615	\$3,109	\$1,946	\$1,315	\$0	\$0	\$0	\$149	\$149	\$149	\$149	\$149	\$149	\$149	\$149	\$149	\$149	\$149	\$149	\$149	\$149	\$149	\$149	\$149	\$149	\$149	\$149	\$149	\$149	\$149	\$149	\$149	\$149	\$440	\$440	\$440	\$882	\$704
			Avoided Costs	0.00		\$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	\$0	\$0			
			TOTAL PRESENT VALUE			\$32,358	\$17,490	\$12,757	\$10,244																																		

## Singleton Council IWCM - Scenario 3

## Water Supply Service

[illegible]

## Singleton Council IWCM - Scenario 3

### Sewerage Service

[illegible]

## Appendix C      First-cut DCs Calculation for IWCM Scenarios



**First-cut Developer Charges Calculation Details for IWCN Scenarios - Water Supply:**

IWCM Scenario	Service area	Calculated capital charge - Total (\$ per ET) (2020/21\$)	Calculated capital charge - Existing assets (\$ per ET) (2020/21\$)	Calculated capital charge - Future Assets (\$ per ET) (2020/21\$)	PV of new ETs in service area	% of Highest Capital Charge DSP Area 1	% of Highest Capital Charge DSP Area 2	DSP Areas	% of PV of new ETs in DSP area	Weighted component of capital charge (\$ per ET)	Weighted capital charges (\$ per ET) (2020/21\$)	Reduction amount (\$ per ET) (2020/21\$)	Calculated developer charge (\$ per ET) (2020/21\$)
BAU	Singleton	13,232	8,665	4,567	835	100%	100%	DSP 1	100%	13,232	13,232	1,918	11,314
	Jerrys Plains	3,321	1,515	1,806	10	25%	25%	DSP 2	100%	3,321	3,321		1,403
Scenario 1	Jerrys Plains	14,220	1,515	12,705	10	100%	100%	DSP 1	1%	155	14,240	1,935	12,305
	Singleton	14,241	8,646	5,594	882	100%	100%		99%	14,086			
Scenario 2	Jerrys Plains	43,033	1,515	41,518	10	100%	100%	DSP 1	100%	43,033	43,033	1,928	41,105
	Singleton	14,184	8,658	5,526	878	33%	100%	DSP 2	100%	14,184	14,184		12,257
Scenario 3	Jerrys Plains	14,620	1,515	13,106	10	100%	100%	DSP 1	1%	159	14,245	1,935	12,310
	Singleton	14,241	8,646	5,594	882	97%	97%		99%	14,086			

Notes:

- 1 Service areas with capital charge within 30% of the highest capital charge can be agglomerated.
- 2 BAU scenario does not include Bulga customers
- 3 Minor change in reduction amount for scenario 2 is due to the timing of Bulga Scheme

**Reduction Amount Calculation - Water Supply:**

Discount rate, p.a.	5%
Annual revenue 2020/21, (\$'000)	5,797 (FDR 19-20 adjusted for Bulk supply revenues)
No. of ETs, 2020/21	7,501
Annual water charge 2020/21, (\$/ET)	655
Annual water supply OMA (\$'000)	3,788 (Adjusted for Mt.Thorley raw water scheme)
Annual water supply OMA (\$/ET)	505
Estimated net operating income (\$/ET)	150

Year	Financial Year	Total ET	New ETs	Cumulative new ETs	Net income from new ETs (2020/21\$)	Reduction amount (\$ per ET) (2020/21\$)
2021	2020/21	7,501	62	62	9,258	
2022	2021/22	7,561	61	123	18,379	
2023	2022/23	7,621	60	182	27,363	
2024	2023/24	7,680	59	241	36,210	
2025	2024/25	7,738	58	300	44,920	
2026	2025/26	7,796	57	357	53,492	
2027	2026/27	7,852	56	413	61,928	
2028	2027/28	7,907	55	468	70,227	
2029	2028/29	7,962	54	523	78,388	
2030	2029/30	8,015	54	576	86,413	
2031	2030/31	8,068	53	629	94,300	
2032	2031/32	8,119	52	680	102,050	
2033	2032/33	8,170	51	731	109,664	
2034	2033/34	8,220	50	781	117,140	
2035	2034/35	8,269	49	830	124,479	
2036	2035/36	8,317	48	878	131,681	
2037	2036/37	8,364	47	925	138,746	
2038	2037/38	8,410	46	971	145,674	
2039	2038/39	8,455	45	1,017	152,465	
2040	2039/40	8,500	44	1,061	159,119	
2041	2040/41	8,543	43	1,104	165,635	
2042	2041/42	8,586	43	1,147	172,015	
2043	2042/43	8,627	42	1,189	178,258	
2044	2043/44	8,668	41	1,229	184,363	
2045	2044/45	8,708	40	1,269	190,332	
2046	2045/46	8,747	39	1,308	196,163	
2047	2046/47	8,785	38	1,346	201,858	
2048	2047/48	8,823	38	1,384	207,577	
2049	2048/49	8,861	38	1,422	213,321	
2050	2049/50	8,900	38	1,461	219,090	
2051	2050/51	8,938	39	1,499	224,883	
PV of new ETs		845	PV of net Income		1,621,123	\$ 1,918

**First-cut DC Calculation Details for IWCM Scenarios - Sewerage:**

IWCM Scenario	Service area	Calculated capital charge - Total (\$ per ET) (2020/21\$)	Calculated capital charge - Existing assets (\$ per ET) (2020/21\$)	Calculated capital charge - Future Assets (\$ per ET) (2020/21\$)	PV of new ETs in service area	% of Highest Capital Charge DSP Area 1	% of Highest Capital Charge DSP Area 2	DSP Areas	Reduction amount (\$ per ET) (2020/21\$)	Calculated developer charge (\$ per ET) (2020/21\$)
BAU	Singleton	6,719	2,369	4,350	901	100%	100%	DSP 1	3,040	3,680
Scenarios 1,2 and 3	Singleton	6,741	2,369	4,371	901	100%	100%	DSP 1	3,040	3,701

**Reduction Amount Calculation - Sewerage:**

Discount rate, p.a.	5%
Annual billing revenue 2020/21, (\$'000)	4,775
No. of ETs, 2020/21	7,649
Annual sewerage charge 2020/21, (\$/ET)	624
Annual sewerage OMA (\$'000)	2,957
Annual sewerage OMA (\$/ET)	387
Estimated net operating income (\$/ET)	238

Year	Financial Year	Total ET	New ETs	Cumulative new ETs	Net income from new ETs (2020/21\$)	Reduction amount (\$ per ET) (2020/21\$)
2021	2020/21	7,649	66	66	15,649	
2022	2021/22	7,714	65	131	31,066	
2023	2022/23	7,778	64	195	46,252	
2024	2023/24	7,841	63	258	61,206	
2025	2024/25	7,903	62	319	75,928	
2026	2025/26	7,964	61	380	90,419	
2027	2026/27	8,024	60	440	104,678	
2028	2027/28	8,083	59	499	118,705	
2029	2028/29	8,141	58	557	132,500	
2030	2029/30	8,198	57	615	146,064	
2031	2030/31	8,254	56	671	159,396	
2032	2031/32	8,309	55	726	172,497	
2033	2032/33	8,363	54	780	185,366	
2034	2033/34	8,416	53	833	198,003	
2035	2034/35	8,469	52	885	210,408	
2036	2035/36	8,520	51	937	222,582	
2037	2036/37	8,570	50	987	234,524	
2038	2037/38	8,619	49	1,036	246,234	
2039	2038/39	8,668	48	1,084	257,713	
2040	2039/40	8,715	47	1,132	268,960	
2041	2040/41	8,761	46	1,178	279,975	
2042	2041/42	8,807	45	1,223	290,759	
2043	2042/43	8,851	44	1,268	301,311	
2044	2043/44	8,895	43	1,311	311,631	
2045	2044/45	8,937	42	1,354	321,720	
2046	2045/46	8,978	41	1,395	331,577	
2047	2046/47	9,019	40	1,436	341,202	
2048	2047/48	9,060	41	1,476	350,871	
2049	2048/49	9,101	41	1,517	360,583	
2050	2049/50	9,142	41	1,558	370,339	
2051	2050/51	9,183	41	1,599	380,140	
		PV of new ETs	901	PV of net Income	2,740,210	\$ 3,040

## Appendix D      Social and Environmental assessment of Scenarios

SOCIAL AND ENVIRONMENTAL PERFORMANCE OF SCENARIOS							
		Objective	Key performance Targets	Weighting	Scenario 1	Scenario 2	Scenario 3
TBL CATEGORY	ENVIRONMENTAL	Collaborate to enhance, protect and improve our environment	Plan for and implement strategies that enhance, protect and improve the environment in the delivery of the 1 year, 4 year and 10 year Capital Works Programs for 5 asset classes	0.30	3	4	2
			Reduce the risk of environmental harm and adverse health impacts through a structured Environmental Risk Management process	0.20	3	4	2
		AFFORDABLE CLEAN ENERGY Objective: Work with the community to achieve reduction in Greenhouse Gas Emissions	Adopt best practice energy efficiency measures across all Council buildings, and support community facilities to adopt these measures.	0.20	2	2	1
		Singleton Sustainability Strategy - Responsible Consumption and Production - Improve Efficiency In Water Use	Improve water efficiency of council, households and businesses	0.15	1	1	1
		Singleton Sustainability Strategy - Responsible Consumption and Production - Improve Efficiency In Water Use	Improved recycling practices including maintaining a sustainability focussed recycling shop ( <b>Minimising waste production</b> )	0.15	2	3	1
		<b>(1) Total weighted environmental score</b>		<b>1.0</b>	<b>2.4</b>	<b>3.0</b>	<b>1.5</b>
	SOCIAL	Provide safe and reliable water and sewer services	Deliver planned Potable Water Supply Schemes for Villages	0.1	3	3	4
		Provide safe and reliable water and sewer services	Implement improvements to the Sewerage Treatment Plant in line with regulatory requirements	0.1	4	4	4
		Provide safe and reliable water and sewer services	Maintain compliance with NSW Best Practice Framework for water and sewer	0.2	4	4	4
		Singleton Sustainability Strategy	Create a healthy community	0.2	3	3	4
		Council's service delivery is aligned with our community's needs and delivered the best way possible	Demonstrate delivery of services aligned to community needs	0.2	4	4	4
		Council's service delivery is aligned with our community's needs and delivered the best way possible	Manage Water and Sewerage operations in compliance with regulatory requirements and customer service level agreements	0.2	4	4	4
		<b>(2) Total weighted social score</b>		<b>1.0</b>	<b>3.7</b>	<b>3.7</b>	<b>4.0</b>
		<b>(3) Environmental and Social Scores (ESS)</b> <b>(3) = (1) + (2)</b>			<b>6.05</b>	<b>6.70</b>	<b>5.50</b>

