

**Blayney Shire Council**





# **WASTEWATER SEWER Asset Management Plan**



Version 1.2

May 2018

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# 1 EXECUTIVE SUMMARY

## Blayney – At a glance

Blayney Shire has an area of 1,525 square kilometres, is located at an altitude of 850m above sea level, in the Central Tablelands of New South Wales, and has a population of approximately 7,380 (ABS 2016).

The Shire area is considered reasonably compact, with the main administrative centre, and largest population base being the town of Blayney.

Being located only 24km from the regional centre of Orange, the village of Millthorpe is the largest of a number of village and localities dispersed across the Shire, including Carcoar, Mandurama, Lyndhurst, Neville, Newbridge, Hobbys Yards and Barry.

The size and distribution of the population across the villages raises some challenges for Council and the community. Despite these challenges Council is committed to providing a range of parks and recreation facilities to meet the needs of its residents

## 1.1 The Purpose of the Plan

Asset management planning is a comprehensive process to ensure delivery of services from infrastructure is provided in a financially sustainable manner.

An Asset Management Plan (AMP) is a plan developed for the management of infrastructure assets, that combines multi-disciplinary techniques (including technical and financial) over the life cycle of the asset in the most cost effective manner to provide a specific level of service.<sup>1</sup>

The objective of the AMP is to inform the community of the costs and benefits associated with providing the agreed level of service, and to minimise the whole of life cost, including the operation, maintenance and replacement, or disposal of the asset. This enables the Council, community and other stakeholders to make informed decisions on where to focus efforts in renewing assets, and providing for new assets identified within the AMP.

This asset management plan details information about infrastructure assets including actions required to provide an agreed level of service in the most cost effective manner while outlining associated risks. The plan defines the services to be provided, how the services are provided and what funds are required to provide the services over a 10-year planning period.

This plan covers the infrastructure assets that provide Sewerage Services to Blayney and Millthorpe urban areas. Blayney Shire Council recognises the value of these assets in protection of the environment and human health.

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<sup>1</sup> IPWEA, 2015, IIMM.

## 1.2 Asset Description

These assets include:

The Wastewater network comprises:

- 1 sewerage Treatment Plant
- 8 sewerage Pumping Stations
- 55,761 gravity sewerage pipelines
- 23,308 sewerage rising main pipelines
- 1 Effluent re-use pump station

These infrastructure assets have significant value estimated at \$30,657,000.

## 1.3 Levels of Service

Our present funding levels are Insufficient to continue to provide existing services at current levels in the medium term.

The main services consequences are:

- Reduced level of service
- Increased reactive maintenance costs
- Limited capacity to replace aged assets.

## 1.4 Future Demand

The main demands for new services are created by:

- Population growth
- Increase Trade Waste volume and concentration
- Regulation change

These will be managed through a combination of managing existing assets, upgrading of existing assets and providing new assets to meet demand and demand management. Demand management practices include non-asset solutions, insuring against risks and managing failures.

- Continual monitoring and reporting
- Trade Waste discharges to comply with approvals and using DPI Water to provide concurrence for high risk discharges.
- Discussions and Advocate for community expectation and cost implications.

## 1.5 Lifecycle Management Plan

### What does it Cost?

The projected outlays necessary to provide the services covered by this Asset Management Plan (AMP) includes operations, maintenance, renewal and upgrade of existing assets over the 10-year planning period is \$26,143,000 or \$2,614,000 on average per year.

## 1.6 Financial Summary

### What we will do

Estimated available funding for this period is \$25,832,000 or \$2,583,000 on average per year as per the long term financial plan or budget forecast. This is 68% of the cost to sustain the current level of service at the lowest lifecycle cost.

The infrastructure reality is that only what is funded in the long term financial plan can be provided. The emphasis of the Asset Management Plan is to communicate the consequences that this will have on the service provided and risks, so that decision making is “informed”.

