WARREN shire council

29 May 2020

ASSET MANAGEMENT PLAN

SEWERAGE NETWORK

2019/20 to 2048/49

Adopted: 22nd October 2020 Minute No. 226.10.20

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Executive summary

Warren Shire Council provides a sewerage network for the communities of Warren and Nevertire.

The original sewerage scheme in Warren was constructed in 1958 and began operations in 1959. Today, the sewerage networks in both Warren and Nevertire are comprised of sewer mains, rising mains, pumping stations and a treatment works in each community.

The estimated gross replacement cost of the sewerage network across Warren and Nevertire is $14.1m.

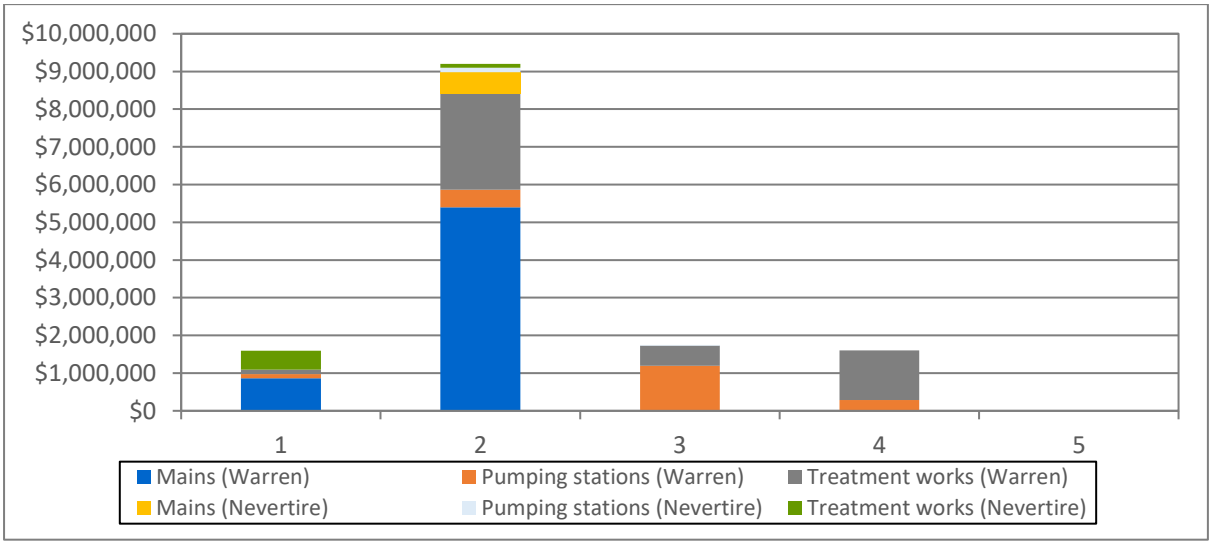
Council's strategic objective for the sewerage network is to provide Warren and Nevertire with an adequate and environmentally acceptable sewerage scheme that is appropriately priced for all consumers.

Council plans to install a new sewerage treatment works in Warren. This will replace the existing treatment works which is dated and needs to be replaced and upgraded. The new works will be based on settlement, oxidation and evaporation ponds.

The community has certain expectations as to the level of service it requires from the sewerage network. These expectations fall into the categories of access to sewers, system failures, response times for system failures, price and customer complaints management. This asset management plan outlines how Council delivers against these expectations and how we measure our performance.

Overall, most of our sewerage network assets are in an acceptable condition, i.e., they have a condition rating between 1 and 3 on a scale of 1 to 5. See figure ES1 below.

Figure ES1: Condition ratings, sewerage network (estimated gross replacement cost) as at 30 June 2019



Condition scale: 1=Excellent; 2=Good; 3=Average; 4=Poor; 5=Very poor

However, some assets are in condition 4. These are providing a poor level of service and will need to be renewed in the short- to medium-term.

In this asset management plan, the lifecycle costs of the sewerage network are estimated and projected. There are four lifecycle categories. These categories are operations, maintenance, capital renewal and capital expansion.

A summary of the operational and maintenance activities which are undertaken is provided together with the frequency in which these activities are undertaken.

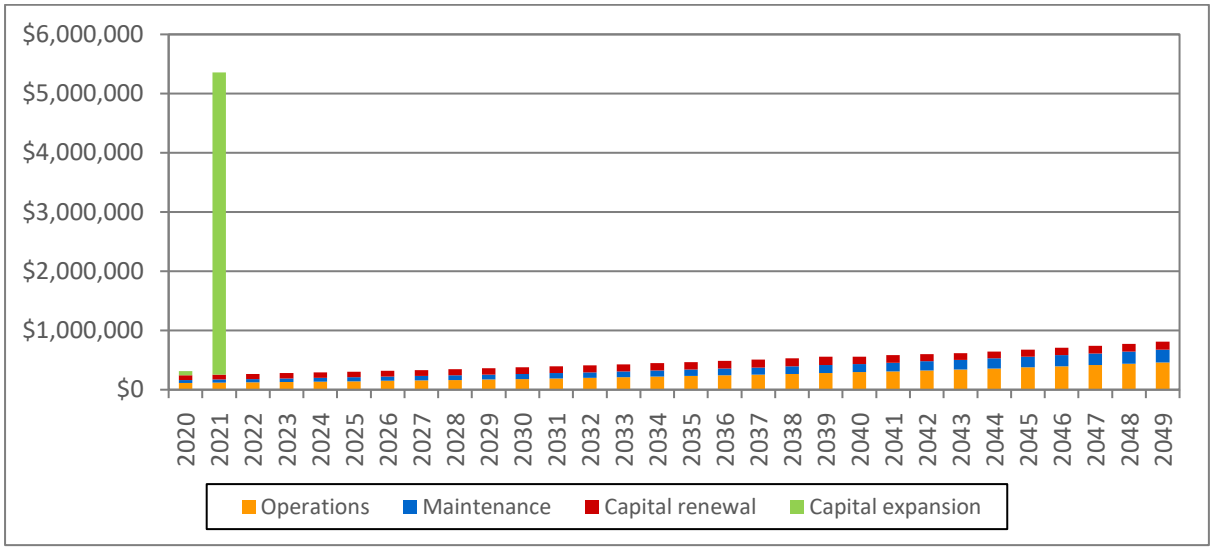
An analysis of the capital renewal funding needs over the next thirty years has been undertaken. Council will be allocating funds to an asset renewal reserve each year to ensure that it is saving money from the day it purchases an asset to allow it to replace the asset at the end of its life.

Funds also need to be allocated to the net cost of the proposed capital expansion projects that Council will be undertaking over the next thirty years (i.e. the costs over and above the grant funding that Council will receive for these projects). The only capital expansion project that is currently planned over the next thirty years is the installation of a new sewerage treatment works in Warren. The sewerage treatment works will cost of approximately $5.2m and will be constructed over the 2020 and 2021 financial years.

There are no plans to install a sewerage network in Collie in the foreseeable future.

The projected lifecycle expenditure on operations, maintenance, renewal and expansion activities for the sewerage network over the next thirty years is shown in the following graph.

Figure ES2: Thirty-year projected lifecycle expenditure on the sewerage network, 2020 to 2049



Our annual operations and maintenance costs are not expected to fluctuate significantly over the next thirty years as our sewerage network is not expected to grow due to our relatively stable populations in Warren and Nevertire. However, these costs have been indexed by 5.0% p.a. for inflation.