## Appendix E      Water Supply and Sewerage Assets Condition and Criticality Details



## CONDITION RATING AND CRITICALITY OF WATER & SEWER ASSETS

### Condition Rating Description and Score Range:

Condition Description	Condition score	Condition Rating	Remaining Useful Life
<b>Excellent condition</b> <ul style="list-style-type: none"> <li>- No adverse service reports, observable deterioration is insignificant</li> <li>- Routine maintenance is preserving the asset condition</li> </ul>	96-100	1.0	100%
	86-95	1.5	95%
<b>Good condition</b> <ul style="list-style-type: none"> <li>- Asset is meeting all service requirements, minor deterioration observed</li> <li>- Routine maintenance is supporting asset condition and reducing the rate of deterioration</li> </ul>	76-85	2.0	85%
	66-75	2.5	70%
<b>Fair condition</b> <ul style="list-style-type: none"> <li>- Moderate deterioration evident; minor components or isolated sections of the asset need replacement or repair now</li> <li>- Overhaul or specific remedial actions could return the asset to a better condition</li> </ul>	56-65	3.0	55%
	36-55	3.5	35%
<b>Poor condition</b> <ul style="list-style-type: none"> <li>- Serious deterioration and significant defects evident affecting performance of asset (asset is moving into zone of failure)</li> <li>- Significant intervention is required to arrest deterioration. Extraordinary actions needed since deterioration has progressed to an extent that routine maintenance cannot address</li> <li>- Renewal of asset required within short term</li> </ul>	26-35	4.0	15%
	11-25	4.5	5%
<b>Very poor condition</b> <ul style="list-style-type: none"> <li>- Failed or failure imminent. Immediate need to replace most of asset</li> <li>- Asset is unable to support the target level of service though may still be providing some level of service.</li> <li>- Major work including replacement or rehabilitation required urgently</li> </ul>	1-10	5.0	0%

### Criticality Scale:

Criticality	5	4.5	4	3.5	3	2.5	2	1.5	1
Risk/ Consequence of failure	Severe	Very High		High		Moderate		Low	
Condition rating trigger for renewal*	4	4.5	4.5	4.5	5	5	5	5	5

### Criticality Definitions adopted by Council:

Criticality Ranking	Criticality Definition
Severe (5)	Complete loss of water treatment plant or critical asset which results in extended outage
Very high (4)	Loss of asset would cause <b>significant</b> disruption. Loss of these assets would cause complete loss of service and/or loss to extremely critical (e.g. hospital and dialysis patients) and critical customers (e.g. doctors, educational institutions).
High (3)	Loss of asset would cause <b>some</b> disruption. Loss of these assets would cause loss of service to large number of customers and/or where a work-around cannot be installed within Council's levels of service.
Medium (2)	Loss of asset would cause <b>minor</b> impact. Affects small number of customers and a work-around can be installed within Council's levels of service.
Low (1)	Loss of asset would have <b>virtually no</b> impact. Redundant asset or no longer in use by customer.

### Condition Rating and Criticality of Above-ground Raw Water Assets:

Asset/ Facility	Civil/ Structure	Electrical	Mechanical	Council Assessed Criticality
Glennies Creek - Pump Station	-	-	2	3
Glennies Creek - Powdered Activated Carbon (PAC) Plant	1.5	-	3	2
Glennies Creek - Chlorination Plant	1.5	1.5	2	4
Judan Road - Pump Station	0	0	0	1
Mount Thorley - Pump Station	2		5	3
Mount Thorley Raw - Water Reservoir	0	0	0	2

### Criticality of Raw and Potable Water Mains:

Main Dia.	Council Assessment
Trunk Mains - 400 mm and above	5
Trunk Mains - <400 mm	5
Reticulation Mains - 200 mm and above	4
Reticulation Mains - <200 mm	3

## Condition Rating and Criticality of Above-ground Potable Water Assets:

Asset/ Facility	Condition Rating			Council Assessed Criticality
	Civil/ Structure	Electrical	Mechanical	
Apex Reservoir	2.5	2.5	-	4
Broke Pump Station	2	-	2	3
Broke Reservoir	2	-	-	4
Control Valve No. 1	1.5	-	1.5	4
Control Valve No.2	0	0	0	4
Control Valve No.3	2	-	2.5	4
Control Valve No.4	2.5	-	-	3
Dulcamah Pump Station	2	-	2.5	3
Gowrie Pump Station	0	0	0	4
Gowrie Reservoir 1	0	0	0	3
Gowrie Reservoir 2	0	0	0	3
Hardys Reservoir	1.5	-	-	2
Jerrys Plains Pump Station	2	-	3	4
Jerrys Plains Reservoir 1	1.5	-	-	3
McDougall Hill Pump Station	2.5	-	3	4
McDougalls Hill Reservoir	3	-	-	4
Minimbah Reservoir 1 (Temporary)	1.5	-	-	3
Minimbah Reservoir 2 (Temporary)	1.5	-	-	3
Mount Thorley Chlorination Plant	3	-	2.5	4
Mount Thorley Treated Water Reservoir	3.5	3	-	4
Naleen Pump Station	2.5	-	3.5	4
Plashett Balance Tank Reservoir	0	0	0	4
Retreat Pump Station	2.5	-	3	4
Retreat Reservoir	2	-	-	4
Rixs Creek Reservoir	2.5	2	-	5
Waterworks Lane Depot Chlorine Station	0	0	0	4
Waterworks Lane Depot Pump Station				4
Obanvale WTP - Lime Room	-	-	2	3
Obanvale WTP - Chlorine Room	-	-	1.5	5
Obanvale WTP - Permanganate Room	-	-	1.5	2
Obanvale WTP - Fluoride Room	-	-	1.5	5
Obanvale WTP - Poly/Alum Room	-	-	2	4
Obanvale WTP - Filter Room	-	-	2	4
Obanvale WTP - Building Exterior	-	-	2.5	3

## Condition Rating and Criticality of Above-ground Sewerage Assets:

Asset/ Facility	Condition Rating			Council Assessed Criticality
	Civil/ Structure	Electrical	Mechanical	
<b>Sewer Pump Stations:</b>				
Acacia Circuit	2	-	2	3
Ardesier Drive	3	-	2.5	3
Army Base		-	1.5	3
Boonal Street	2.5	-	2.5	3
Bourke St	3	2	3.5	4
Brucedale Avenue	2	-	2	3
Crown Street	3.5	-	3.5	3
Dangar Road	2.5	-	2.5	3
Dunolly	0	0	0	4
Kelso Street	0	0	0	4
Kennedy Street	3	-	3	3
Maison Dieu (Enterprise Crescent)	2	-	2	4
Queen Street	2.5	-	2.5	3
Sisters of Mercy	2	-	3	3
Wilkinson Boulevard	2.5	-	2.5	3
<b>Singleton STP:</b>				
IDEA Tanks (Process)	-	-	2	5
Ponds (Process)	-	-	3	5
Recycle Water (Process)	-	-	2	2
UV Treatment (Process)	-	-	2	3

## Criticality of Sewer Mains:

Main Dia.	Council Assessed Criticality
Trunk Mains - 400 mm and above	5
Trunk Mains - <400 mm	4
Reticulation Mains - All sizes	3



## Appendix F      Financial Model Input and Output Data – Water

# Singleton Council Water Fund Financial Model 2020 : IWCM - Preferred Scenario

## Historical Operating Statement

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	2018/19*	2019/20*
<b>EXPENSES</b>		
Management Expenses	1490	1583
Administration	656	704
Engineering and Supervision	834	879
Operation and Maintenance Expenses	2370	2669
Operation Expenses	903	1182
Maintenance Expenses	665	724
Energy Costs	496	447
Chemical Costs	171	179
Purchase of Water	135	137
Depreciation	2788	2507
System Assets	2663	2355
Plant & Equipment	125	152
Interest Expenses		
Other Expenses	26	0
<b>TOTAL EXPENSES</b>	<b>6674</b>	<b>6759</b>
<b>REVENUES</b>		
Rates & Service Availability Charges	1184	1275
Residential	869	955
Non-Residential	315	320
User Charges	4424	4522
Sales of Water : Residential	3318	3310
Sales of Water : Non-Residential	1106	1212
Extra Charges	17	14
Interest Income	1138	703
Other Revenues	1115	1109
Grants	115	557
Grants for Acquisition of Assets	73	517
Pensioner Rebate Subsidy	42	40
Other Grants		0
Contributions	915	1505
Developer Charges	247	269
Developer Provided Assets		164
Other Contributions	668	1072
<b>TOTAL REVENUES</b>	<b>8908</b>	<b>9685</b>
<b>OPERATING RESULT</b>	<b>2234</b>	<b>2926</b>
<b>OPERATING RESULT (less Grants for Acq of Assets)</b>	<b>2161</b>	<b>2409</b>

# Singleton Council Water Fund Financial Model 2020 : IWCM - Preferred Scenario

## Historical Statement of Financial Position

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	2018/19*	2019/20*
Cash and Investments	38259	38130
Receivables	834	2220
Inventories		
Property, Plant & Equipment	97448	99798
System Assets (1)	96758	98958
Plant & Equipment	690	840
Other Assets		
<b>TOTAL ASSETS</b>	<b>136541</b>	<b>140148</b>
<b>LIABILITIES</b>		
Bank Overdraft		
Creditors	81	123
Borrowings		
Provisions	204	171
<b>TOTAL LIABILITIES</b>	<b>285</b>	<b>294</b>
<b>NET ASSETS COMMITTED</b>	<b>136256</b>	<b>139854</b>
<b>EQUITY</b>		
Accumulated Operating Result	61640	64412
Asset Revaluation Reserve	74616	75442
<b>TOTAL EQUITY</b>	<b>136256</b>	<b>139854</b>
<u>(1) Notes to System Assets</u>		
Current Replacement Cost	169774	174980
Less: Accumulated Depreciation	73016	76022
Written Down Current Cost	96758	98958