The allocated funding leaves a shortfall of \$ on average per year of the projected expenditure required to provide services in the AMP compared with planned expenditure currently included in the Long Term Financial Plan. This is shown in the figure below.

### *Projected Operating and Capital Expenditure*

**Blayney SC - Projected Operating and Capital Expenditure (Wastewater\_S1\_V3)**

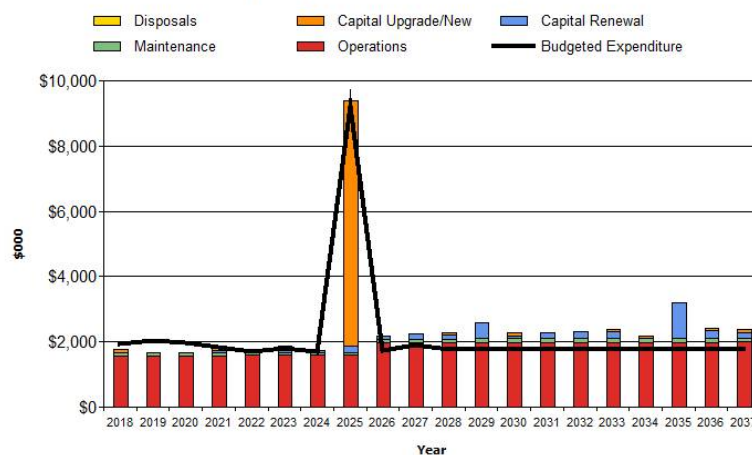


Figure Values are in current (real) dollars.

We plan to provide Wastewater services for the following:

- Operation, maintenance, renewal and upgrade of Sewerage Network to meet service levels set in annual budgets. The short to medium term projections look acceptable in the ability to achieve these goals.

- However, the Long term outlook, incorporating larger renewal requirement due to end of asset life and new capital upgrades, will require more strategic approaches and review of financial planning to maintain current levels of service.
- Within the 10-year planning period it is anticipated an upgrade of the Aerators and STP may be required if predictions of growth and capacity are recognised. These items account for significant increases in cost estimates.

### **What we cannot do**

We currently do **not** allocate enough funding to sustain these services at the desired standard or to provide all new services being sought. Works and services that cannot be provided under present funding levels are:

- Upgrade and renew sewer infrastructure older than it's accepted useful life.
- Inclusion of village sewer infrastructure to Carcoar Mandurama and Lyndhurst.

### **Managing the Risks**

Our present funding levels are insufficient to continue to manage risks in the medium term.

The main risk consequences are:

- Continual deterioration of aging infrastructure
- Increased reactive maintenance costs
- Lower performance of infrastructure to meet service levels

We will endeavour to manage these risks within available funding by:

- Ongoing monitoring and CCTV inspection to accurately measure condition of ageing gravity network.
- Selection of upgrades and renewals are undertaken using the selection criteria to evaluate the priorities.
- Undertake work review to identify improvements in efficiencies.

## **1.7 Asset Management Practices**

Our systems to manage assets include:

- Council's corporate system, "Synergysoft" - financial module
- Council's asset management system is provided by AssetFinda.
- Continual monitoring and inspections of sewerage network

Assets requiring renewal/replacement are identified from one of three methods provided in the 'Expenditure Template'.

- Method 1 uses Asset Register data to project the renewal costs using acquisition year and useful life to determine the renewal year, or
- Method 2 uses capital renewal expenditure projections from external condition modelling systems (such as Pavement Management Systems), or
- Method 3 uses a combination of average network renewals plus defect repairs in the Renewal Plan and Defect Repair Plan worksheets on the 'Expenditure template'.

Method 1 was used for this asset management plan.

## 1.8 Monitoring and Improvement Program

The next steps resulting from this asset management plan to improve asset management practices are:

- Review Asset Management Policy and Strategy
- Develop Customer satisfaction survey
- Review renewal models
- Update SBP & IWCM
- Increase condition assessment on gravity network

## 2 INTRODUCTION

### 2.1 Background

This asset management plan communicates the actions required for the responsive management of assets (and services provided from assets), compliance with regulatory requirements, and funding needed to provide the required levels of service over a 10-year planning period.