Our sewerage assets have long estimated useful lives. Most of the sewerage network will not need to be renewed over the next thirty years. However, the projected lifecycle expenditure includes funds to be allocated to an asset renewal reserve each year to ensure that assets can be replaced when they reach the end of their life. This asset renewal reserve allocation has been indexed by 3.0% p.a. for inflation.

Estimates for capital expansion projects for the sewerage network have also been included in the thirty-year expenditure analysis.

Council's aim is to operate the sewerage services network on a full cost recovery basis with no significant cross-subsidies from non-sewerage Council revenues. In other words, it is run as an independent business. As such, the primary source of funding to support the sewerage network is from user charges.

The payments made by the residents of Warren and Nevertire are held in a sewerage services fund which is used to support the costs of maintaining the sewerage network. Council manages the inflow of funds into the sewerage services fund through its sewerage pricing policies.

Two types of sewerage services charges are applied to customers. The first is a sewer usage charge. The second is a sewerage access charge.

Based on the size of our communities, any significant upgrades to our sewerage network are highly reliant on grant funding.

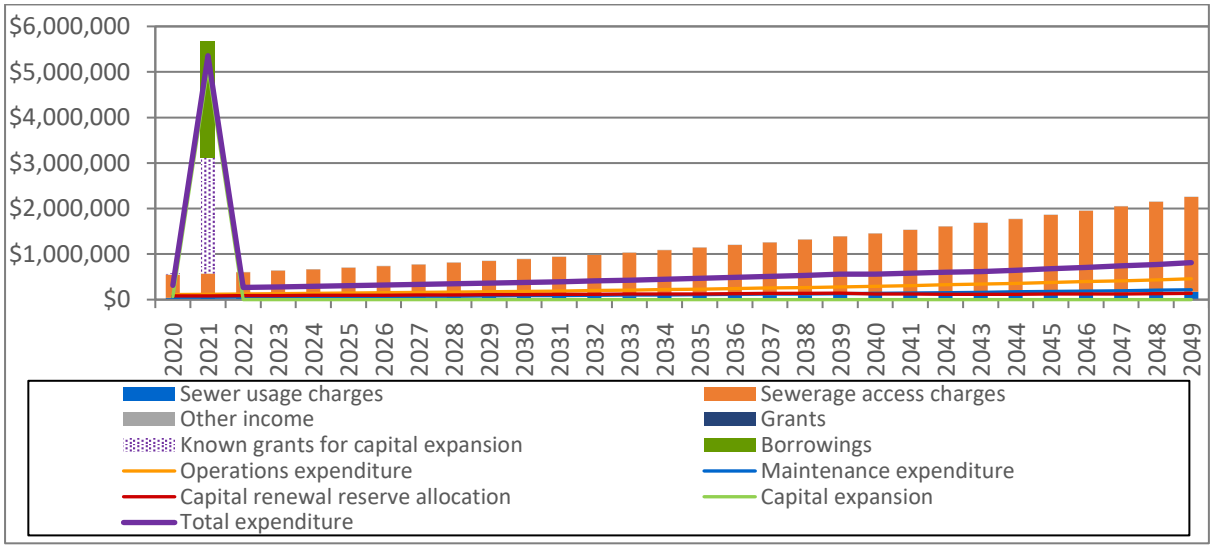
Council applies for grant funding when major projects are to be undertaken. This might be when significant renewal is required or when new infrastructure is to be installed.

Council will be allocating funds to an asset renewal reserve each year to help in reducing its reliance on grant funding for renewal projects. However, grants will be needed for significant renewal work and to support any planned capital expansion projects. These expansion projects include the new sewerage treatment works in Warren.

Council also has the option of borrowing to support investments in new sewerage network infrastructure.

The projected expenditure and funding picture for the sewerage network over the next thirty years is shown in figure ES3 below.

Figure ES3: Thirty-year financial plan for the sewerage network, 2020 to 2049



This graph highlights that the sewerage services business will operate with a surplus and that this surplus will increase over time as income increases with a slightly higher indexation rate of 5.0% p.a. compared with the asset renewal reserve allocation which is indexed at 3.0% p.a.. Operations and maintenance expenses are indexed at 5.0% p.a..

Council has developed a series of performance benchmarks to help in assessing how well it is meeting the community's expectations in relation to the condition of its assets.

Critical risks have been identified for the sewerage network. These include the risk that the electricity supply for our pumping stations and sewerage treatment works is cut and that Warren and/or Nevertire flood, compromising the operation of the treatment works. Risk treatment plans have been developed to reduce the likelihood of these risks and to limit their impact.

Several initiatives have been identified to improve Council's asset management capabilities in relation to its sewerage network. These include:

- Implementing an integrated asset management system and associated processes to support Council's engineering and finance functions; this will also provide Council with much needed predictive capabilities to assist with decisions on where it should be allocating asset funding or if it should be seeking additional funding
- Regularly capturing accurate and complete asset condition data
- Tracking Council's performance against relevant community expectation benchmarks
- Implementing a productivity improvement program.

1 Introduction and strategic objectives

1.1 Introduction

Warren Shire is located in Central West NSW and covers an area of 10,860 square kilometres. Within the Shire is the town of Warren and the villages of Nevertire and Collie. According to the 2016 census, the total population for the Shire is 2,732 with 1,530 people living in Warren. In 2019 it is estimated that 92 people live in Nevertire and 46 people live in Collie.

The town of Warren is situated on the banks of the Macquarie River and is located 120 km from the regional centre of Dubbo and 515 km from Sydney. Nevertire is 20 km to the south west of Warren. Collie is located 51 km to the east of Warren.

Warren Shire Council owns and maintains $247.0m (estimated gross replacement cost as at 30 June 2019) of community assets including roads, bridges, public buildings, the water supply network, the sewerage network and recreational assets. The sewerage network comprises $14.1m of this asset base. Sewerage services are only provided for Warren and Nevertire.

The efficient management of our assets is vital to ensure that Council provides safe and reliable services for the community. To achieve this, Council has developed several integrated tools. These tools form the Integrated Planning and Reporting (IP&R) framework which includes Council's:

- Community strategic plan (CSP)
- Resourcing strategy
  - Long-term financial planning (LTFP)
  - Asset management planning
    - Asset management policy
    - Asset management strategy
    - Asset management plans (of which this is one).

Together, these tools guide Council and hold it to account with respect to delivering on its asset management strategic objectives.

Council has developed asset management plans for each class of asset under its control. This asset management plan for our sewerage network identifies our asset service standards and contains the long-term projected costs for the operations, maintenance, renewal and expansion of our assets.

1.2 Strategic objective for the sewerage network

The strategic objective of Council in operating, maintaining and improving its sewerage network is as follows.

Table 1.1: Strategic objective for the sewerage network

No.	Strategic objective for the sewerage network	Link with the CSP
1	Provide Warren and the village of Nevertire with an adequate and environmentally acceptable sewerage scheme that is appropriately priced for all consumers	Strategy 4.3.3

1.3 Definitions

To ensure consistency between this document and the other documents in Council's IP&R framework, the following definitions are used.

Accumulated depreciation – The total depreciation of an asset's estimated gross replacement cost. Depreciation of an asset will continue to be accumulated until it is replaced. At this point, the original asset will be written off and the depreciation of the new asset will commence from zero.

Asset – A physical facility, which has value, and enables services to be provided to the community. The economic life of an asset is greater than twelve months.