# Singleton Council Water Fund Financial Model 2020 : IWCM - Preferred Scenario

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## Base Forecast Data

	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	
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 (%)	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
Investment Interest Rate (%)	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	
Number of Assessments																										
Number of New Assessments																										
Residential	55	54	53	52	102	51	50	49	49	48	48	46	46	44	44	43	43	41	41	39	40	38	38	36	36	
Non-Residential	7	7	7	7	6	6	6	6	6	6	6	6	6	6	6	5	5	5	5	5	4	5	5	5	5	
Total New Assessments	62	61	60	59	108	57	56	55	55	54	54	52	52	50	50	48	48	46	46	44	44	43	43	41	41	
Projected Number of Assessments																										
Residential	6330	6384	6437	6489	6591	6642	6692	6741	6790	6838	6886	6932	6978	7022	7066	7109	7152	7193	7234	7273	7313	7351	7389	7425	7461	
Non-Residential	793	800	807	814	820	826	832	838	844	850	856	862	868	874	880	885	890	895	900	905	909	914	919	924	929	
Total Projected Assessments	7123	7184	7244	7303	7411	7468	7524	7579	7634	7688	7742	7794	7846	7896	7946	7994	8042	8088	8134	8178	8222	8265	8308	8349	8390	
Backlog Assessments																										
Residential	0	0	0	0	50	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	50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Growth Rate (%)																										
Residential Assessments	0.88	0.85	0.83	0.81	1.57	0.77	0.75	0.73	0.73	0.71	0.70	0.67	0.66	0.63	0.63	0.61	0.60	0.57	0.57	0.54	0.55	0.52	0.52	0.49	0.48	
Non-Residential Assessments	0.89	0.88	0.88	0.87	0.74	0.73	0.73	0.72	0.72	0.71	0.71	0.70	0.70	0.69	0.69	0.57	0.56	0.56	0.56	0.56	0.44	0.55	0.55	0.54	0.54	
Total Assessments	0.88	0.86	0.84	0.81	1.48	0.77	0.75	0.73	0.73	0.71	0.70	0.67	0.67	0.64	0.63	0.60	0.60	0.57	0.57	0.54	0.54	0.52	0.52	0.49	0.49	
Developer Charges / Vacant Assessments (Values in 2020/21 \$)																										
Developer Charges \$/Assessment																										
Residential	6220	6220	12305	12305	12305	12305	12305	12305	12305	12305	12305	12305	12305	12305	12305	12305	12305	12305	12305	12305	12305	12305	12305	12305	12305	
Non-Residential	6220	6220	12305	12305	12305	12305	12305	12305	12305	12305	12305	12305	12305	12305	12305	12305	12305	12305	12305	12305	12305	12305	12305	12305	12305	
Number of Vacant Residential Assessments																										
Average Charge of Vacant Assessments	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	
% 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 2020/21 \$'000)																										
Current Replacement Cost of System Assets	179355																									
Override																										
Written Down Current Cost of System Assets	101432																									
Override																										
Annual Depreciation of Existing System Assets	2414																									
Override																										
Written Down Value of Plant and Equipment																										
Override	840																									
Annual Depreciation of Existing Plant and Equipment	140	140	140	140	140	140	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

# Singleton Council Water Fund Financial Model 2020 : IWCM - Preferred Scenario

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## Base Forecast Data

	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	
Existing Loan Payments (Values in Inflated \$'000)																										
Existing Loan Payments : Principal (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	
Existing Loan Payments : Interest (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	
Capital Works Program (Values in 2020/21 \$'000)																										
Subsidised Scheme (Total:18194)	0	245	1350	11184	190	0	0	0	0	2028	810	0	0	0	2387	0	0	0	0	0	0	0	0	0	0	0
Other New System Assets (Total:3926)	0	220	2288	871	93	155	97	100	102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Renewals (Total:71137)	6395	3860	9731	9075	1405	3721	2504	1423	3655	171	252	734	423	2243	3229	1450	701	4981	5614	243	800	269	772	2720	324	
Total Capital Works (Total:93257)	6395	4325	13369	21130	1688	3876	2601	1523	3757	2199	1062	734	423	2243	5616	1450	701	4981	5614	243	800	269	772	2720	324	
Grant For Acquisition of Assets (% of Subsidised Scheme)	0.00	0.00	0.00	92.52	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:10347)	0	0	0	10347	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 2020/21 \$'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	



# Singleton Council Water Fund Financial Model 2020 : IWCM - Preferred Scenario

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## Revised/Additional Forecast Data

	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45
<b>OMA / Revenue Overrides (Values in 2020/21 \$'000)</b>																									
Administration	728	734	740	746	757	763	769	775	781	787	793	798	803	808	813	818	823	828	833	837	842	846	850	854	858
Override	728	760	766	772	778	784	796	801	807	813	819	824	830	835	840	845	850	855	860	865	869	874	878	883	887
Engineering and Supervision	909	917	925	932	946	953	960	967	974	981	988	995	1002	1008	1014	1020	1026	1032	1038	1044	1050	1055	1060	1065	1070
Override																									
Operating Expenses	1222	1233	1243	1253	1272	1282	1292	1301	1310	1319	1328	1337	1346	1355	1364	1372	1380	1388	1396	1404	1412	1419	1426	1433	1440
Override	1222	1233	1243	1253	1286	1308	1327	1336	1346	1356	1429	1480	1490	1500	1509	1564	1573	1582	1591	1600	1608	1617	1625	1633	1641
Maintenance Expenses	749	755	761	767	778	784	790	796	802	808	814	819	824	829	834	839	844	849	854	859	864	868	873	877	881
Override																									
Energy Costs	462	466	470	474	481	485	489	493	497	501	505	508	511	514	517	520	523	526	529	532	535	538	541	544	547
Override																									
Chemical Costs	185	187	189	191	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214
Override																									
Purchase of Water	142	143	144	145	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167
Override																									
Other Expenses	0	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 Revenue	1147	1157	1167	1176	1193	1202	1211	1220	1229	1238	1247	1255	1263	1271	1279	1287	1295	1302	1309	1316	1323	1330	1337	1344	1351
Override	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800
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	1108	1118	1127	1136	1153	1162	1171	1180	1189	1197	1205	1213	1221	1229	1237	1244	1251	1258	1265	1272	1279	1286	1293	1299	1305
Override	650	650	650	650	650	650	650	650	650	650	650	650	650	650	650	650	650	650	650	650	650	650	650	650	650
<b>Developer Charges Overrides (Values in 2020/21 \$'000)</b>																									
Calculated from Scheme Data	386	379	738	726	714	701	689	677	677	664	664	640	640	615	615	591	591	566	566	541	541	529	529	505	505
Override			741	730	719	708	709	685	687	663	664	641	642	619	620	596	598	574	575	552	553	530	531	507	509
<b>Pensioner Rebate (Values in Inflated \$)</b>																									
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	838	845	852	859	873	879	886	893	899	905	912	918	924	930	936	941	947	952	958	963	968	973	978	983	988
Override																									
Percentage of Pensioners (%)	13.24	13.24	13.24	13.24	13.24	13.24	13.24	13.24	13.24	13.24	13.24	13.24	13.24	13.24	13.24	13.24	13.24	13.24	13.24	13.24	13.24	13.24	13.24	13.24	13.24
Override																									
Pensioner Rebate	73	74	75	75	76	77	78	78	79	79	80	80	81	81	82	82	83	83	84	84	85	85	86	86	86
Pensioner Rebate Subsidy	40	41	41	41	42	42	43	43	43	43	44	44	45	45	45	45	46	46	46	46	47	47	47	47	47
<b>Revenue Split (%)</b>																									
Residential Rates	15.95	15.95	15.95	15.94	15.98	15.98	15.98	15.98	15.98	15.98	15.98	15.98	15.98	15.98	15.97	15.97	15.98	15.98	15.98	15.98	15.98	15.98	15.98	15.98	15.97
Override																									
Non-Residential Rates	5.55	5.55	5.56	5.56	5.53	5.52	5.52	5.52	5.52	5.52	5.52	5.52	5.53	5.53	5.53	5.53	5.53	5.53	5.53	5.53	5.52	5.52	5.52	5.53	5.53
Override																									
Sales of Water: Residential	57.96	57.95	57.94	57.94	58.05	58.07	58.07	58.07	58.07	58.07	58.07	58.07	58.05	58.04	58.04	58.05	58.05	58.05	58.05	58.05	58.07	58.07	58.06	58.05	58.05
Override																									
Sales of Water: Non-Residential	20.27	20.28	20.28	20.29	20.17	20.16	20.16	20.16	20.16	20.16	20.16	20.16	20.17	20.18	20.19	20.18	20.17	20.17	20.17	20.17	20.16	20.16	20.17	20.17	20.18
Override																									
Extra Charges	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27
Override																									
Total Non-Residential Revenue (%)	25.82	25.83	25.84	25.85	25.70	25.68	25.68	25.68	25.68	25.68	25.68	25.68	25.70	25.71	25.72	25.71	25.70	25.70	25.70	25.70	25.68	25.68	25.69	25.70	25.71
<b>Total Residential Revenue (%)</b>																									
Total Residential Revenue (%)	73.91	73.90	73.89	73.88	74.03	74.05	74.05	74.05	74.05	74.05	74.05	74.05	74.03	74.02	74.01	74.02	74.03	74.03	74.03	74.03	74.05	74.05	74.04	74.03	74.02
<b>Total</b>																									
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

# Singleton Council Water Fund Financial Model 2020 : IWCM - Preferred Scenario

## Revised/Additional Forecast Data

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	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45
<b>New Loan Payment Overrides (Values in Inflated \$'000)</b>																									
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	0	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																									
Total New 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
Override																									
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
Override																									