The asset management plan is to be read with the Blayney Shire Council's planning documents. This should include the Asset Management Policy and Asset Management Strategy along with other key planning documents:

- Blayney Shire Community Strategic Plan 2018 - 28
- Blayney Shire Council's Long Term Financial Plan
- Blayney Shire Council's Strategic Business Plan (SBP) for Sewerage Services 2014
- Integrated Water Cycle Management Plan (IWCM)
- Developer Contribution Plan
- Liquid Trade Waste Policy

The infrastructure assets covered by this asset management plan are shown in Table 2.1. These assets are used to provide the collection, transportation, treatment and disposal of the sewerage within the Blayney and Millthorpe urban and industrial areas.

**Table 2.1: Assets covered by this Plan**

Asset Category	Item (ea) / Length (m)	Replacement Value \$
Blayney Sewerage Treatment Plant	1 ea	7,198,289
Blayney & Millthorpe Sewerage Pump Stations	9 ea	3,113,579
Blayney gravity main network	45,332 m	12,745,862



Asset Category	Item (ea) / Length (m)	Replacement Value \$
Blayney rising main network	8,517 m	2,069,073
Millthorpe gravity main network	10,429 m	2,847,231
Millthorpe rising main network	14,791 m	2,682,579
<b>Total</b>		<b>30,656,613</b>

## 2.2 Goals and Objectives of Asset Ownership

Our goal in managing wastewater infrastructure assets is to meet the defined level of service (as amended from time to time) in the most cost effective manner for present and future consumers. The key elements of the sewer infrastructure asset management are:

- Providing a defined level of service and monitoring performance,
- Managing the impact of growth through demand management and infrastructure investment,
- Taking a lifecycle approach to developing cost-effective management strategies for the long-term that meet the defined level of service,
- Identifying, assessing and appropriately controlling risks, and
- Linking to a Long Term Financial Plan, which identifies required, affordable expenditure and how it will be allocated.

Other references to the benefits, fundamentals principles and objectives of asset management are:

- International Infrastructure Management Manual 2015 <sup>2</sup>
- ISO 55000<sup>3</sup>

## 2.3 Core and Advanced Asset Management

This asset management plan is prepared as a ‘core’ asset management plan over a 10 year planning period in accordance with the International Infrastructure Management Manual<sup>4</sup>. Core asset management is a ‘top down’ approach where analysis is applied at the system or network level. An ‘advanced’ asset management approach uses a ‘bottom up’ approach for gathering detailed asset information for individual assets.

<sup>2</sup> Based on IPWEA 2015 IIMM, Sec 2.1.3, p 2| 13

<sup>3</sup> ISO 55000 Overview, principles and terminology

<sup>4</sup> IPWEA, 2015, IIMM.

### 3 LEVELS OF SERVICE

#### 3.1 Customer Research and Expectations

This 'core' Wastewater asset management plan is prepared to facilitate consultation prior to adoption by the Blayney Shire Council. Future revisions of the asset management plan will incorporate community consultation on service levels and costs of providing the service. This will assist the Blayney Shire Council and stakeholders in matching the level of service required, service risks and consequences with the community's ability and willingness to pay for the service.

Council completed a Community Survey – "Future delivery of services in Blayney Shire" (2014) and was incorporated into the Sewerage Strategic Business Plan. This survey led to an understanding at the time of the community expectations.