Asset management – The combination of management, financial, economic and engineering practices applied to a physical asset with the objective of providing the required levels of service in the most cost-effective manner.

Estimated gross replacement cost – The estimated cost of replacing an asset calculated by multiplying estimated unit rates for each component of an asset by the size of the asset. Estimated gross replacement costs are calculated every five years when Council's assets are revalued.

Expansion – Activities associated with upgrading or improving an asset or creating a new asset.

Level of service – The ability of an asset to provide services to the community. A minimum level of service is set by Council for each asset. Community levels of service are based around the minimum required condition rating of an asset. Technical levels of service refer to the frequency in which maintenance and capital works are undertaken on an asset by Council.

Lifecycle – The phases in the life of an asset from acquisition, operations, maintenance, renewal and disposal.

Maintenance – Planned or unplanned activities required to ensure that the asset can continue to deliver the services required of it by the community.

Net carrying value – Estimated gross replacement cost minus accumulated depreciation. This is the equivalent of the written down value of an asset.

Operations – Regular, planned activities to keep the asset in service.

Renewal – Activities which involve restoring, refurbishing or replacing an asset to bring it back to its original capacity and performance capability. Renewal costs are treated as capital expenditure.

Renewal backlog – The cost to renew those assets within the Shire that do not achieve the required minimum level of service.

Useful life – The period over which an asset is expected to be available for use by Council (in the context of its service to Council, not to its actual physical life). The useful life of each asset is used by Council to determine the depreciation of the asset.

2 Services provided and classification

2.1 Sewerage network: categories and value

The town of Warren and the village of Nevertire both have a sewerage network. The network is comprised of sewer mains, pumping stations and sewerage treatment works. These components are summarised in the following table.

Table 2.1: Council's sewerage network (and value) as at 30 June 2019

Sewerage asset category	Net carrying value $	Estimated gross replacement cost $
Warren		
Mains	3,745,748	6,265,736
Pumping stations	1,000,383	2,067,096
Treatment works	1,751,748	4,493,057
Total Warren	**6,497,879**	**12,825,888**
Nevertire		
Mains	396,036	572,576
Pumping stations	78,611	148,007
Treatment works	448,224	594,059
Total Nevertire	**922,871**	**1,314,642**
Total sewerage network	**7,420,750**	**14,140,530**
Total all Council assets	**179,662,545**	**247,025,077**
Percent of all Council assets	**4.1%**	**5.7%**

2.2 Overview of the sewerage network

Warren

The original sewerage scheme in Warren was constructed in 1958 and began operations in 1959.

The scheme originally consisted of pumping stations at the Ambulance Station, Gillendoon Street and Wilson Street. They were manually operated and pumped sewage to a trickling filter plant for treatment. With the expansion of the town, further pumping stations were constructed at Garden Avenue and in the Gunningbar Residential Estate.

Between 1998 and 2001 the Ambulance Station and Gillendoon Street pumping stations were upgraded to automatically operate submersible pumps controlled by multitrode level sensors. Since 2002 all pumping stations have been upgraded to automatically operate submersible pumps which are monitored by a radio telemetry system.

The Warren scheme currently consists of approximately 15.6 km of sewer mains, 3.1 km of rising mains, six pumping stations, a treatment works and 253 manholes. The details and age profile of Warren's current sewerage network infrastructure are provided in the following table.

Table 2.2: Warren's sewerage network infrastructure as at 30 June 2019

Asset type	Location	Item	Size	Year built
Mains	Throughout	Gravity main	7.3 km	1958
			0.9 km	1963
			2.5 km	1964
			0.2 km	1968
			0.2 km	1969
			0.5 km	1970
			0.5 km	1972
			1.2 km	1976
			1.1 km	1984
			0.2 km	1987
			0.3 km	1995
			0.7 km	1997
		Total gravity main	*15.6 km*	
	Throughout	Rising main	1.0 km	1958
			0.1 km	1964
			0.5 km	1973
			0.3 km	1992
			0.1 km	1995
			0.5 km	2010
			0.4 km	2013
			0.2 km	2015
		Total rising main	*3.1 km*	
Pumping stations	No. 1: Ambulance Station / Thornton Avenue		-	1954: Installed 1999: Upgraded
	No. 2: Gillendoon Street		-	1954: Installed 1999: Upgraded
	No. 3: Wilson Street		-	1960: Installed 2000: Upgraded
	No. 4: Garden Avenue		-	1984
	No. 5: Gunningbar Estate		-	1993
	No. 6: Depot		-	1992
Treatment works	Warren		-	1961

The Warren sewerage treatment works is a trickling filter plant. This is dated and needs to be replaced and upgraded. Planning for a replacement sewerage treatment works has been completed. The new works will be based on settlement, oxidation and evaporation ponds. These works will be constructed over the 2020 and 2021 financial years.

All sewage from the southern side of the Macquarie River is transported to pump station no. 2 (Gillendoon Street) via pump station no.1 (Ambulance Station). Pump station no. 2 also collects the northern catchment and therefore receives all Warren sewage and transports it to the treatment works.

Treated effluent is disposed of to land.

The reticulation piping in the Warren scheme consists of vitrified clay pipe (VCP) and unplasticised polyvinyl chloride pipe (UPVC). The original gravity sewer pipes laid in the late 1950's were VCP. For the period 1964 to 1972 most gravity pipes were VCP. Pipes constructed after this are all UPVC. The original rising mains were cast iron (CI). The majority of pipes are 150mm in diameter.

Nevertire

The Nevertire sewerage scheme has one automatic pump station controlled by floats and monitored by radio telemetry and a treatment works consisting of oxidation ponds. The details and age profile of Nevertire's current sewerage network infrastructure are provided in the following table.

Table 2.3: Nevertire's sewerage network infrastructure as at 30 June 2019

Asset type	Location	Item	Size	Year built
Mains	Throughout	Gravity main	1.4 km	1983
	Throughout	Rising main	0.4 km	1983
Pumping stations	Nevertire		-	1983
Treatment works	Nevertire		-	1983

The current scheme condition is sound and there are no plans to extend or upgrade the existing scheme. All residences who are not connected to the sewerage scheme rely on septic tank systems.

There are currently approximately 55 lots serviced by the Nevertire sewerage scheme with 37 of these connected.

Treated effluent is disposed of to land.

Collie

There are no sewerage services in Collie and there are no plans to install a sewerage network there in the foreseeable future.

2.3 Managing future demand for the Shire's sewerage network

2.3.1 Drivers of demand for the sewerage network

A flat or declining demographic trend

The main driver affecting the demand for our sewerage network would be any change in the population of Warren and the two villages of Nevertire and Collie. As is the case with the majority of rural inland local government areas, the population of the Warren Shire has been declining steadily for several years as a result of outward migration from the Shire (especially amongst young adults). Over the long-term, this flat to declining population is likely to result in little change in the demand on our sewerage network.

2.3.2 Factors affecting the supply of the sewerage network

Funding uncertainties

Warren Shire Council is highly reliant on grant funding and its sewer charges revenues are limited.

Based on the size of our communities, our sewer services are not sustainable. We need to seek ongoing government funding, where available, when upgrading our sewerage network.

Council's asset renewal backlog

Assets that are below the minimum condition rating do not meet Council's minimum levels of service. Such assets will require renewal. These assets form part of Council's renewal backlog and Council should be ensuring that these assets are brought up to the agreed levels of service.

Council's asset renewal backlog will need to be funded.