# Singleton Council Water Fund Financial Model 2020 : IWCM - Preferred Scenario

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## Operating Statement

	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	
<b>EXPENSES</b>																										
Management Expenses	1637	1677	1691	1704	1724	1737	1756	1767	1781	1794	1807	1819	1832	1843	1854	1865	1876	1887	1898	1909	1919	1929	1938	1948	1957	
Administration	728	760	766	772	778	784	796	801	807	813	819	824	830	835	840	845	850	855	860	865	869	874	878	883	887	
Engineering and Supervision	909	917	925	932	946	953	960	967	974	981	988	995	1002	1008	1014	1020	1026	1032	1038	1044	1050	1055	1060	1065	1070	
Operation and Maintenance Expenses	2760	2785	2808	2829	2886	2920	2951	2971	2994	3016	3101	3163	3182	3203	3221	3286	3305	3323	3342	3362	3380	3398	3416	3434	3449	
Operation Expenses	1222	1233	1243	1253	1286	1308	1327	1336	1346	1356	1429	1480	1490	1500	1509	1564	1573	1582	1591	1600	1608	1617	1625	1633	1641	
Maintenance Expenses	749	755	761	767	778	784	790	796	802	808	814	819	824	829	834	839	844	849	854	859	864	868	873	877	881	
Energy Costs	462	466	470	474	481	485	489	493	497	501	505	508	511	514	517	520	523	526	529	532	535	538	541	544	547	
Chemical Costs	185	187	189	191	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	
Purchase of Water	142	143	144	145	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	
Depreciation	2554	2557	2606	2775	2775	2774	2652	2654	2656	2685	2696	2696	2695	2695	2729	2729	2728	2729	2729	2729	2729	2729	2728	2729	2728	
System Assets	2414	2420	2473	2645	2648	2651	2652	2654	2656	2685	2696	2696	2695	2695	2729	2729	2728	2729	2729	2729	2729	2729	2728	2729	2728	
Plant & Equipment	140	137	133	130	127	124	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Interest Expenses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Other Expenses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
TOTAL EXPENSES	6951	7020	7105	7308	7385	7431	7359	7393	7431	7495	7603	7678	7709	7741	7804	7880	7909	7939	7969	7999	8028	8056	8083	8110	8134	
<b>REVENUES</b>																										
Rates & Service Availability Charges	1157	1232	1245	1255	1275	1283	1293	1304	1314	1324	1335	1344	1353	1364	1372	1382	1390	1399	1407	1416	1422	1431	1439	1447	1455	
Residential	858	914	923	930	947	954	961	969	977	984	992	999	1005	1013	1019	1026	1033	1039	1046	1052	1057	1064	1070	1075	1080	
Non-Residential	299	318	322	324	328	330	332	335	337	340	343	345	348	350	352	356	358	359	362	364	365	367	369	372	374	
User Charges	4209	4485	4526	4566	4632	4671	4705	4742	4782	4817	4856	4891	4922	4960	4991	5025	5056	5084	5119	5149	5176	5207	5236	5261	5292	
Sales of Water : Residential	3118	3322	3352	3382	3437	3467	3492	3520	3550	3575	3604	3630	3653	3681	3703	3729	3752	3773	3799	3821	3842	3865	3887	3904	3927	
Sales of Water : Non-Residential	1091	1163	1174	1184	1195	1204	1212	1222	1233	1242	1251	1261	1269	1280	1288	1297	1304	1311	1320	1327	1333	1342	1350	1357	1365	
Extra Charges	15	16	15	16	16	16	16	16	16	17	16	17	17	17	17	17	18	18	18	18	18	18	18	18	18	
Interest Income	909	850	690	469	400	402	398	418	419	420	447	483	523	538	500	495	521	495	443	458	484	513	535	529	549	
Other Revenues	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	
Grants	40	40	39	10385	38	37	37	36	35	34	34	34	33	33	32	31	31	30	29	29	29	28	27	27	26	
Grants for Acquisition of Assets	0	0	0	10347	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Pensioner Rebate Subsidy	40	40	39	38	38	37	37	36	35	34	34	34	33	33	32	31	31	30	29	29	29	28	27	27	26	
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	1036	1028	1392	1380	1369	1358	1359	1335	1337	1313	1314	1291	1292	1269	1270	1246	1248	1224	1225	1202	1203	1180	1181	1157	1159	
Developer Charges	386	379	741	730	719	708	709	685	687	663	664	641	642	619	620	596	598	574	575	552	553	530	531	507	509	
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	650	650	650	650	650	650	650	650	650	650	650	650	650	650	650	650	650	650	650	650	650	650	650	650	650	
TOTAL REVENUES	8166	8451	8707	18871	8530	8567	8608	8652	8705	8726	8803	8860	8941	8981	8980	8996	9065	9049	9042	9071	9131	9177	9237	9239	9299	
OPERATING RESULT	1215	1431	1602	11563	1145	1136	1249	1259	1274	1232	1199	1182	1231	1240	1176	1116	1156	1110	1073	1072	1103	1122	1154	1129	1164	
OPERATING RESULT (less Grants for Acq of Assets)	1215	1431	1602	1216	1145	1136	1249	1259	1274	1232	1199	1182	1231	1240	1176	1116	1156	1110	1073	1072	1103	1122	1154	1129	1164	

# Singleton Council Water Fund Financial Model 2020 : IWCM - Preferred Scenario

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## Cashflow Statement

	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45
<b>Cashflow From Operating Activities</b>																									
<b><u>Receipts</u></b>																									
Rates and Charges	5381	5733	5786	5836	5923	5970	6015	6062	6113	6158	6207	6252	6293	6342	6379	6424	6464	6500	6544	6582	6615	6656	6694	6726	6764
Interest Income	909	850	690	469	400	402	398	418	419	420	447	483	523	538	500	495	521	495	443	458	484	513	535	529	549
Other Revenues	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800
Grants	40	40	39	10385	38	37	37	36	35	34	34	34	33	33	32	31	31	30	29	29	29	28	27	27	26
Contributions	1036	1028	1392	1380	1369	1358	1359	1335	1337	1313	1314	1291	1292	1269	1270	1246	1248	1224	1225	1202	1203	1180	1181	1157	1159
Total Receipts from Operations	8166	8451	8707	18871	8530	8567	8608	8652	8705	8726	8803	8860	8941	8981	8980	8996	9065	9049	9042	9071	9131	9177	9237	9239	9299
<b><u>Payments</u></b>																									
Management	1637	1677	1691	1704	1724	1737	1756	1767	1781	1794	1807	1819	1832	1843	1854	1865	1876	1887	1898	1909	1919	1929	1938	1948	1957
Operations (plus WC Inc)	2826	2852	2874	2896	2966	2987	3017	3038	3061	3084	3169	3230	3249	3270	3289	3354	3373	3391	3410	3429	3449	3466	3485	3501	3518
Interest Expenses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Expenses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Payments from Operations	4463	4529	4566	4600	4690	4723	4773	4805	4842	4878	4975	5049	5081	5113	5143	5219	5249	5278	5308	5338	5368	5395	5424	5449	5475
<b>Net Cash from Operations</b>	<b>3703</b>	<b>3922</b>	<b>4141</b>	<b>14271</b>	<b>3840</b>	<b>3844</b>	<b>3835</b>	<b>3846</b>	<b>3862</b>	<b>3848</b>	<b>3827</b>	<b>3811</b>	<b>3859</b>	<b>3868</b>	<b>3837</b>	<b>3778</b>	<b>3816</b>	<b>3771</b>	<b>3734</b>	<b>3733</b>	<b>3763</b>	<b>3782</b>	<b>3813</b>	<b>3790</b>	<b>3824</b>
<b>Cashflow from Capital Activities</b>																									
<b><u>Receipts</u></b>																									
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
<b><u>Payments</u></b>																									
Acquisition of Assets	6395	4326	13369	21130	1689	3876	2601	1523	3757	2200	1062	734	423	2243	5616	1450	701	4981	5614	243	800	269	772	2720	324
Net Cash from Capital Activities	-6395	-4326	-13369	-21130	-1689	-3876	-2601	-1523	-3757	-2200	-1062	-734	-423	-2243	-5616	-1450	-701	-4981	-5614	-243	-800	-269	-772	-2720	-324
<b>CashFlow from Financing Activities</b>																									
<b><u>Receipts</u></b>																									
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
<b><u>Payments</u></b>																									
Principal Loan Payments	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Net Cash from Financing Activities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>TOTAL NET CASH</b>	<b>-2692</b>	<b>-404</b>	<b>-9228</b>	<b>-6860</b>	<b>2152</b>	<b>-32</b>	<b>1235</b>	<b>2324</b>	<b>106</b>	<b>1649</b>	<b>2765</b>	<b>3077</b>	<b>3436</b>	<b>1625</b>	<b>-1779</b>	<b>2328</b>	<b>3115</b>	<b>-1210</b>	<b>-1880</b>	<b>3490</b>	<b>2963</b>	<b>3513</b>	<b>3041</b>	<b>1070</b>	<b>3500</b>
<b>Current Year Cash</b>	-2692	-404	-9228	-6860	2152	-32	1235	2324	106	1649	2765	3077	3436	1625	-1779	2328	3115	-1210	-1880	3490	2963	3513	3041	1070	3500
<b>Cash &amp; Investments @Year Start</b>	38130	34574	33336	23520	16255	17957	17488	18266	20088	19701	20829	23018	25459	28190	29088	26643	28264	30613	28686	26153	28920	31105	33773	35917	36085
<b>Cash &amp; Investments @Year End</b>	35438	34170	24109	16661	18406	17925	18723	20590	20194	21350	23594	26095	28895	29815	27309	28971	31379	29404	26807	29643	31882	34618	36815	36987	39585
<b>Capital Works Funding:</b>																									
Internal Funding for New Works (\$'000)	0	465	3638	1708	284	155	97	100	102	2028	810	0	0	0	2387	0	0	0	0	0	0	0	0	0	0
Internal Funding for Renewals	6395	3860	9731	9075	1405	3721	2504	1423	3655	171	252	734	423	2243	3229	1450	701	4981	5614	243	800	269	772	2720	324
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	10347	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Capital Works	6395	4326	13369	21130	1689	3876	2601	1523	3757	2200	1062	734	423	2243	5616	1450	701	4981	5614	243	800	269	772	2720	324