Community engagement has previously been undertaken including: -

- Community sessions for a Special Rate Variation (2017)
- Facilitated workshops to develop Local Community Plans (2016)
- Community Survey – "Future delivery of services in Blayney Shire" (2018)

Results from the Community Survey included are shown in Tables 3.1(a) and 3.1(b)

**Table 3.1(a): Community Satisfaction Survey Levels**

Performance Measure	Satisfaction Level						Count (n)
	Low		Somewhat		High		
	2018	% Change from 2012	2018	% Change from 2012	2018	% Change from 2012	
<b>Sewer</b>							
How important is this service to you?	6		23		68		97
How satisfied are you with this service?	7		34		56		97

Whilst some categories are not directly related to this AMP they provide some context to the discussion3.2

## 3.2 Strategic and Corporate Goals

This asset management plan is prepared under the direction of the Blayney Shire Council's vision, mission, goals and objectives.

***A busy, vibrant and thriving rural shire – a friendly and open place where people choose to live with a strong sense of community spirit and cohesiveness.***

***With positive population growth, employment opportunities, increased diversity of industry and economic growth, Blayney Shire's township, villages and settlements will be dynamic and prosperous, welcoming those who live here and also those who visit.***

***Our families and homes will continue to be safe within our caring and inclusive communities.***

***Irrespective of ability we will all enjoy the outdoors and facilities, improving our health and lifestyle whilst participating in a range of sporting and recreational activities.***

***Growth will be achieved in a sustainable manner with industry, coexisting with the productive farming land, open space, protecting the environment and restoring as a feature our built and natural heritage.***

***As the quintessential rural shire with Indigenous and European settlers influencing our architecture, agricultural and mining heritage we will celebrate our history, culture and rural lifestyle in style.***

***As a picturesque, conveniently located area of the beautiful central west of NSW we are a significant contributor to the visitor economy of the region; with a creative and artistic culture, food and wine, historic villages and four seasons.***

***Blayney Shire will be engaged, proactive and acknowledged for undertaking major projects and delivering valuable services, collaborating at a regional, state and national level.***

Council's purpose or reason for existence is set out in the adopted values statement,

***The people who live in Blayney Shire are friendly, hardworking, loyal and very community focused.***

***With a generosity of spirit and willingness to welcome visitors and new residents, the residents, business and industry will unite and rally together to assist families in need.***

***We support diversity of interests, backgrounds and access to public amenities and services for all residents on an equitable and shared basis.***

***We are resourceful; our innovative thinking and competitive spirit supported by the contribution of volunteers working together collaboratively and sharing resources has produced great outcomes.***

***We back ourselves and look forward positively and strategically with a can do attitude. We ask questions and expect transparency, balance, equity and accountability of our local, state and federal governments.***

***Most importantly we value honesty and respect for each other, our natural and built heritage and our valuable resources as we strive to achieve our future directions for our local villages and town within the shire and the whole region.***

***We will make informed decisions by consulting and engaging with stakeholders and consider the environment, social and economic impacts.***

***Any future development will be built for the long term and intergenerational benefit.***

Relevant goals and objectives and how these are addressed in this asset management plan are:

**Table 3.2: : Future Directions and Strategic Outcomes from Blayney Shire Council’s “Community Strategic Plan” and how these are addressed in this Plan**

Future Direction (Goal)	Strategic Outcome (Objective)	How Goal and Objectives are addressed in AMP
<b>1. Maintain and Improve Public Infrastructure and Services</b>		
CSP 1.1	All levels of government need to work together to plan for ongoing works and capital projects that will improve the Blayney Shire road network and other assets.	Asset Management Plan developed to identify and plan for the ongoing sustainable operation and management of the Sewerage Infrastructure.  Potential expansion of the Sewer service to Villages
CSP 1.2	A Business Case should be developed to provide access to sewerage services for Carcoar, Mandurama and Lyndhurst.	
<b>2. Build the Capacity and Capability of Local Governance and Finance</b>		
CSP 2.1	Build on the strength of the individual Town Association and Village Committees so that they are capable, self-sufficient communities involved in decision making about issues that affect their own community.	Working with individual villages to develop sewerage systems that are affordable and sustainable.
CSP 2.2	A well-run Council organisation that is flexible enough to take advantage of capital grant opportunities to undertake major projects whilst delivering effective Council services in a sustainable manner.	