Staff and resource shortages

As with financial constraints on the provision of the sewerage network, difficulties in recruiting and retaining staff has been a challenge for Council in recent years. Council, as a western rural Council, often faces challenges in filling technical and managerial positions. When technical or managerial positions are vacant it can affect Council's ability to provide some of the services expected by the community.

3 Levels of service

The strategic objective for our sewerage network is to provide an adequate and environmentally acceptable sewerage scheme to Warren and Nevertire that is appropriately priced for all customers.

Council has defined a set of measurable levels of service that are used to assess its performance in meeting this objective. Levels of service are grouped into:

- **Community levels of service** – These relate to what the community wants from our sewerage network in terms of access to sewers, system failures, response times to system failures, price and customer complaints management
- **Technical levels of service** – These refer to how the services will be delivered to the community.

Table 3.1 outlines what the community desires from our sewerage network and how Council will deliver against this. Key performance benchmarks are also provided. These benchmarks will enable us to determine whether we are delivering on what the community wants.

Table 3.1: Community expectations, sewerage network

The community wants (Community level of service)	How Council delivers this (Technical level of service)	Key performance benchmark
Sewer access All residential, commercial and industrial areas are provided with sewerage services within the defined service area	Council connects new services within 15 days of request	Achieved in 90% of new requests
System failures The number of system failures is minimised		
Category one • Failure due to rainfall and deficient capacity (overflows)	Zero failures per year	Achieved 95% of the time
Category two • Failure due to pump or other breakdown including power failure	Maximum of 2 failures per year	Achieved 95% of the time
Category three • Failure due to main blockages and collapses (e.g. fat and tree roots)	Maximum of 10 failures per year	Achieved 95% of the time
Response times for system failures Staff are on site within a minimum time to commence rectification		
• Response time during working hours	Respond within 30 minutes	Achieved 95% of the time
• After hours response time	Respond within 60 minutes	Achieved 95% of the time
Price Sewer access and usage charges remain affordable for all residents and businesses who have access to Council's sewerage network	Undertake an annual review of the impact of sewer prices on Council's total sewer revenues	< 10 price complaints per month

The community wants (Community level of service)	How Council delivers this (Technical level of service)	Key performance benchmark
Customer complaints Customer complaints are minimised and are handled promptly and satisfactorily	Fewer than 20 non-written service or price complaints are received per month Fewer than 1 written service or price complaint is received per month Fewer than 2 odour complaints are received per year	Achieved 95% of the time

4 Condition of our assets

The condition of Council's assets is currently assessed every five years. This asset condition information is then used to plan the timing of our maintenance and capital renewal activities.

The current condition of Council's sewerage network is provided in this section of this plan.

Assets are rated from condition 1 to condition 5, as shown in table 4.1 below.

Table 4.1: Condition ratings for assessing the condition of our assets

Condition rating	Condition	Description
1	Excellent	No work required (normal maintenance)
2	Good	Only minor maintenance work required
3	Average	Maintenance work required
4	Poor	Renewal required
5	Very poor	Urgent renewal / upgrading required

The intent of Council is not to undertake renewal on an asset until it reaches its intervention level. The intervention level is the condition level below which renewal is required based on the community's level of service expectations.

Typically, sewerage network assets in condition 4 will provide a poor level of service and will need to be renewed in the short- to medium- term. Assets in condition 5 may require urgent and immediate renewal or replacement. Funding may be needed to support the required level of renewals each year. Council will be allocating funds to an asset renewal reserve each year to help in managing these funding needs. This is discussed further in section 7 of this plan.

Independent valuers assessed the condition of our sewerage network in 2017. The condition of the pumping stations and treatment works were assessed through visible inspections. The condition of sewer mains, which are underground and not visible, were assessed by calculating the proportion of each sewer main's expected useful life that has been consumed.

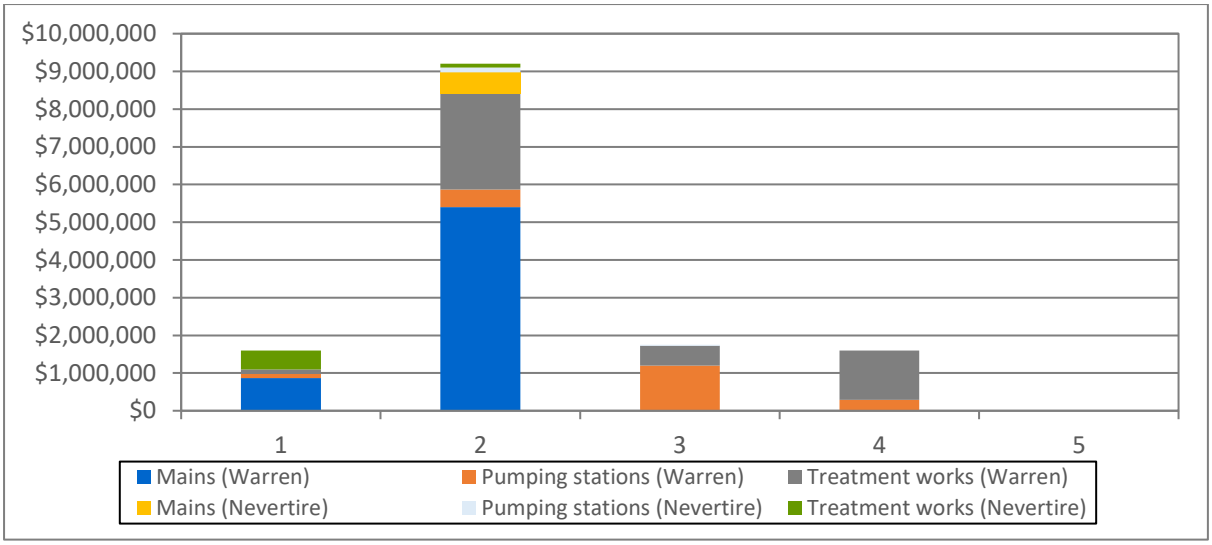
The condition of the sewer mains was further assessed by reviewing whether there have been recent failures or if relining work has been undertaken. If there have been few or no instances of failure, we consider that the main is still in a satisfactory condition and does not need renewal. If there has been recent relining work done, we consider that the main is in condition 1.

The current condition ratings of the assets in Council's sewerage network are summarised in the table and graph below.

Table 4.2: Condition ratings, sewerage network (estimated gross replacement cost) as at 30 June 2019

Sewerage asset category	Condition rating $					Total $
	1	2	3	4	5	
Warren						
Mains	868,107	5,397,628	-	-	-	6,265,736
Pumping stations	109,501	470,468	1,197,834	289,292	-	2,067,096
Treatment works	118,451	2,537,032	528,425	1,309,149	-	4,493,057
Total Warren	**1,096,059**	**8,405,129**	**1,726,259**	**1,598,441**	**-**	**12,825,888**
Nevertire						
Mains	-	572,576	-	-	-	572,576
Pumping stations	-	125,445	22,562	-	-	148,007
Treatment works	497,508	96,551	-	-	-	594,059
Total Nevertire	**497,508**	**794,572**	**22,562**	**-**	**-**	**1,314,642**
Total sewerage network	**1,593,567**	**9,199,701**	**1,748,821**	**1,598,441**	**-**	**14,140,530**

Figure 4.1: Condition ratings, sewerage network (estimated gross replacement cost) as at 30 June 2019



The table and graph above show that our sewerage network assets are mostly in an acceptable condition, i.e., they have a condition rating between 1 and 3. However, some assets are in condition 4. These are providing a poor level of service and will need to be renewed in the short- to medium-term. These assets include:

- Components of pumping station 1 at Thornton Avenue and pumping station 2 at Gillendoon Street in Warren
- Components of the sewerage treatment works in Warren.