# Singleton Council Water Fund Financial Model 2020 : IWCM - Preferred Scenario

## Statement of Financial Position

**FINMOD**  
DEPARTMENT OF  
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	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45
<b>Cash and Investments</b>	35438	33337	22947	15471	16675	15843	16145	17322	16574	17096	18432	19888	21485	21628	19327	20003	21138	19324	17188	18543	19457	20611	21385	20960	21886
<b>Receivables</b>	2296	2316	2336	2355	2390	2409	2427	2444	2461	2479	2497	2514	2530	2546	2562	2578	2593	2608	2622	2637	2651	2665	2679	2692	2705
<b>Inventories</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Property, Plant &amp; Equipment</b>	106113	107864	118614	136960	135868	136966	136915	135784	136885	136400	134767	132805	130533	130082	132968	131690	129663	131915	134800	132314	130386	127926	125970	125961	123557
<b>System Assets (1)</b>	105413	107318	118214	136700	135741	136966	136915	135784	136885	136400	134767	132805	130533	130082	132968	131690	129663	131915	134800	132314	130386	127926	125970	125961	123557
<b>Plant &amp; Equipment</b>	700	546	400	260	127	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Other Assets</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>TOTAL ASSETS</b>	<b>143847</b>	<b>143517</b>	<b>143897</b>	<b>154786</b>	<b>154933</b>	<b>155218</b>	<b>155487</b>	<b>155550</b>	<b>155921</b>	<b>155975</b>	<b>155695</b>	<b>155207</b>	<b>154549</b>	<b>154256</b>	<b>154858</b>	<b>154271</b>	<b>153393</b>	<b>153847</b>	<b>154610</b>	<b>153493</b>	<b>152493</b>	<b>151203</b>	<b>150034</b>	<b>149614</b>	<b>148148</b>
<b>LIABILITIES</b>																									
<b>Bank Overdraft</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Creditors</b>	127	128	128	129	131	133	134	135	135	136	137	138	139	140	141	142	142	143	144	145	146	146	147	148	149
<b>Borrowings</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Provisions</b>	177	179	180	181	184	186	187	188	190	191	192	194	195	196	197	198	199	200	201	203	204	205	206	207	208
<b>TOTAL LIABILITIES</b>	<b>304</b>	<b>306</b>	<b>308</b>	<b>310</b>	<b>315</b>	<b>318</b>	<b>321</b>	<b>323</b>	<b>325</b>	<b>327</b>	<b>329</b>	<b>332</b>	<b>334</b>	<b>336</b>	<b>338</b>	<b>340</b>	<b>342</b>	<b>344</b>	<b>346</b>	<b>348</b>	<b>350</b>	<b>351</b>	<b>353</b>	<b>355</b>	<b>357</b>
<b>NET ASSETS COMMITTED</b>	<b>143543</b>	<b>143211</b>	<b>143589</b>	<b>154476</b>	<b>154618</b>	<b>154900</b>	<b>155166</b>	<b>155227</b>	<b>155595</b>	<b>155648</b>	<b>155366</b>	<b>154875</b>	<b>154215</b>	<b>153920</b>	<b>154520</b>	<b>153931</b>	<b>153052</b>	<b>153503</b>	<b>154265</b>	<b>153145</b>	<b>152144</b>	<b>150851</b>	<b>149681</b>	<b>149259</b>	<b>147791</b>
<b>EQUITY</b>																									
<b>Accumulated Operating Result</b>	65627	65458	65463	75429	74735	74048	73491	72957	72451	71916	71361	70802	70307	69833	69306	68732	68211	67658	67081	66516	65997	65509	65065	64607	64195
<b>Asset Revaluation Reserve</b>	77916	80551	83301	86406	90087	93833	97708	101678	105713	109883	114142	118455	122812	127201	131684	136381	141149	145961	150979	156235	161523	166865	172237	177658	183215
<b>TOTAL EQUITY</b>	<b>143543</b>	<b>144044</b>	<b>144750</b>	<b>155666</b>	<b>156349</b>	<b>156982</b>	<b>157744</b>	<b>158495</b>	<b>159215</b>	<b>159902</b>	<b>160528</b>	<b>161082</b>	<b>161625</b>	<b>162107</b>	<b>162502</b>	<b>162898</b>	<b>163293</b>	<b>163582</b>	<b>163883</b>	<b>164245</b>	<b>164569</b>	<b>164858</b>	<b>165111</b>	<b>165285</b>	<b>165491</b>
<b>(1) Notes to System Assets</b>																									
<b>Current Replacement Cost</b>	179355	179820	183458	195514	195798	195952	196049	196149	196251	198280	199090	199090	199090	199090	201477	201477	201477	201477	201477	201477	201477	201477	201477	201477	201477
<b>Less: Accumulated Depreciation</b>	73942	72502	65244	58814	60056	58986	59134	60365	59366	61879	64323	66284	68557	69009	68509	69787	71814	69562	66677	69163	71091	73550	75507	75515	77919
<b>Written Down Current Cost</b>	105413	107318	118214	136700	135741	136966	136915	135784	136885	136400	134767	132805	130533	130082	132968	131690	129663	131915	134800	132314	130386	127926	125970	125961	123557

# Singleton Council Water Fund Financial Model 2020 : IWCM - Preferred Scenario

**FINMOD**  
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## Performance Indicators

	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45
Typical Residential Bills	655	691	691	691	691	691	691	691	691	691	691	691	691	691	691	691	691	691	691	691	691	691	691	691	691
Average Residential Bills (2020/21\$)	628	663	664	665	665	666	666	666	666	667	667	668	668	669	668	669	669	669	670	670	670	670	671	670	671
Mgmt Cost / Assessment (2020/21\$)	230	233	233	233	233	232	234	233	233	233	234	233	233	234	234	233	233	233	233	233	234	233	234	233	233
OMA Cost per Assessment (2020/21\$)	597	601	602	601	602	604	605	606	606	606	614	620	619	620	619	625	624	624	624	625	625	625	624	625	624
Operating Sales Margin (%)	4.22	7.65	11.37	9.27	9.16	8.98	10.38	10.21	10.31	9.77	9.00	8.34	8.42	8.32	7.98	7.31	7.43	7.19	7.33	7.12	7.16	7.03	7.12	6.88	7.03
Economic Real Rate of Return (%)	0.29	0.54	0.77	0.55	0.55	0.54	0.62	0.62	0.62	0.59	0.56	0.53	0.54	0.54	0.51	0.47	0.49	0.47	0.47	0.46	0.47	0.48	0.49	0.48	0.50
Debt Service Ratio	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
Debt/Equity Ratio	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
Interest Cover	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
Return on capital (%)	0.84	1.00	1.11	1.26	0.74	0.73	0.80	0.81	0.82	0.79	0.77	0.76	0.80	0.80	0.76	0.72	0.75	0.72	0.69	0.70	0.72	0.74	0.77	0.75	0.79
Cash and Investments (2020/21\$'000)	35438	34170	24109	16661	18406	17925	18723	20590	20194	21350	23594	26095	28895	29815	27309	28971	31379	29404	26807	29643	31882	34618	36815	36987	39585
Debt outstanding (2020/21\$'000)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Net Debt (2020/21\$'000)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



# Singleton Council Water Fund Financial Model 2020 : IWCM - Preferred Scenario

## Summary Report of Assumptions and Results

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	2020/21	2024/25	2029/30	2034/35	2039/40	2044/45	2049/50
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 (%)	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Term of New Loans (years)	20	20	20	20	20	20	20
Investment Interest Rate (%)	2.50	2.50	2.50	2.50	2.50	2.50	2.50
Growth Rate - Residential (%)	0.88	1.57	0.71	0.63	0.54	0.48	0.46
Developer Charges per Assessment - Residential (2020/21 \$)	6220	12305	12305	12305	12305	12305	12305
Subsidised Scheme Capital Works (\$m)	0.00	0.19	2.03	2.39	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)	6.40	1.41	0.17	3.23	0.24	0.32	0.49
Renewals (%)	3.57	0.72	0.09	1.60	0.12	0.16	0.24
Cash and Investments (\$m)	35.44	16.67	17.10	19.33	18.54	21.89	24.02
Borrowing Outstanding (\$m)	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mgmnt Cost / Assessment	230	233	233	234	233	233	233
Debt Equity Ratio	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OMA Cost Per Assessment	597	602	606	619	625	624	625
Economic Real Rate of Return (%)	0.29	0.55	0.59	0.51	0.46	0.50	0.54
Return on Capital (%)	0.84	0.74	0.79	0.76	0.70	0.79	0.86
Net Debt (\$m)	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Debt Service Ratio	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Residential Bills	628	665	667	668	670	671	672
Typical Residential Bills (2020/21\$)	655	691	691	691	691	691	691



## Appendix G      Financial Model Input and Output Data - Sewer

# Singleton Sewer Fund Financial Model 2020 : IWCM - Preferred Scenario

## Historical Operating Statement

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	2018/19*	2019/20*
<b>EXPENSES</b>		
Management Expenses	1044	1379
Administration	514	453
Engineering and Supervision	530	926
Operation and Maintenance Expenses	1339	1277
Operation Expenses	685	699
Maintenance Expenses	331	292
Energy Costs	310	276
Chemical Costs	13	10
Depreciation	1067	1049
System Assets	1020	979
Plant & Equipment	47	70
Interest Expenses		
Other Expenses	112	185
<b>TOTAL EXPENSES</b>	<b>3562</b>	<b>3890</b>
<b>REVENUES</b>		
Rates & Service Availability Charges	4124	4364
Residential	3063	3314
Non-Residential	1061	1050
Trade Waste Charges	109	103
Other Sales and Charges		
Extra Charges	9	7
Interest Income	713	513
Other Revenues	120	111
Grants	38	37
Grants for Acquisition of Assets		0
Pensioner Rebate Subsidy	38	37
Other Grants		0
Contributions	48	170
Developer Charges	48	110
Developer Provided Assets		60
Other Contributions	0	0
<b>TOTAL REVENUES</b>	<b>5161</b>	<b>5305</b>
<b>OPERATING RESULT</b>	<b>1599</b>	<b>1415</b>
<b>OPERATING RESULT (less Grants for Acq of Assets)</b>	<b>1599</b>	<b>1415</b>

# Singleton Sewer Fund Financial Model 2020 : IWCM - Preferred Scenario

## Historical Statement of Financial Position

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	2018/19*	2019/20*
Cash and Investments	24428	24508
Receivables	362	432
Inventories	73	37
Property, Plant & Equipment	51758	53542
System Assets (1)	51411	53073
Plant & Equipment	347	469
Other Assets		0
<b>TOTAL ASSETS</b>	<b>76621</b>	<b>78519</b>
<b>LIABILITIES</b>		
Bank Overdraft		0
Creditors		0
Borrowings		0
Provisions	152	197
<b>TOTAL LIABILITIES</b>	<b>152</b>	<b>197</b>
<b>NET ASSETS COMMITTED</b>	<b>76469</b>	<b>78322</b>
<b>EQUITY</b>		
Accumulated Operating Result	45184	46595
Asset Revaluation Reserve	31285	31727
<b>TOTAL EQUITY</b>	<b>76469</b>	<b>78322</b>
<u>(1) Notes to System Assets</u>		
Current Replacement Cost	82752	85691
Less: Accumulated Depreciation	31341	32618
Written Down Current Cost	51411	53073

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Printed	23/08/2021	Values in \$'000	Page	3
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# Singleton Sewer Fund Financial Model 2020 : IWCM - Preferred Scenario

## Base Forecast Data

**FINMOD**  
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	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	
Existing Loan Payments (Values in Inflated \$'000)																										
Existing Loan Payments : Principal (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	
Existing Loan Payments : Interest (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	
Capital Works Program (Values in 2020/21 \$'000)																										
Subsidised Scheme (Total:30540)	389	681	9187	1001	763	649	15	39	21	22	16	16	16	16	16	16	141	141	141	141	329	201	141	141	566	
Other New System Assets (Total:3527)	80	80	183	235	80	80	80	80	80	80	80	80	80	80	80	80	80	333	333	417	80	106	80	80	80	
Renewals (Total:66631)	7023	3419	3578	3052	3042	3483	4387	5879	2364	1516	89	371	822	199	706	985	1971	1626	2159	1630	2931	1421	3206	1406	1120	
Total Capital Works (Total:100698)	7492	4180	12948	4288	3885	4212	4482	5998	2465	1618	185	467	918	295	802	1081	2192	2100	2633	2188	3340	1728	3427	1627	1766	
Grant For Acquisition of Assets (% of Subsidised Scheme)	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	
Grant For Acquisition of 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	
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 Equioment Expenditure / Asset Disposal (Values in 2020/21 \$'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	



