

Water & Wastewater

Actions included in the 2019/20 Operational Plan support the following objectives included in the Community Strategic Plan 2030:

- BE1 Our built environment blends with the natural and cultural environment

Changing how we do things

The implementation of the Water Loss Management System has allowed council to better account for all water produced. In 2016/17, council installed meters on all council facilities which resulted in a decrease in unaccounted water for Council but did not reduce it to below the previously targeted 25%. To achieve target levels Council will be implementing a program to install Smart Meters on all residential dwellings replacing the old water meters in accordance with one of the recommendations of the Water Loss Management Program.

Council has previously undertaken renewals and maintenance on a reactive basis. With the implementation of the Asset Management System the focus will shift to more proactive maintenance schedules and renewals based not only on the failure, but on remaining useful life, determined by factors such as condition assessments, age, expected useful life etc.

Water meter replacement program

Council has commenced a review of customer metering to develop a customer meter replacement strategy that targets:

- Faulty meters;
- Old meters (greater than 10 years);
- High totaliser meters (greater than 5,000kL); and
- Low number meter models (to reduce the number of meter populations to manage)

To determine a meter replacement policy, we have reviewed our current meter stock. Using the serial numbers from the meters, we were able to determine the year in which the meter was installed. Currently, Council has 8529 meters installed ranging from 15mm to 100mm. 8325 of these meters are standard 20mm meters which record the

bulk of the domestic supply. Of this 8325, there are 7382 meters which are older than 10 years. Of the 7382 meters that are older than 10 years, 6394 of these are older than 15 years. The analysis of the meter fleet indicates that more than 50% of the meters currently installed exceed 20 years with only a slight reduction in this percentage at 25 years. The analysis indicates that nearly half of the meters currently installed are the original meters that have never been replaced since metering was first undertaken in the 1990's.

Industry practice determines that the useful life of a mechanical water meter is 10 years, with some manufacturers claiming 20 years useful life. After a period of 8 years use, the meter will begin to incorrectly measure the amount of water passing through. When meters begin to fail, in all but exceptional cases, the meter under registers.

In 2019/20 Council will undertake a meter replacement program with an Automated Meter Reading (AMR) system or what is commonly known as Smart Metering. The benefits that can be achieved include but are not limited to:

- Reduction in non-revenue water;
- The ability for customers and Council to identify leaks early within private properties;
- Automatic monitoring with alarms that can detect if changes occur within the system that require attention, e.g. leaks, freezing, no water;
- Customers may monitor their own usage through an online portal;
- Avoidance of bill shock with near real-time data on consumption and excess use alarms;
- Reduce WHS issues associated with manual reads, e.g. dog attacks; and
- Extend the lifespan of the network through optimised operations and proactive maintenance.

Lithgow City Council is responsible for:

- 2 prescribed dams
- 1 water treatment plant
- 9 reservoirs
- 3 water pump stations
- 242,671m of water mains
- 8,326 consumers connected to potable water
- 3 Sewerage Treatment Plants
- 34 Sewerage pump stations
- 146,035m gravity sewer
- 30,514m sewer rising mains
- 14,965m sewer trunk mains
- 7,715 sewerage service connections.

Key Council Plans & Strategies

- Strategic Asset Management Plan
- Water and Sewer Strategic Business Plan
- Integrated Water Cycle Management Plan
- Developer Servicing Plans
- Best Practice Guidelines for Water & Sewer
- Drought Management Plan
- Drinking Water Quality Management Plan

2018 Asset Management Study

In 2018, Council engaged Micromex consulting to undertake an Asset Management Study to identify the community's service level and expenditure priorities. The survey found that:

'Satisfaction with the performance of assets was greatest for the 'sewage network', closely followed by 'community buildings' and 'bridges'. The four lowest satisfaction ratings were given for roads (urban sealed, rural sealed and rural unsealed) and footpaths, suggesting that satisfaction is lowest for assets that concern movement around the LGA.'