As can be seen in tables 2.2 and 2.3, the network of sewer mains in Warren has slowly expanded. A program of relining this network of sewer mains commenced in 2014 which will extend the life of these mains.

Pumping stations number 1, 2 and 3 in Warren were upgraded in 1999 and 2000. Components of these pumping stations are due for a further renewal now.

The sewerage treatment works in Warren is dated and will be replaced over the 2020 and 2021 financial years.

5 Operations

5.1 Lifecycle costs

Council allocates the costs associated with the provision of its assets into four lifecycle categories:

Table 5.1: Lifecycle cost allocation for the provision of asset services

Activity	Description
Operations	Regular, planned activities to keep the asset in service
Maintenance	Planned or unplanned activities to ensure that the asset reaches its useful life
Renewal	The like-for-like replacement of an asset or asset component
Expansion	The upgrade or improvement of an asset The creation of a new asset

Operations and maintenance costs are current-year expenditure. Renewal and expansion costs are treated as capital expenditure.

5.2 Operational activities

Operational activities are those regular activities that are required to continuously provide the service expected of the asset. For our sewerage network, these activities include the following.

Table 5.2: Operational activities, sewerage network

Activity	Frequency
Inspecting pumping stations	Monthly
Cleaning pumping stations	Twice yearly or as required
Inspecting and cleaning treatment works	Daily
Responding to customer complaints	When received

Projected operational expenditure for the next thirty years is provided in table 10.1.

6 Maintenance

Routine maintenance is the regular ongoing work that is necessary to keep assets operating to ensure they reach their useful life. It includes work on an asset where a portion may fail and needs immediate repair to make it operational again.

Council's maintenance activities for our sewerage network include the following.

Table 6.1: Maintenance activities, sewerage network

Activity	Frequency
Inspecting above ground infrastructure	Annually
Inspecting pipes using CCTV	Every five years
Cleaning network pipes	Every five years
Maintaining pumping stations	Every three years
Maintaining treatment works	Every three years

In addition to planned maintenance, which is defined and scheduled over the medium-term, Council must also repair unforeseen damage caused by storms or accidents. This type of maintenance is referred to as either unplanned or reactive maintenance.

Council's unplanned maintenance work is often carried out because of issues identified through customer requests.

Projected maintenance expenditure for the next thirty years is provided in table 10.2.

7 Capital renewal / rehabilitation

Capital renewal activities involve restoring, refurbishing or replacing an asset to bring it back to its original capacity and performance capability.

Renewal costs are treated as capital expenditure.

The annual required renewal costs reflect the amount needed to be spent on assets that have deteriorated to a point at which renewal is required based on the community's level of service expectations.

Typically, sewerage network assets in condition 4 will provide a poor level of service and will need to be renewed in the short-to medium-term and assets in condition 5 may require urgent and immediate renewal or replacement.

Assessing the condition of our assets is not easy and is based on broad assumptions and the quality of the currently available data. Work will continue to improve the quality of our asset registers and systems to increase the accuracy of our condition data.

The process of assessing the condition of our assets starts by estimating the expected remaining useful life of each asset. This is done using long-term averages and the age of the asset. Useful lives are based on industry standards and are then adjusted, where relevant, to align with local conditions (e.g. ground movements). The range of expected useful lives for our sewerage asset components is shown below.

Table 7.1: Expected useful life of sewerage asset components (years)

Sewerage asset category	Expected useful life (years) of asset components
Warren	
Mains – pipe	80
Mains – conduit	150
Rising mains – pipe	80-100
Rising mains – conduit	150
Pumping stations	15-80
Treatment works	10-150
Nevertire	
Mains – pipe	80
Mains – conduit	150
Rising mains – pipe	100
Rising mains – conduit	150
Pumping stations	15-60
Treatment works	20-150

We supplement remaining useful life data with an assessment of each asset's actual condition. For pumping stations and treatment works, we do this through visible inspections. For sewer mains, which are underground and not visible, we review whether there has been a history of failure. If there have been few or no instances of failure, we consider that the sewer main is still in a satisfactory condition and does not need renewal.

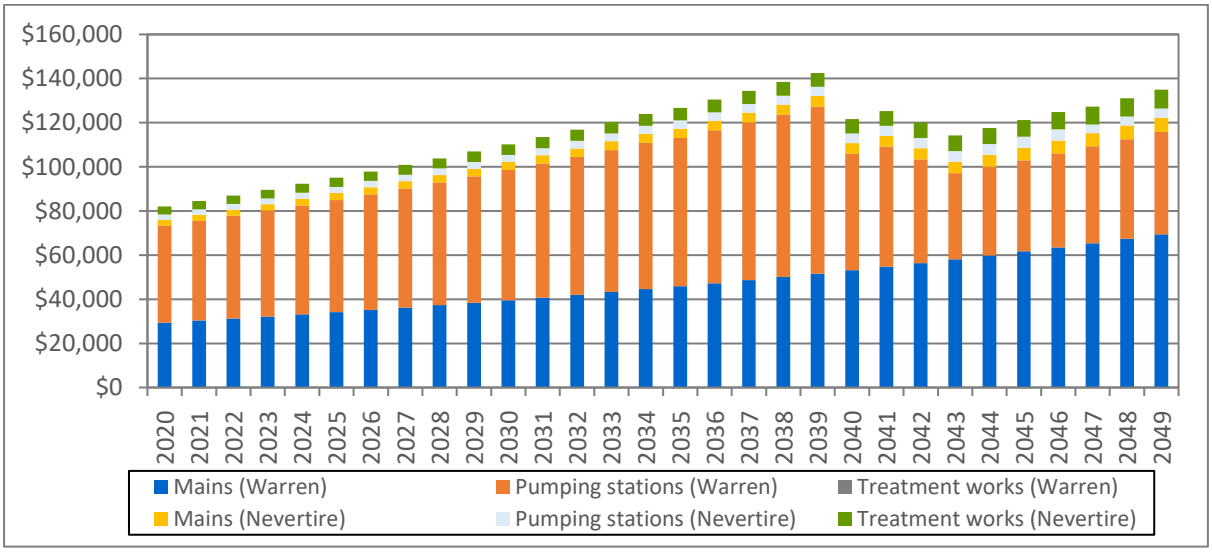
To manage the funding needs for renewing or replacing assets that are in condition 4 or 5 each year, Council will be allocating funds to an asset renewal reserve each year. This will ensure that we are saving money from the day we purchase an asset to allow us to replace the asset at the end of its life. The allocation will be made against each asset on a sliding scale basis. Assets that are in condition 1 will have a small asset renewal allocation and assets that are in condition 5 will have the highest asset renewal allocation as these assets need urgent renewal or replacement. The sliding scale for the allocation of funds to the asset renewal reserve is shown below.