# Singleton Sewer Fund Financial Model 2020 : IWCM - Preferred Scenario

## Revised/Additional Forecast Data

**FINMOD**  
DEPARTMENT OF  
COMMERCE

	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	
OMA / Revenue Overrides (Values in 2020/21 \$'000)																										
Administration	469	474	479	483	487	491	495	499	503	507	511	515	519	523	527	531	535	539	542	545	548	551	554	557	560	
Override	469	499	504	509	513	518	522	527	531	535	540	544	548	552	556	560	563	567	571	574	578	581	584	588	591	
Engineering and Supervision	959	968	977	986	995	1004	1013	1022	1030	1038	1046	1054	1062	1070	1078	1085	1092	1099	1106	1113	1120	1127	1134	1140	1146	
Override																										
Operating Expenses	724	731	738	745	752	759	766	773	779	785	791	797	803	809	815	821	827	832	837	842	847	852	857	862	867	
Override	724	731	738	899	908	916	923	931	939	947	954	961	969	976	983	989	996	1003	1009	1015	1022	1028	1033	1039	1045	
Maintenance Expenses	302	305	308	311	314	317	320	323	326	329	332	335	338	340	342	344	346	348	350	352	354	356	358	360	362	
Override																										
Energy Costs	286	289	292	295	298	301	304	307	310	313	315	317	319	321	323	325	327	329	331	333	335	337	339	341	343	
Override																										
Chemical Costs	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
Override																										
Other Expenses	192	194	196	198	200	202	204	206	208	210	212	214	216	218	220	222	223	224	225	226	227	228	229	230	231	
Override																										
Other Revenue	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	
Override	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	
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 2020/21 \$'000)																										
Calculated from Scheme Data	227	223	222	215	211	207	204	204	200	196	192	189	189	181	178	174	170	170	167	163	159	155	155	148	144	
Override																										
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	776	784	791	798	805	812	819	826	832	839	845	851	858	864	870	876	881	887	892	898	903	908	913	918	923	
Override																										
Percentage of Pensioners (%)	13.84	13.84	13.84	13.84	13.84	13.84	13.84	13.84	13.84	13.84	13.84	13.84	13.84	13.84	13.84	13.84	13.84	13.84	13.84	13.84	13.84	13.84	13.84	13.84	13.84	
Override																										
Pensioner Rebate	68	69	69	70	70	71	72	72	73	73	74	74	75	76	76	77	77	78	78	79	79	79	80	80	81	
Pensioner Rebate Subsidy	37	38	38	39	39	39	40	40	40	40	41	41	41	42	42	42	42	43	43	43	43	43	44	44	45	
Revenue Split (%)																										
Residential Rates	73.08	72.99	72.91	72.85	72.80	72.74	72.69	72.64	72.58	72.51	72.45	72.39	72.33	72.30	72.26	72.23	72.18	72.14	72.10	72.06	72.02	71.97	71.92	71.90	71.88	
Override																										
Non-Residential Rates	24.31	24.40	24.48	24.54	24.59	24.65	24.70	24.76	24.82	24.89	24.95	25.01	25.08	25.11	25.15	25.18	25.23	25.27	25.31	25.35	25.40	25.45	25.50	25.52	25.54	
Override																										
Trade Waste Charges	2.43	2.43	2.42	2.42	2.42	2.42	2.42	2.41	2.41	2.41	2.41	2.41	2.40	2.40	2.40	2.40	2.40	2.40	2.40	2.40	2.39	2.39	2.39	2.39	2.39	
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	0.18	0.18	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	
Override																										
Total Non-Residential Revenue (%)	26.74	26.83	26.90	26.96	27.01	27.07	27.12	27.17	27.23	27.30	27.36	27.42	27.48	27.51	27.55	27.58	27.63	27.67	27.71	27.75	27.79	27.84	27.89	27.91	27.93	
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 (%)																										
	73.08	72.99	72.91	72.85	72.80	72.74	72.69	72.64	72.58	72.51	72.45	72.39	72.33	72.30	72.26	72.23	72.18	72.14	72.10	72.06	72.02	71.97	71.92	71.90	71.88	

# Singleton Sewer Fund Financial Model 2020 : IWCM - Preferred Scenario

## Revised/Additional Forecast Data

**FINMOD**  
DEPARTMENT OF  
COMMERCE

	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45
<b>New Loan Payment Overrides (Values in Inflated \$'000)</b>																									
Standard Loan Payments: Principal	0	0	0	36	75	152	236	326	339	353	368	382	397	413	432	448	464	484	504	525	545	569	590	535	475
Standard Loan Payments: Interest	0	0	0	43	85	172	258	342	330	316	302	286	270	254	238	222	205	182	165	144	124	101	78	55	34
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	0	0	0	36	75	152	236	326	339	353	368	382	397	413	432	448	464	484	504	525	545	569	590	535	475
Override																									
Total New Loan Payments: Interest	0	0	0	43	85	172	258	342	330	316	302	286	270	254	238	222	205	182	165	144	124	101	78	55	34
Override																									
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
Override																									

# Singleton Sewer Fund Financial Model 2020 : IWCM - Preferred Scenario

## Operating Statement

**FINMOD**  
DEPARTMENT OF  
COMMERCE

	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45
<b>EXPENSES</b>																									
Management Expenses	1428	1466	1481	1495	1508	1522	1535	1549	1561	1573	1586	1598	1610	1622	1634	1645	1655	1666	1677	1687	1698	1708	1718	1728	1737
Administration	469	499	504	509	513	518	522	527	531	535	540	544	548	552	556	560	563	567	571	574	578	581	584	588	591
Engineering and Supervision	959	968	977	986	995	1004	1013	1022	1030	1038	1046	1054	1062	1070	1078	1085	1092	1099	1106	1113	1120	1127	1134	1140	1146
Operation and Maintenance Expenses	1322	1335	1349	1515	1530	1544	1557	1571	1585	1599	1611	1623	1636	1647	1657	1667	1679	1690	1700	1710	1721	1731	1740	1750	1760
Operation Expenses	724	731	738	899	908	916	923	931	939	947	954	961	969	976	983	989	996	1003	1009	1015	1022	1028	1033	1039	1045
Maintenance Expenses	302	305	308	311	314	317	320	323	326	329	332	335	338	340	342	344	346	348	350	352	354	356	358	360	362
Energy Costs	286	289	292	295	298	301	304	307	310	313	315	317	319	321	323	325	327	329	331	333	335	337	339	341	343
Chemical Costs	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Depreciation	1337	1346	1478	1494	1505	1514	1496	1456	1458	1459	1460	1461	1463	1464	1465	1466	1470	1477	1484	1492	1498	1502	1505	1509	1518
System Assets	1267	1278	1412	1429	1441	1452	1454	1456	1458	1459	1460	1461	1463	1464	1465	1466	1470	1477	1484	1492	1498	1502	1505	1509	1518
Plant & Equipment	70	68	67	65	63	62	42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Interest Expenses	0	0	0	40	77	152	222	288	271	253	236	218	201	184	168	153	138	120	106	90	76	60	45	31	19
Other Expenses	192	194	196	198	200	202	204	206	208	210	212	214	216	218	220	222	223	224	225	226	227	228	229	230	231
<b>TOTAL EXPENSES</b>	<b>4279</b>	<b>4341</b>	<b>4504</b>	<b>4742</b>	<b>4820</b>	<b>4935</b>	<b>5015</b>	<b>5070</b>	<b>5082</b>	<b>5093</b>	<b>5104</b>	<b>5115</b>	<b>5125</b>	<b>5136</b>	<b>5145</b>	<b>5154</b>	<b>5165</b>	<b>5177</b>	<b>5192</b>	<b>5205</b>	<b>5219</b>	<b>5230</b>	<b>5236</b>	<b>5248</b>	<b>5265</b>
<b>REVENUES</b>																									
Rates & Service Availability Charges	4797	5114	5471	5833	5893	5950	6008	6064	6119	6173	6227	6283	6334	6386	6432	6479	6528	6578	6624	6669	6711	6759	6801	6841	6882
Residential	3599	3833	4096	4363	4405	4444	4484	4523	4560	4595	4632	4670	4704	4740	4771	4804	4837	4871	4903	4933	4961	4994	5021	5049	5078
Non-Residential	1198	1281	1375	1470	1488	1506	1524	1541	1559	1577	1595	1613	1631	1646	1660	1675	1691	1707	1721	1736	1750	1765	1780	1792	1804
Trade Waste Charges	120	128	136	145	147	148	149	150	151	153	154	155	156	157	159	159	161	162	163	165	165	166	167	168	169
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	9	10	10	11	12	11	12	12	12	12	12	12	13	12	13	12	13	13	13	13	13	13	13	14	13
Interest Income	548	466	311	187	181	186	191	172	158	171	206	248	281	317	349	373	380	383	380	380	368	373	361	368	378
Other Revenues	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Grants	37	37	36	36	35	34	34	34	33	32	32	31	30	30	30	29	28	28	28	27	26	26	26	25	25
Grants for Acquisition 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
Pensioner Rebate Subsidy	37	37	36	36	35	34	34	34	33	32	32	31	30	30	30	29	28	28	28	27	26	26	26	25	25
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	227	223	222	215	211	207	204	204	200	196	192	189	189	181	178	174	170	170	167	163	159	155	155	148	144
Developer Charges	227	223	222	215	211	207	204	204	200	196	192	189	189	181	178	174	170	170	167	163	159	155	155	148	144
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
<b>TOTAL REVENUES</b>	<b>5838</b>	<b>6079</b>	<b>6287</b>	<b>6528</b>	<b>6579</b>	<b>6636</b>	<b>6699</b>	<b>6734</b>	<b>6774</b>	<b>6837</b>	<b>6924</b>	<b>7019</b>	<b>7103</b>	<b>7185</b>	<b>7260</b>	<b>7327</b>	<b>7380</b>	<b>7435</b>	<b>7474</b>	<b>7517</b>	<b>7542</b>	<b>7591</b>	<b>7623</b>	<b>7663</b>	<b>7710</b>
<b>OPERATING RESULT</b>	<b>1559</b>	<b>1738</b>	<b>1783</b>	<b>1786</b>	<b>1759</b>	<b>1701</b>	<b>1684</b>	<b>1664</b>	<b>1692</b>	<b>1743</b>	<b>1819</b>	<b>1905</b>	<b>1979</b>	<b>2049</b>	<b>2115</b>	<b>2174</b>	<b>2214</b>	<b>2258</b>	<b>2282</b>	<b>2312</b>	<b>2323</b>	<b>2361</b>	<b>2386</b>	<b>2415</b>	<b>2445</b>
<b>OPERATING RESULT (less Grants for Acq of Assets)</b>	<b>1559</b>	<b>1738</b>	<b>1783</b>	<b>1786</b>	<b>1759</b>	<b>1701</b>	<b>1684</b>	<b>1664</b>	<b>1692</b>	<b>1743</b>	<b>1819</b>	<b>1905</b>	<b>1979</b>	<b>2049</b>	<b>2115</b>	<b>2174</b>	<b>2214</b>	<b>2258</b>	<b>2282</b>	<b>2312</b>	<b>2323</b>	<b>2361</b>	<b>2386</b>	<b>2415</b>	<b>2445</b>