Future Direction (Goal)	Strategic Outcome (Objective)	How Goal and Objectives are addressed in AMP
<b>3. Promote Blayney Shire to grow the Local and Visitor Economy</b>		
CSP 3.5	Sustainable water, renewable energy options and transport sectors support future growth of business, industry and residents.	Sewering of villages to facilitate future growth of business, industry and residents.

The Council will exercise its duty of care to ensure public safety in accordance with the Wastewater risk management plan prepared in conjunction with this AMP. Management of infrastructure risks is covered in Section 6.

### 3.3 Legislative Requirements

There are many legislative requirements relating to the management of assets. These include:

**Table 3.3: Legislative Requirements**

Legislation	Requirement
<b>Local Government Act 1993 (and Regulation 2005)</b>	Sets out the responsibilities and powers of local government to provide an accountable, effective, efficient, sustainable and open system of local government.
<b>NSW Environmental Planning and Assessment Act 1979</b>	Specifies the environmental considerations required in all development activities.
<b>Protection of the Environment Operations Act 1997</b>	Protects, restore and enhance the quality of the environment. Provides regulation activities, licensing and includes the monitoring and reporting on waste outputs.
<b>Soil Conservation Act 1938</b>	The objective of this Act is the conservation of soil resources and farm water resources and includes the mitigation of erosion and land degradation
<b>Catchment Management Act 1989</b>	Promotes the co-ordination of policies, programs and activities as they relate to total catchment management.
<b>Public Health Act 1991</b>	Consolidates Acts relating to Public Health and provides for the prevention and spread of disease.
<b>Work Health and Safety Act 2011 (and Regulations 2017)</b>	An Act to provide for the protection of the health, safety and welfare of the workplace, workers and other persons.
<b>Independent Pricing and Regulatory Tribunal Act 1992</b>	This Act enables the Tribunal to determine and advise on process and pricing policy for Government monopoly services. Provides a framework and guidelines to determine developer and “user pays” charging system.

### 3.4 Customer Levels of Service

Service levels are defined service levels in two terms, customer levels of service and technical levels of service. These are supplemented by organisational measures.

**Customer Levels of Service** measure how the customer receives the service and whether value to the customer is provided.

Customer levels of service measures used in the asset management plan are:

- Quality**                      How good is the service ... *what is the condition or quality of the service?*
- Function**                    Is it suitable for its intended purpose .... *Is it the right service?*
- Capacity/Use**                Is the service over or under used ... *do we need more or less of these assets?*

The current and expected customer service levels are detailed in Tables 3.4 and 3.5. Table 3.4 shows the expected levels of service based on resource levels in the current long-term financial plan.

**Organisational measures** are measures of fact related to the service delivery outcome e.g. number of occasions when service is not available, condition %'s of Very Poor, Poor/Average/Good, Very good.

These Organisational measures provide a balance in comparison to the customer perception that may be more subjective.

**Table 3.4: Customer Level of Service**

	Expectation	Performance Measure Used	Current level of service *	Expected Position in 10 Years based on the current budget.
<b>Service Objective:</b> Provide Sewerage Infrastructure to meet regulatory requirements in an efficient and effective manner				
<b>Quality</b>	Appropriately located site for STP and pumping stations	Number of customer complaints	0	0
	No Odours	Number of customer complaints	<5	<5
	Re-use of treated effluent	100 % of effluent produced to be re-used	100% of effluent re-use by Cadia Valley Operations	100% of effluent re-use by Cadia Valley Operations

<b>Function</b>	Provide an effective method of collection and disposal of wastewater	NSW Best Practice Management (BPM) Framework for sewerage services	Complies with 89%. Currently do not achieve full cost recovery in line with BPM	Comply with 100% of the NSW Best Practice Management Framework
	No back-up of sewerage into properties	Number per year	<25	<10
	No overflow of Sewerage into public spaces or waterways	Number per year	<2	<2
<b>Capacity and Use</b>	Meets Environmental standards	Monitoring and reporting program	100% of total volume of sewerage treated to comply with EPA licence conditions	100% of total volume of sewerage treated to comply with EPA licence conditions
	Meet Safety standards	Number of incidents	<5 accidents / incidents	

Note. \* Figures included in current levels of service were taken from recorded Customer complaints and other reporting requirements including NSW DPI and EPA performance monitoring reporting.