Table 7.2: Allocation of funds to the asset renewal reserve each year, sewerage network

	Condition rating $				
Useful life	**1**	**2**	**3**	**4**	**5**
150	0.333%	0.370%	0.444%	5.000%	16.667%
100	0.500%	0.556%	0.667%	5.000%	16.667%
80	0.625%	0.694%	0.833%	5.000%	16.667%
60	0.833%	0.926%	1.111%	5.000%	16.667%
50	1.000%	1.111%	1.333%	5.000%	16.667%
40	1.250%	1.389%	1.667%	5.000%	16.667%
30	1.667%	1.852%	2.222%	5.000%	16.667%
20	2.500%	2.778%	3.333%	5.000%	16.667%
15	3.333%	3.704%	4.444%	6.667%	16.667%
10	5.000%	5.000%	5.000%	10.000%	16.667%

Using this analysis, Council has identified an asset renewal allocation for each year over the next thirty years. This is summarised in the graph below. Detailed numbers are provided in table 10.3. The asset renewal reserve allocations are indexed by 3.0% p.a. for inflation.

Figure 7.1: Estimated annual required asset renewal reserve allocation for the sewerage network, 2020 to 2049



Note that the upgrading of the sewerage treatment works in Warren, by replacing it with new works, is a capital expansion project. The new sewerage treatment works will create additional service level capacity. This project is discussed in section 8 below.

8 Capital expansion – upgrades and new assets

Capital expansion can refer to either the upgrade of existing assets or the acquisition of new assets.

Upgrades are improvements of existing assets to provide a higher level of service.

New assets are assets that have been built to support growth, new social or environmental needs or to create additional service level capacity.

Council is not anticipating any significant changes in the populations of Warren, Nevertire or Collie. Therefore, there will be little change in the demand for our sewerage network assets. However, the sewerage treatment works in Warren is dated and needs to be replaced with a new, upgraded treatment works. The new works will be based on settlement, oxidation and evaporation ponds.

The estimated gross and net costs (i.e. costs net of grant funding) of this project are summarised below.

Table 8.1: Future capital expansion projects, sewerage network

No.	Asset	Estimated gross cost* $	Estimated grant funding $	Council contribution $
1	Sewerage treatment works in Warren	5,170,000	2,585,000 (1)	2,585,000 (1)
	Total	**5,170,000**	**2,585,000**	**2,585,000**

* Estimates need to be confirmed

(1) A grant from the Restart NSW Fund will provide funding of $2,585,000 for this project. Council will borrow a further $2,550,000 and contribute $35,000.

The new sewerage treatment works will be constructed over the 2020 and 2021 financial years.

The timing of this planned capital expansion expenditure is provided in table 10.4.

There are no plans to install a sewerage network in Collie in the foreseeable future.

9 Disposal plan

Disposal includes any activity associated with the disposal of a decommissioned asset including sale, demolition or relocation.

The only sewerage network asset that is expected to be decommissioned is the sewerage treatment works in Warren. This will be replaced with a new, upgraded treatment works.

10 Financial plan

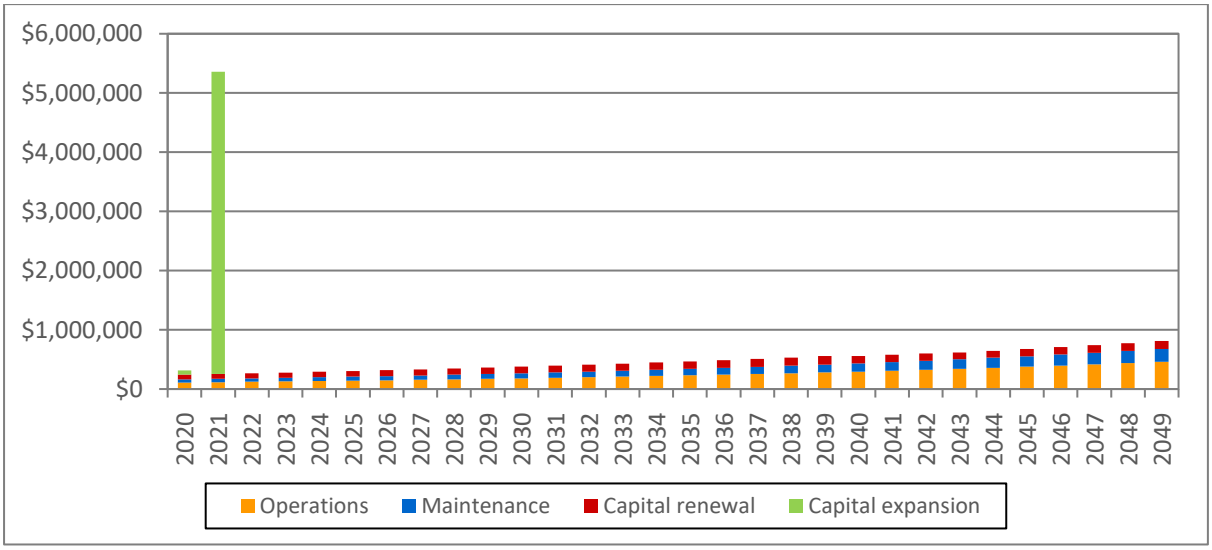
The financial plan for the sewerage network considers the ability of the sewerage services business to remain financially viable and sustainable in the long-term.

The financial plan projects the lifecycle expenditure for the sewerage network over the next thirty years and considers a funding plan to support these costs.

10.1 Sewerage network asset lifecycle expenditure

The projected lifecycle expenditure on operations, maintenance, renewal and expansion activities for the sewerage network over the next thirty years is shown in the following graph.

Figure 10.1: Thirty-year projected lifecycle expenditure on the sewerage network, 2020 to 2049



This graph shows where our funds will be allocated to our sewerage network over the next thirty years.

Our annual operations and maintenance costs are not expected to fluctuate significantly over the next thirty years as our sewerage network is not expected to grow due to our relatively stable populations in Warren and Nevertire. However, these costs have been indexed by 5.0% p.a. for inflation.

Our sewerage assets have long estimated useful lives. Most of the sewerage network will not need to be renewed over the next thirty years. However, the projected lifecycle expenditure includes funds to be allocated to an asset renewal reserve each year to ensure that assets can be replaced when they reach the end of their life. This asset renewal reserve allocation has been indexed by 3.0% p.a. for inflation.

The only capital expansion project that is currently planned over the next thirty years is the installation of a new sewerage treatment works in Warren.

The detailed projected lifecycle costs for our sewerage network over the next thirty years are shown in the following tables.

Table 10.1: Operations costs for the sewerage network, 2020 to 2049 ($000)

Description	2020	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
Operations (1)																														
Mains	4	4	4	5	5	5	5	6	6	6	6	7	7	7	8	8	9	9	9	10	10	11	12	12	13	13	14	15	15	16
Pumping stations	50	52	55	57	60	63	66	70	73	77	81	85	89	93	98	103	108	114	119	125	132	138	145	152	160	168	176	185	194	204
Treatment works	58	61	64	67	70	74	77	81	85	90	94	99	104	109	114	120	126	132	139	146	153	161	169	177	186	196	205	216	226	238
Total operations	**111**	**117**	**123**	**129**	**135**	**142**	**149**	**157**	**164**	**173**	**181**	**190**	**200**	**210**	**220**	**231**	**243**	**255**	**268**	**281**	**295**	**310**	**326**	**342**	**359**	**377**	**396**	**415**	**436**	**458**

(1) Operations costs are indexed by 5.0% p.a. for inflation

Table 10.2: Maintenance costs for the sewerage network, 2020 to 2049 ($000)