# Singleton Sewer Fund Financial Model 2020 : IWCM - Preferred Scenario

## Cashflow Statement

FINMOD  
DEPARTMENT OF  
COMMERCE

	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45
<b>Cashflow From Operating Activities</b>																									
<b><u>Receipts</u></b>																									
Rates and Charges	4926	5252	5618	5989	6052	6109	6169	6225	6283	6338	6393	6451	6503	6556	6603	6651	6702	6753	6800	6846	6888	6937	6981	7023	7064
Interest Income	548	466	311	187	181	186	191	172	158	171	206	248	281	317	349	373	380	383	380	380	368	373	361	368	378
Other Revenues	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Grants	37	37	36	36	35	34	34	34	33	32	32	31	30	30	30	29	28	28	28	27	26	26	26	25	25
Contributions	227	223	222	215	211	207	204	204	200	196	192	189	189	181	178	174	170	170	167	163	159	155	155	148	144
Total Receipts from Operations	<b>5838</b>	<b>6079</b>	<b>6287</b>	<b>6528</b>	<b>6579</b>	<b>6636</b>	<b>6699</b>	<b>6734</b>	<b>6774</b>	<b>6837</b>	<b>6924</b>	<b>7019</b>	<b>7103</b>	<b>7185</b>	<b>7260</b>	<b>7327</b>	<b>7380</b>	<b>7435</b>	<b>7474</b>	<b>7517</b>	<b>7542</b>	<b>7591</b>	<b>7623</b>	<b>7663</b>	<b>7710</b>
<b><u>Payments</u></b>																									
Management	1428	1466	1481	1495	1508	1522	1535	1549	1561	1573	1586	1598	1610	1622	1634	1645	1655	1666	1677	1687	1698	1708	1718	1728	1737
Operations (plus WC Inc)	1331	1344	1358	1525	1539	1553	1567	1581	1595	1609	1621	1634	1645	1658	1667	1678	1689	1700	1711	1720	1731	1742	1749	1760	1770
Interest Expenses	0	0	0	40	77	152	222	288	271	253	236	218	201	184	168	153	138	120	106	90	76	60	45	31	19
Other Expenses	192	194	196	198	200	202	204	206	208	210	212	214	216	218	220	222	223	224	225	226	227	228	229	230	231
Total Payments from Operations	<b>2951</b>	<b>3005</b>	<b>3035</b>	<b>3258</b>	<b>3324</b>	<b>3429</b>	<b>3529</b>	<b>3623</b>	<b>3634</b>	<b>3644</b>	<b>3654</b>	<b>3664</b>	<b>3672</b>	<b>3682</b>	<b>3690</b>	<b>3698</b>	<b>3705</b>	<b>3710</b>	<b>3719</b>	<b>3723</b>	<b>3731</b>	<b>3738</b>	<b>3741</b>	<b>3749</b>	<b>3757</b>
<b>Net Cash from Operations</b>	<b>2887</b>	<b>3074</b>	<b>3251</b>	<b>3271</b>	<b>3255</b>	<b>3207</b>	<b>3171</b>	<b>3111</b>	<b>3140</b>	<b>3193</b>	<b>3269</b>	<b>3355</b>	<b>3432</b>	<b>3502</b>	<b>3570</b>	<b>3629</b>	<b>3675</b>	<b>3725</b>	<b>3755</b>	<b>3794</b>	<b>3811</b>	<b>3853</b>	<b>3882</b>	<b>3914</b>	<b>3954</b>
<b>Cashflow from Capital Activities</b>																									
<b><u>Receipts</u></b>																									
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
<b><u>Payments</u></b>																									
Acquisition of Assets	7492	4180	12948	4288	3885	4212	4482	5997	2465	1617	184	467	918	295	803	1081	2192	2100	2633	2188	3340	1728	3427	1627	1766
Net Cash from Capital Activities	<b>-7492</b>	<b>-4180</b>	<b>-12948</b>	<b>-4288</b>	<b>-3885</b>	<b>-4212</b>	<b>-4482</b>	<b>-5997</b>	<b>-2465</b>	<b>-1617</b>	<b>-184</b>	<b>-467</b>	<b>-918</b>	<b>-295</b>	<b>-803</b>	<b>-1081</b>	<b>-2192</b>	<b>-2100</b>	<b>-2633</b>	<b>-2188</b>	<b>-3340</b>	<b>-1728</b>	<b>-3427</b>	<b>-1627</b>	<b>-1766</b>
<b>CashFlow from Financing Activities</b>																									
<b><u>Receipts</u></b>																									
New Loans Required	0	0	0	1000	1000	2000	2000	2000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b><u>Payments</u></b>																									
Principal Loan Payments	0	0	0	33	68	134	204	274	278	283	287	291	295	300	306	309	313	318	323	328	333	339	343	303	263
Net Cash from Financing Activities	<b>0</b>	<b>0</b>	<b>0</b>	<b>967</b>	<b>932</b>	<b>1866</b>	<b>1796</b>	<b>1725</b>	<b>-278</b>	<b>-283</b>	<b>-287</b>	<b>-291</b>	<b>-295</b>	<b>-300</b>	<b>-306</b>	<b>-309</b>	<b>-313</b>	<b>-318</b>	<b>-323</b>	<b>-328</b>	<b>-333</b>	<b>-339</b>	<b>-343</b>	<b>-303</b>	<b>-263</b>
<b>TOTAL NET CASH</b>	<b>-4605</b>	<b>-1105</b>	<b>-9696</b>	<b>-51</b>	<b>303</b>	<b>860</b>	<b>485</b>	<b>-1161</b>	<b>397</b>	<b>1292</b>	<b>2797</b>	<b>2597</b>	<b>2218</b>	<b>2908</b>	<b>2461</b>	<b>2238</b>	<b>1170</b>	<b>1307</b>	<b>800</b>	<b>1278</b>	<b>138</b>	<b>1786</b>	<b>112</b>	<b>1983</b>	<b>1925</b>
<b>Current Year Cash</b>	<b>-4605</b>	<b>-1105</b>	<b>-9696</b>	<b>-51</b>	<b>302</b>	<b>860</b>	<b>485</b>	<b>-1161</b>	<b>397</b>	<b>1292</b>	<b>2797</b>	<b>2597</b>	<b>2219</b>	<b>2908</b>	<b>2461</b>	<b>2238</b>	<b>1170</b>	<b>1307</b>	<b>800</b>	<b>1278</b>	<b>138</b>	<b>1786</b>	<b>112</b>	<b>1983</b>	<b>1925</b>
<b>Cash &amp; Investments @Year Start</b>	<b>24508</b>	<b>19418</b>	<b>17866</b>	<b>7970</b>	<b>7726</b>	<b>7832</b>	<b>8480</b>	<b>8746</b>	<b>7400</b>	<b>7607</b>	<b>8682</b>	<b>11199</b>	<b>13459</b>	<b>15295</b>	<b>17760</b>	<b>19728</b>	<b>21431</b>	<b>22050</b>	<b>22787</b>	<b>23011</b>	<b>23697</b>	<b>23253</b>	<b>24428</b>	<b>23942</b>	<b>25293</b>
<b>Cash &amp; Investments @Year End</b>	<b>19903</b>	<b>18312</b>	<b>8169</b>	<b>7919</b>	<b>8028</b>	<b>8692</b>	<b>8964</b>	<b>7585</b>	<b>7797</b>	<b>8899</b>	<b>11479</b>	<b>13796</b>	<b>15678</b>	<b>18204</b>	<b>20221</b>	<b>21966</b>	<b>22601</b>	<b>23357</b>	<b>23587</b>	<b>24289</b>	<b>23835</b>	<b>25039</b>	<b>24540</b>	<b>25925</b>	<b>27218</b>
<b>Capital Works Funding:</b>																									
Internal Funding for New Works (\$'000)	469	761	9370	236	843	729	95	119	101	102	96	96	96	96	96	96	221	474	474	558	409	307	221	221	646
Internal Funding for Renewals	7023	3419	3578	3052	2042	1483	2388	3879	2364	1516	89	371	822	199	706	985	1971	1626	2159	1630	2931	1421	3206	1406	1120
New Loans	0	0	0	1000	1000	2000	2000	2000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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
Total Capital Works	<b>7492</b>	<b>4180</b>	<b>12948</b>	<b>4288</b>	<b>3886</b>	<b>4212</b>	<b>4482</b>	<b>5997</b>	<b>2465</b>	<b>1617</b>	<b>185</b>	<b>467</b>	<b>918</b>	<b>295</b>	<b>803</b>	<b>1081</b>	<b>2192</b>	<b>2100</b>	<b>2633</b>	<b>2188</b>	<b>3340</b>	<b>1728</b>	<b>3427</b>	<b>1627</b>	<b>1766</b>