Condition Ratings

<p>Condition of Water Network</p>  <p>A pie chart titled 'Condition of Water Network' showing three segments: a large green segment for 'Average' at 63%, a blue segment for 'Good' at 19%, and an orange segment for 'Poor' at 18%.</p>	<p>Council owns and maintains a significant water distribution network throughout the local government area. This network includes 2 prescribed dams, 3 water treatment plants, 9 water reservoirs, 3 pump stations, 242,671m of water mains and 8,326 water meters.</p> <p>The Council currently spends approximately \$2 million per annum on water supply network maintenance. The majority of the water network is in good to average condition. It is estimated that planned investments in the water network will allow Council to renew poor condition assets and ensure that adequate services are provided.</p>
<p>Condition of Sewerage Network</p>  <p>A pie chart titled 'Condition of Sewerage Network' showing three segments: a blue segment for 'Good' at 48%, a green segment for 'Average' at 35%, and an orange segment for 'Poor' at 17%.</p>	<p>Council owns and maintains a vast sewer distribution network. This network includes 3 sewage treatment plants, 34 sewage pump stations, 146,035 gravity sewer pipes, 30,514m sewer rising mains, 14,965m sewer trunk mains and 7,715 sewer service connections connecting houses and businesses to the sewer network.</p> <p>Sewer assets are primarily in good to average condition, with 17% in the poor category. While our sewerage network is generally well maintained, population growth and service expansion requires the Council to plan significant investment in the network over the next 10 years. Sewerage treatment plant upgrades will result in corresponding increases in operation and maintenance costs. Council currently spends \$1.1 million per annum on maintaining the sewer network.</p>

BE1 – OUR BUILT ENVIRONMENT BLENDS WITH THE NATURAL AND CULTURAL ENVIRONMENT

DELIVERY PLAN (2017-2021)	OPERATIONAL PLAN (2019-2020)			
Delivery Program Action (4 years)	Action	Performance Measure	Target	Responsible Department
BE1.4 Match infrastructure with development.	BE1.4.4 Provide a secure and reliable water reticulation system to residents of the Lithgow LGA.	<ul style="list-style-type: none"> • Undertake asset renewals in accordance with Asset Management Plans • Develop Plans and Strategies to service new development areas • Implement Smart Metering across the LGA • Review, update and adhere to Councils Drinking Water Management System • Review and update existing Best Practice Management Plans as required 	100% complete	Water and Wastewater

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DELIVERY PLAN (2017-2021)	OPERATIONAL PLAN (2019-2020)			
Delivery Program Action (4 years)	Action	Performance Measure	Target	Responsible Department
BE1.4 Match infrastructure with development.	BE1.4.5 Provide a secure and reliable sewerage reticulation system to residents of the Lithgow LGA.	<ul style="list-style-type: none"> • Completion of the design for the Cullen Bullen Sewerage Scheme • undertake asset renewals in accordance with Asset Management Plans • Develop Plans and Strategies to service new development areas including the West Bowenfels Release area • Review and update existing Best Practice Management Plans as required 	100% complete	Water and Wastewater
		Design and construct Lake Lyell Onsite Wastewater System upgrade	100% complete	Infrastructure Services

WATER PROGRAM INCOME AND EXPENDITURE 2019/2020

Project	Project Costs \$	Funded from Grants \$	Funded from Loans \$	Funded from Water or General Revenue \$
Water	2,236,000			(2,236,000)
Water Mains Renewal				
Replacement of water mains which have exceeded their useful life	250,000			(250,000)
Dam Safety Works				
Dam Safety Works	100,000			(100,000)
Smart Metering				
Council's meter fleet has exceeded the useful life of over 70% of its meters. Meters once at their useful life start to register incorrectly and in all but the odd exception read lower than the actual volume passing through the meter. The Water Loss Program identified a system loss in excess of 35%. A large portion of this loss can be associated with the incorrect measurement of consumer water.	\$1,886,000			(1,886,000)

SEWER PROGRAM INCOME AND EXPENDITURE 2019/2020

Project	Project Costs \$	Funded from Grants \$	Funded from Loans \$	Funded from Sewer or General Revenue \$
Sewer	(4,518,889)	2,000,000		2,518,889
Sewer Mains Renewal				
Continuation of trunk lining renewal	250,000			(250,000)
Sewer Vent Replacement				
Replacement of old and dilapidated vents as per asset condition assessments.	60,000			(60,000)
Lithgow Sewerage Treatment Plant				
Construction of new inlet works at Lithgow Sewage Treatment Plant	1,500,000			(1,500,000)
Cullen Bullen Sewerage Scheme				
Construct Sewerage reticulation network and Sewerage Treatment Plant for Cullen Bullen Village.	2,000,000	(2,000,000)		
Lake Lyell Septic Upgrade				
	708,889			(708,889)