Description	2020	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
Maintenance (1)																														
Mains	24	26	27	28	30	31	33	34	36	38	40	42	44	46	48	51	53	56	59	61	65	68	71	75	78	82	86	91	95	100
Pumping stations	21	22	23	24	26	27	28	30	31	33	34	36	38	40	42	44	46	48	51	53	56	59	62	65	68	71	75	79	83	87
Treatment works	7	8	8	8	9	9	10	10	11	11	12	12	13	14	14	15	16	17	17	18	19	20	21	22	23	24	26	27	28	30
Total maintenance	**53**	**55**	**58**	**61**	**64**	**67**	**70**	**74**	**78**	**82**	**86**	**90**	**94**	**99**	**104**	**109**	**115**	**121**	**127**	**133**	**140**	**147**	**154**	**162**	**170**	**178**	**187**	**196**	**206**	**216**

(1) Maintenance costs are indexed by 5.0% p.a. for inflation

Table 10.3: List of capital renewal reserve allocations for the sewerage network, 2020 to 2049 ($000)

Description	2020	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
Capital renewal (1)																														
Warren																														
Mains	29	30	31	32	33	34	35	36	37	38	40	41	42	43	45	46	47	49	50	52	53	55	56	58	60	62	64	65	67	69
Pumping stations	44	45	47	48	49	51	52	54	56	57	59	61	63	64	66	67	69	71	73	76	53	54	47	39	40	41	43	44	45	46
Treatment works	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Warren	**73**	**75**	**78**	**80**	**82**	**85**	**88**	**90**	**93**	**96**	**99**	**101**	**104**	**108**	**111**	**113**	**117**	**120**	**124**	**127**	**106**	**109**	**103**	**97**	**100**	**103**	**106**	**109**	**113**	**116**
Nevertire																														
Mains	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4	4	5	5	5	5	5	5	5	6	6	6	6	6
Pumping stations	2	2	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4	5	5	5	5	5	4	4	4
Treatment works	4	4	4	4	4	4	4	4	5	5	5	5	5	5	5	6	6	6	6	6	7	7	7	7	7	8	8	8	8	9
Total Nevertire	**9**	**9**	**9**	**9**	**10**	**10**	**10**	**11**	**11**	**11**	**12**	**12**	**12**	**13**	**13**	**14**	**14**	**14**	**15**	**15**	**16**	**16**	**17**	**17**	**18**	**18**	**19**	**18**	**19**	**19**
Total capital renewal	**82**	**84**	**87**	**89**	**92**	**95**	**98**	**101**	**104**	**107**	**111**	**113**	**116**	**121**	**124**	**127**	**131**	**134**	**139**	**142**	**122**	**125**	**120**	**114**	**118**	**121**	**125**	**127**	**132**	**135**

(1) Capital renewal reserve allocations are indexed by 3.0% p.a. for inflation

Table 10.4: List of capital expansion projects for the sewerage network, 2020 to 2049 ($000)

Description	2020	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
Capital expansion																														
Treatment works - Warren	70	5,100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total capital expansion	**70**	**5,100**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**

10.2 Funding plan for the sewerage network

10.2.1 Managing the sewerage services fund

Funding to support the sewerage network is primarily sourced from charging the users of the network. Grant funding is also sought when major projects need to be undertaken. A third source of funding is from borrowings.

Together, this funding flows into the sewerage services fund. Expenditure for the network is drawn from this sewerage services fund.

Council's aim is to operate the sewerage services network on a full cost recovery basis with no significant cross-subsidies from non-sewerage Council revenues. In other words, it is run as an independent business.

10.2.2 User charges

The residents of Warren and Nevertire pay for their sewerage services. These payments are held in a sewerage services fund which is used to support the costs of maintaining the sewerage network. Council manages the inflow of funds into the sewerage services fund through its sewerage pricing policies.

Two types of sewerage services charges are applied to customers. The first is a sewer usage charge. The second is a sewerage access charge.

Other fees such as fees for sewer drainage diagrams are also charged to customers.

Pricing principles

Council uses the following principles for the pricing of sewerage services for its residential, commercial and industrial customers.

- There will be full cost recovery within the sewerage services business and no significant cross-subsidies from non-sewerage services Council revenues
- Sewerage services are priced at a level that will support the long-term financial viability and sustainability of providing sewerage services to our community
- Prices will maintain intergenerational equity
- If possible, the sewerage services business will remain capable of funding any new and replacement assets needed to provide the current level of service to its customers and the broader community
- Over the long-term, customer charges will be kept as low and as stable as possible
- Residential customers will be charged a uniform annual sewerage charge
- Non-residential customers will be charged a two-part tariff:
    - A sewer usage charge for the estimated volume in kL discharged into the sewerage system; and
    - A sewerage access charge that is based on the capacity requirements that their loads place on the sewerage system relative to residential customers
- Pricing will be independent of land value
- Sewerage services charges will be indexed at 5.0% per annum.

10.2.3 Grants

Based on the size of our communities, any significant upgrades to our sewerage network are highly reliant on grant funding.

Council applies for grant funding when major projects are to be undertaken. This might be when significant renewal is required or when new infrastructure is to be installed.

Council will be allocating funds to an asset renewal reserve each year to help in reducing its reliance on grant funding for renewal projects. However, grants will be needed for significant renewal work and to support any planned capital expansion projects. These expansion projects include the new sewerage treatment works in Warren.

10.2.4 Borrowings

Council also has the option of borrowing to support investments in new sewerage network infrastructure. This option requires careful monitoring of Council's debt service ratio.

10.3 Summary of expenditure and funding sources

Table 10.5 is the financial plan for the sewerage network for the next thirty years. It summarises the projected asset lifecycle expenditure and projected funding.

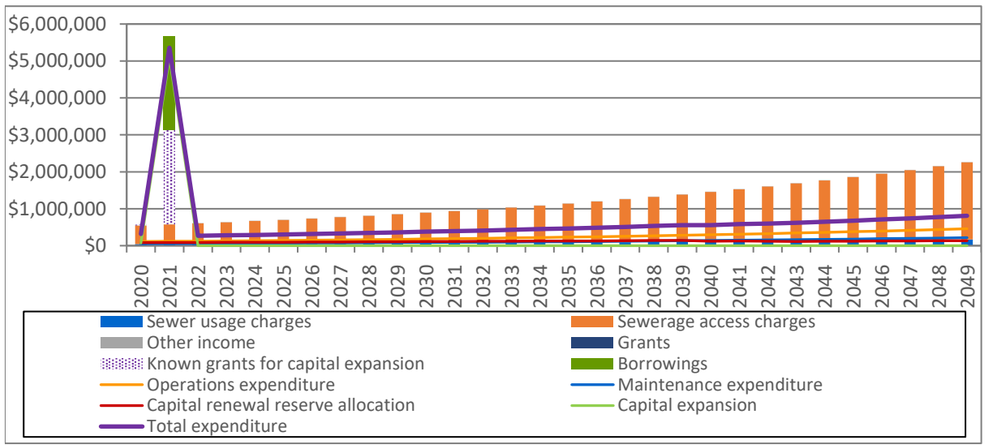
Table 10.5: Thirty-year financial plan for the sewerage network, 2020 to 2049 ($000)