# Singleton Sewer Fund Financial Model 2020 : IWCM - Preferred Scenario

## Statement of Financial Position

**FINMOD**  
DEPARTMENT OF  
COMMERCE

	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45
<b>Cash and Investments</b>	19903	18312	8169	7919	8029	8693	8965	7586	7798	8900	11480	13797	15679	18204	20222	21967	22601	23357	23587	24289	23835	25039	24540	25925	27218
<b>Receivables</b>	447	452	456	461	465	468	473	476	480	484	487	492	495	499	502	506	509	513	516	519	522	526	529	532	535
<b>Inventories</b>	38	38	38	38	38	38	38	38	39	39	40	40	41	41	42	42	42	43	43	43	43	43	44	44	44
<b>Property, Plant &amp; Equipment</b>	61024	63848	75309	78097	80473	83169	86155	90696	91703	91861	90585	89592	89048	87878	87216	86832	87554	88177	89326	90022	91865	92091	94014	94132	94380
<b>System Assets (1)</b>	60625	63527	75063	77922	80365	83126	86155	90696	91703	91861	90585	89592	89048	87878	87216	86832	87554	88177	89326	90022	91865	92091	94014	94132	94380
<b>Plant &amp; Equipment</b>	399	321	247	176	108	43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Other Assets</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>TOTAL ASSETS</b>	<b>81412</b>	<b>82650</b>	<b>83973</b>	<b>86515</b>	<b>89004</b>	<b>92368</b>	<b>95630</b>	<b>98796</b>	<b>100019</b>	<b>101284</b>	<b>102593</b>	<b>103921</b>	<b>105262</b>	<b>106623</b>	<b>107982</b>	<b>109347</b>	<b>110707</b>	<b>112089</b>	<b>113472</b>	<b>114874</b>	<b>116265</b>	<b>117700</b>	<b>119126</b>	<b>120633</b>	<b>122176</b>
<b>LIABILITIES</b>																									
<b>Bank Overdraft</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Creditors</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Borrowings</b>	0	0	0	967	1875	3695	5401	6995	6546	6104	5668	5238	4815	4398	3985	3579	3179	2783	2392	2005	1624	1246	872	548	272
<b>Provisions</b>	204	206	207	210	212	214	216	217	219	221	223	224	226	228	229	231	232	234	235	237	239	240	242	243	244
<b>TOTAL LIABILITIES</b>	<b>204</b>	<b>206</b>	<b>207</b>	<b>1177</b>	<b>2087</b>	<b>3909</b>	<b>5617</b>	<b>7212</b>	<b>6765</b>	<b>6325</b>	<b>5890</b>	<b>5462</b>	<b>5041</b>	<b>4626</b>	<b>4215</b>	<b>3809</b>	<b>3411</b>	<b>3017</b>	<b>2627</b>	<b>2243</b>	<b>1863</b>	<b>1485</b>	<b>1114</b>	<b>791</b>	<b>516</b>
<b>NET ASSETS COMMITTED</b>	<b>81208</b>	<b>82444</b>	<b>83765</b>	<b>85338</b>	<b>86917</b>	<b>88459</b>	<b>90013</b>	<b>91583</b>	<b>93254</b>	<b>94959</b>	<b>96703</b>	<b>98458</b>	<b>100221</b>	<b>101997</b>	<b>103768</b>	<b>105538</b>	<b>107296</b>	<b>109072</b>	<b>110844</b>	<b>112631</b>	<b>114403</b>	<b>116214</b>	<b>118012</b>	<b>119842</b>	<b>121660</b>
<b>EQUITY</b>																									
<b>Accumulated Operating Result</b>	48154	48717	49312	49895	50437	50908	51351	51762	52192	52662	53197	53804	54471	55191	55959	56768	57598	58451	59307	60173	61028	61900	62776	63660	64553
<b>Asset Revaluation Reserve</b>	33054	33727	34454	35444	36480	37551	38663	39821	41062	42297	43506	44654	45750	46806	47808	48770	49698	50621	51537	52459	53375	54314	55236	56182	57107
<b>TOTAL EQUITY</b>	<b>81208</b>	<b>82444</b>	<b>83765</b>	<b>85338</b>	<b>86917</b>	<b>88459</b>	<b>90013</b>	<b>91583</b>	<b>93254</b>	<b>94959</b>	<b>96703</b>	<b>98458</b>	<b>100221</b>	<b>101997</b>	<b>103768</b>	<b>105538</b>	<b>107296</b>	<b>109072</b>	<b>110844</b>	<b>112631</b>	<b>114403</b>	<b>116214</b>	<b>118012</b>	<b>119842</b>	<b>121660</b>
<b>(1) Notes to System Assets</b>																									
<b>Current Replacement Cost</b>	88302	89063	98433	99668	100511	101240	101335	101454	101555	101656	101752	101848	101944	102041	102137	102233	102454	102929	103402	103960	104369	104677	104898	105119	105765
<b>Less: Accumulated Depreciation</b>	27677	25537	23370	21747	20146	18115	15181	10758	9852	9795	11166	12256	12897	14162	14921	15402	14901	14751	14076	13938	12504	12585	10884	10987	11385
<b>Written Down Current Cost</b>	60625	63527	75063	77922	80365	83126	86155	90696	91703	91861	90585	89592	89048	87878	87216	86832	87554	88177	89326	90022	91865	92091	94014	94132	94380

# Singleton Sewer Fund Financial Model 2020 : IWCM - Preferred Scenario

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## Performance Indicators

	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45
Typical Residential Bills	654	689	728	768	768	768	768	768	768	768	768	768	768	768	768	768	768	768	768	768	768	768	768	768	768
Average Residential Bills (2020/21\$)	642	677	717	757	757	757	758	758	758	758	759	759	759	760	759	760	760	760	760	761	760	761	761	761	761
Mgmnt Cost / Assessment (2020/21\$)	234	238	238	239	238	239	238	238	238	238	238	239	238	238	239	238	238	238	239	238	238	238	238	239	238
OMA Cost per Assessment (2020/21\$)	451	455	455	480	480	480	480	480	480	480	480	480	480	480	480	480	480	480	480	480	480	480	479	480	480
Operating Sales Margin (%)	19.11	22.65	24.63	25.85	25.87	25.86	26.35	27.12	27.28	27.39	27.53	27.68	27.83	27.90	27.99	28.10	28.18	28.29	28.31	28.33	28.30	28.38	28.52	28.49	28.46
Economic Real Rate of Return (%)	1.66	1.99	1.95	2.10	2.06	2.01	1.99	1.96	1.97	1.99	2.04	2.09	2.13	2.18	2.22	2.25	2.25	2.26	2.25	2.25	2.21	2.22	2.20	2.21	2.21
Debt Service Ratio	0.00	0.00	0.00	0.01	0.02	0.04	0.06	0.08	0.08	0.08	0.08	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.04	0.04
Debt/Equity Ratio	0.00	0.00	0.00	0.01	0.02	0.04	0.06	0.08	0.07	0.06	0.06	0.05	0.05	0.04	0.04	0.03	0.03	0.03	0.02	0.02	0.01	0.01	0.01	0.00	0.00
Interest Cover	0.00	0.00	0.00	45.72	23.85	12.19	8.57	6.78	7.25	7.89	8.71	9.74	10.86	12.12	13.55	15.18	17.03	19.88	22.57	26.67	31.69	40.26	53.67	78.47	131.09
Return on capital (%)	1.91	2.10	2.12	2.11	2.06	2.01	1.99	1.98	1.96	1.97	2.00	2.04	2.07	2.09	2.11	2.13	2.12	2.12	2.10	2.09	2.06	2.06	2.04	2.03	2.02
Cash and Investments (2020/21\$'000)	19903	18312	8169	7919	8029	8693	8965	7586	7798	8900	11480	13797	15679	18204	20222	21967	22601	23357	23587	24289	23835	25039	24540	25925	27218
Debt outstanding (2020/21\$'000)	0	0	0	967	1875	3695	5401	6995	6546	6104	5668	5238	4815	4398	3985	3579	3179	2783	2392	2005	1624	1246	872	548	272
Net Debt (2020/21\$'000)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



# Singleton Sewer Fund Financial Model 2020 : IWCM - Preferred Scenario

## STANDARD LOAN PAYMENT SCHEDULE

**FINMOD**  
DEPARTMENT OF  
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Drawdown			2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	
2023/24	Principal	1077				36	38	39	40	42	44	46	48	49	51	53	56	58	60	63	65	68	71	73	77	0	0	
	Interest					43	41	40	38	36	35	33	31	29	27	25	23	21	19	16	13	11	8	5	3	0	0	
2024/25	Principal	1104					37	38	40	42	43	45	47	49	51	53	55	57	59	62	64	67	69	73	75	79	0	
	Interest						44	42	41	39	38	36	34	32	30	28	26	24	21	19	17	14	11	9	5	3	0	
2025/26	Principal	2263						75	79	82	85	89	93	96	99	103	109	113	117	121	127	132	137	143	148	154	161	
	Interest							90	87	83	81	77	73	69	65	61	57	53	49	43	39	33	29	23	17	11	5	
2026/27	Principal	2319							77	81	84	87	91	95	99	103	107	111	115	120	125	130	135	141	146	152	158	
	Interest								92	89	85	83	79	75	71	67	63	59	55	49	45	40	35	29	23	17	11	
2027/28	Principal	2377								79	83	86	89	93	97	101	105	109	113	118	123	128	133	139	144	150	156	
	Interest									95	91	87	85	81	77	73	69	65	61	55	51	46	41	35	30	24	18	
Total Principal			9140	0	0	0	36	75	152	236	326	339	353	368	382	397	413	432	448	464	484	504	525	545	569	590	535	475
Total Interest				0	0	0	43	85	172	258	342	330	316	302	286	270	254	238	222	205	182	165	144	124	101	78	55	34

# Singleton Sewer Fund Financial Model 2020 : IWCM - Preferred Scenario

## Summary Report of Assumptions and Results

**FINMOD**  
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	2020/21	2024/25	2029/30	2034/35	2039/40	2044/45	2049/50
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 (%)	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Term of New Loans (years)	20	20	20	20	20	20	20
Investment Interest Rate (%)	2.50	2.50	2.50	2.50	2.50	2.50	2.50
Growth Rate - Residential (%)	0.97	0.88	0.78	0.69	0.60	0.53	2.29
Developer Charges per Assessment - Residential (2020/21 \$)	3720	3701	3701	3701	3701	3701	3701
Subsidised Scheme Capital Works (\$m)	0.39	0.76	0.02	0.02	0.14	0.57	7.76
Grants on Acquisition of Assets (\$m)	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Renewals (\$m)	7.02	3.04	1.52	0.71	1.63	1.12	1.52
Renewals (%)	7.95	3.03	1.49	0.69	1.57	1.06	1.25
Cash and Investments (\$m)	19.90	8.03	8.90	20.22	24.29	27.22	18.35
Borrowing Outstanding (\$m)	0.00	1.88	6.10	3.99	2.01	0.27	0.00
Mgmnt Cost / Assessment	234	238	238	239	238	238	235
Debt Equity Ratio	0.00	0.02	0.05	0.03	0.01	0.00	0.00
OMA Cost Per Assessment	451	480	480	480	480	480	517
Economic Real Rate of Return (%)	1.66	2.06	1.99	2.22	2.25	2.21	1.66
Return on Capital (%)	1.91	2.06	1.97	2.11	2.09	2.02	1.59
Net Debt (\$m)	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Debt Service Ratio	0.00	0.02	0.08	0.07	0.06	0.04	0.00
Average Residential Bills	642	757	758	759	761	761	762
Typical Residential Bills	654	768	768	768	768	768	768



## Public Works Advisory

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