### 3.5 Technical Levels of Service

**Technical Levels of Service** - Supporting the customer service levels are operational or technical measures of performance. These technical measures relate to the allocation of resources to service activities to best achieve the desired customer outcomes and demonstrate effective performance.

Technical service measures are linked to the activities and annual budgets covering:

- Operations – the regular activities to provide services (e.g. opening hours, cleansing, mowing grass, energy, inspections, etc).
- Maintenance – the activities necessary to retain an asset as near as practicable to an appropriate service condition. Maintenance activities enable an asset to provide service for its planned life (e.g. road patching, unsealed road grading, building and structure repairs),
- Renewal – the activities that return the service capability of an asset up to that which it had originally (e.g. road resurfacing and pavement reconstruction, pipeline replacement and building component replacement),
- Upgrade/New – the activities to provide a higher level of service (e.g. widening a road, sealing an unsealed road, replacing a pipeline with a larger size) or a new service that did not exist previously (e.g. a new library).

Service and asset managers plan, implement and control technical service levels to influence the customer service levels.<sup>5</sup>

Table 3.5 shows the technical levels of service expected to be provided under this AMP. The ‘Desired’ position in the table documents the position being recommended in this AMP.

**Table 3.5: Technical Levels of Service**

Service Attribute	Service Activity Objective	Activity Measure Process	Current Performance *	Desired for Optimum Lifecycle Cost **
<b>TECHNICAL LEVELS OF SERVICE</b>				
<b>Operations &amp; Maintenance</b>				
	Ability to cope with input from Blayney and Millthorpe networks as well as average stormwater infiltration	Ability to meet licence conditions	Functioning systems	Functioning systems
	Clean and clear pipeline structures	Number of customer complaints	29 sewer chokes	<10
	Well maintained STP and pump stations	Number of failures due to maintenance	0	<2
		<b>Budget</b>	\$1,669,000	\$2,608,400
<b>Renewal</b>				
	Reline / replace pipelines	Condition assessment of pipelines to maintain equipment in condition 3 or better	Condition above 3 Prioritise renewal list	Condition above 3

<sup>5</sup> IPWEA, 2015, IIMM, p 2|28.



Service Attribute	Service Activity Objective	Activity Measure Process	Current Performance *	Desired for Optimum Lifecycle Cost **
	Renew pump stations	Condition assessment of structural, mechanical and electrical equipment to maintain equipment in condition 3 or better	Condition above 4	Condition above 3
		<b>Budget</b>	\$100,000	\$100,000
<b>Upgrade/New</b>				
	Increase capacity of Aerators	Ability to provide sufficient dissolved oxygen to treatment process	Deficiencies during peak periods	Ability to meet dissolved oxygen levels at all times.
	Upgrade treatment plant	Performance of plant in it's ability to treat sewerage to comply with EPA licence conditions.	Develop functional design report. Complete upgrade design options report	Meets licence conditions on all occasions
		<b>Budget</b>		\$7,650,000

Note: \* Current activities and costs (currently funded).

\*\* Desired activities and costs to sustain current service levels and achieve minimum life cycle costs (not currently funded)

It is important to monitor the service levels provided regularly as these will change. The current performance is influenced by work efficiencies and technology, and customer priorities will change over time. Review and establishment of the agreed position which achieves the best balance between service, risk and cost is essential.