Description	2020	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
Income																														
Sewer usage charges (1)	41	43	45	48	50	53	55	58	61	64	67	70	74	78	82	86	90	94	99	104	109	115	121	127	133	140	146	154	162	170
Sewerage access charges (1)	507	533	559	587	616	647	680	714	749	787	826	867	911	956	1,004	1,054	1,107	1,162	1,221	1,282	1,346	1,413	1,484	1,558	1,636	1,717	1,803	1,894	1,988	2,088
Other income	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2
Grants	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Known grants for capital expansion	35	2,550	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Borrowings	-	2,550	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total income	**584**	**5,677**	**605**	**636**	**668**	**701**	**736**	**773**	**811**	**852**	**894**	**939**	**986**	**1,035**	**1,087**	**1,141**	**1,198**	**1,258**	**1,321**	**1,387**	**1,457**	**1,529**	**1,606**	**1,686**	**1,770**	**1,859**	**1,952**	**2,049**	**2,152**	**2,259**
Expenditure																														
Operations (2)	111	117	123	129	135	142	149	157	164	173	181	190	200	210	220	231	243	255	268	281	295	310	326	342	359	377	396	415	436	458
Maintenance (3)	53	55	58	61	64	67	70	74	78	82	86	90	94	99	104	109	115	121	127	133	140	147	154	162	170	178	187	196	206	216
Capital renewal (4)	82	84	87	90	92	95	98	101	104	107	110	113	117	120	124	127	130	134	138	143	122	125	120	114	118	121	125	127	131	135
Capital expansion (5)	70	5,100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total expenditure	**316**	**5,357**	**268**	**279**	**291**	**304**	**318**	**331**	**346**	**361**	**377**	**394**	**411**	**429**	**448**	**467**	**488**	**510**	**533**	**557**	**556**	**582**	**599**	**618**	**646**	**676**	**708**	**739**	**774**	**810**
Surplus / (shortfall)	**268**	**320**	**337**	**357**	**377**	**397**	**418**	**442**	**465**	**491**	**517**	**545**	**575**	**606**	**639**	**674**	**710**	**748**	**788**	**830**	**901**	**947**	**1,007**	**1,068**	**1,124**	**1,183**	**1,244**	**1,310**	**1,378**	**1,449**

(1) Sewer usage charges and sewerage access charges are indexed at 5.0% p.a.
(2) Details of operations costs are provided in table 10.1 above
(3) Details of maintenance costs are provided in table 10.2 above
(4) Details of specific capital renewal reserve allocations are provided in table 10.3 above
(5) Details of specific capital expansion projects are provided in table 10.4 above

Figure 10.2 summaries the projected expenditure and funding picture for the sewerage network over the next thirty years.

Figure 10.2: Thirty-year financial plan for the sewerage network, 2020 to 2049



The table and graph above highlight that the sewerage services business will operate with a surplus and that this surplus will increase over time as income increases with a slightly higher indexation rate of 5.0% p.a. compared with the asset renewal reserve allocation which is indexed at 3.0% p.a.. Operations and maintenance expenses are indexed at 5.0% p.a..

The new sewerage treatment works will be constructed over the 2020 and 2021 financial years. The known grant in this table and graph is funding from the Restart NSW Fund. This will fund 50% of the cost of the new sewerage treatment works in Warren.

11 Key performance measures

Council monitors and assesses its performance with respect to maintaining and renewing its assets using key performance benchmarks. These benchmarks are used to measure how well Council is meeting the community's expectations in relation to the condition of its assets.

Council recognises the importance of working with the local community when managing the Shire's assets on behalf of the community. Council works with the community in two important ways. Firstly, it creates community service expectations. These summarise what the community wants. Secondly, it measures its progress in meeting these community service expectations against key performance benchmarks.

By using community-focussed performance benchmarks, Council can ensure that everything it does in maintaining and improving its sewerage network is directly relevant to the community.

The key performance benchmarks that have been established for the sewerage network are outlined in table 3.1.

Council will be incorporating these benchmarks into its Customer Relationship Management (CRM) system so that performance against these benchmarks can be tracked, measured and improved.

12 Risk management plan

12.1 Critical risks

Council is committed to the identification and elimination or reduction of risks associated with hazards that arise throughout Council's operations as far as reasonably practicable. Our risk assessment process:

- Identifies credible risks
- Analyses the likelihood of the risk event occurring
- Assesses the consequences should the event occur
- Develops a risk rating ('likelihood' times 'consequences')
- Evaluates the risk
- Details a risk treatment plan for non-acceptable risks.

The critical risks identified for our sewerage network are summarised in the following table. The table includes the risk treatment plans that have been developed to reduce the likelihood of these risks and to limit their impact.

Table 12.1: Critical risks for our sewerage network

No.	Description	Likelihood / frequency	Consequence	Risk rating	Risk treatment plan
1	Electricity supply to the pumping stations and sewerage treatment works is cut	Warren: Likely / monthly Nevertire: Likely / weekly to monthly	• Sewage is not pumped to the treatment works, blocking the network • The treatment works cannot treat the sewage, resulting in toxic discharge into the local waterways	High	• Install backup generator at each pumping station and treatment works
2	Warren and/or Nevertire flood	Possible / 10 years	• The treatment works flood and cannot be operated	High	• Regularly maintain flood levy banks

12.2 Critical assets

Critical assets are specific assets which have a high consequence of failure. For example, failure would cause a financial loss within the community or a marked reduction of service. Generally, critical assets do not necessarily have a high likelihood of failure.

By identifying critical assets and critical failure modes, Council can appropriately target and refine inspection regimes, maintenance plans and capital expenditure plans.

Operations and maintenances activities may also be targeted to mitigate critical assets failure and maintain service levels. These activities may include increased inspection frequency and higher maintenance intervention levels.

Council has determined that our critical sewerage network assets include the following:

Table 12.2: Critical assets for our sewerage network

No.	Critical asset	Why critical
1	Pumping stations	Needed to keep the sewage moving to the treatment works
2	Sewerage treatment works	Needed to process the town sewage
3	Electricity supply	Needed to operate the pumping stations and the sewerage treatment works

13 Asset management improvement program

Council has identified several initiatives to improve its asset management capabilities in relation to its sewerage network. These are outlined below.

Table 13.1: Asset management improvement program, sewerage network

Area	Task	Who	When

1. Systems and processes	Implement an integrated asset management system and associated processes. This will enable Council to:
	• Integrate its engineering and finance functions
	• Store and access all asset management data from a single source
	• Manage, upload and retrieve asset condition ratings more regularly and in a consistent format
	• Track patterns of asset deterioration
	• Produce timely and accurate reports including:
	  • The annual financial reports
	  • Detailed asset costing and valuation reports
	  • Asset component reports
	  • Financial and sustainability benchmark reports
	  • Reports supporting the LTFP
	• Simplify all asset management decision making
	• Enhance Council's predictive capabilities (using up-to-date condition data and unit rates) to assist with decisions on where it should be allocating its asset funding or if it should be seeking additional funding
	• Support the engineering services division by producing and tracking work orders and then transferring the costs of this work to the general ledger in real time
		Divisional Manager Finance and Administration Services / Divisional Manager Engineering Services	December 2021

2. Accuracy and completeness of asset condition data	Capture accurate and complete asset condition data regularly. This will allow Council to: • Improve its understanding of asset deterioration patterns over time • Allocate capital renewal funding according to the actual condition of Council's assets	Divisional Manager Engineering Services	May 2021
3. Community expectation benchmarks	Track Council's performance against its community expectation benchmarks. This will ensure that it will: • Maintain its assets at the level that is required by the community	Divisional Manager Engineering Services	May 2021
4. Productivity improvements	Implement a productivity improvement program to: • Reduce Council's unit rate costs for asset renewal • Increase the time between rehabilitation work • Ensure that Council is only renewing assets that need renewing	Divisional Manager Engineering Services	December 2021