**Recommendation:**

Incorporate customer satisfaction survey into review of service levels and renewal models. Review and update SPB and IWCM to include outcomes of survey and financial

implications.

## 4. FUTURE DEMAND

### 4.1 Demand Drivers

Drivers affecting demand include things such as population change, regulations, changes in demographics, seasonal factors, vehicle ownership rates, consumer preferences and expectations, technological changes, economic factors, agricultural practices, environmental awareness, etc.

Demand for infrastructure is generated predominantly through either an increased utilisation of existing infrastructure brought about by the factors above or the requirement for new infrastructure to meet the needs of growth in new development.

The demand created by these two circumstances requires analysis to consider the ramifications to existing infrastructure networks and the ability of these networks to cope with the increased infrastructure. This analysis applies in all cases ranging from new subdivisions creating an increased load on existing networks, to changes in existing areas leading to increasing or decreasing utilisation and demand on infrastructure assets.

### 4.2 Demand Forecasts

The present position and projections for demand drivers that may impact future service delivery and use of assets were identified and are documented in Table 4.3.

### 4.3 Demand Impact on Assets

The impact of demand drivers that may affect future service delivery and use of assets are shown in Table 4.3.

**Table 4.3: Demand Drivers, Projections and Impact on Services**

Demand drivers	Present position	Projection	Impact on services
Population growth	7,380 (ABS 2016)	8,000 (2036) NSW Planning & Environment	Increased volumes may require upgrades to existing facilities. A volume increase will drive and increase in the cost of energy to treat sewerage
	STP currently services approx. 4,200 Equivalent Persons	5,100 (2036) based on 1% growth per annum with higher rates expected in Blayney and Millthorpe than rest of Shire	
Sewering of villages	Reliance on Septic systems	Carcoar, Lyndhurst and Mandurama to have sewerage system to urban areas of the villages.	Change and potential increased in financial modelling and cost for service

Demand drivers	Present position	Projection	Impact on services
Industry / Manufacturing / Trade Waste volumes and concentration	416 industrial businesses (Remplan 2016)	452 industrial businesses (2036) (Based on percentage applied to NSW Planning & Environment for population change)	Impact on biological capacity of the STP to treat the increased input.
Potential Regulation change to increase effluent treatment outcomes	EPA Licence condition levels for key pollutants in effluent, i.e. suspended solids, total nitrogen, phosphorous	Lower level licence conditions for pollutants	Inability of current treatment process to meet future licence requirements.

#### 4.4 Demand Management Plan

Demand for new services will be managed through a combination of managing existing assets, upgrading of existing assets and providing new assets to meet demand and demand management. Demand management practices can include non-asset solutions, insuring against risks and managing failures.

Opportunities identified to date for demand management are shown in Table 4.4. Further opportunities will be developed in future revisions of this asset management plan.

**Table 4.4: Demand Management Plan Summary**

Demand Driver	Impact on Services	Demand Management Plan
Population growth	Increased demand for sewerage infrastructure upgrades to meet licence EPA levels	Continual monitoring and reporting to comply with regulations. Undertake capacity review at STP and future planning strategy. Flow monitoring at each pump station. Investigate and identify opportunities for energy and operational efficiencies
Industry / Manufacturing / Trade waste	Impact on biological capacity of the STP to treat the increased input.	Ensure new trade waste discharge pollutants do not adversely impact on ability to treat all sewerage. This can be done through approval conditions, monitoring and using DPI Water to provide concurrence on high risk discharges
Potential Regulation change to increase effluent treatment outcomes	Inability of current treatment process to meet future licence requirements.	Be actively involved in regulation change discussions to have clear understanding of consequences. Advocate for community expectations v's cost implications

### 4.5 Asset Programs to meet Demand

The new assets required to meet demand can be acquired, donated or constructed. Additional assets are discussed in Section 5.4. The summary of the cumulative value of additional asset is shown in Figure 1.

**Figure 1: Upgrade and New Assets to meet Demand – (Cumulative)**

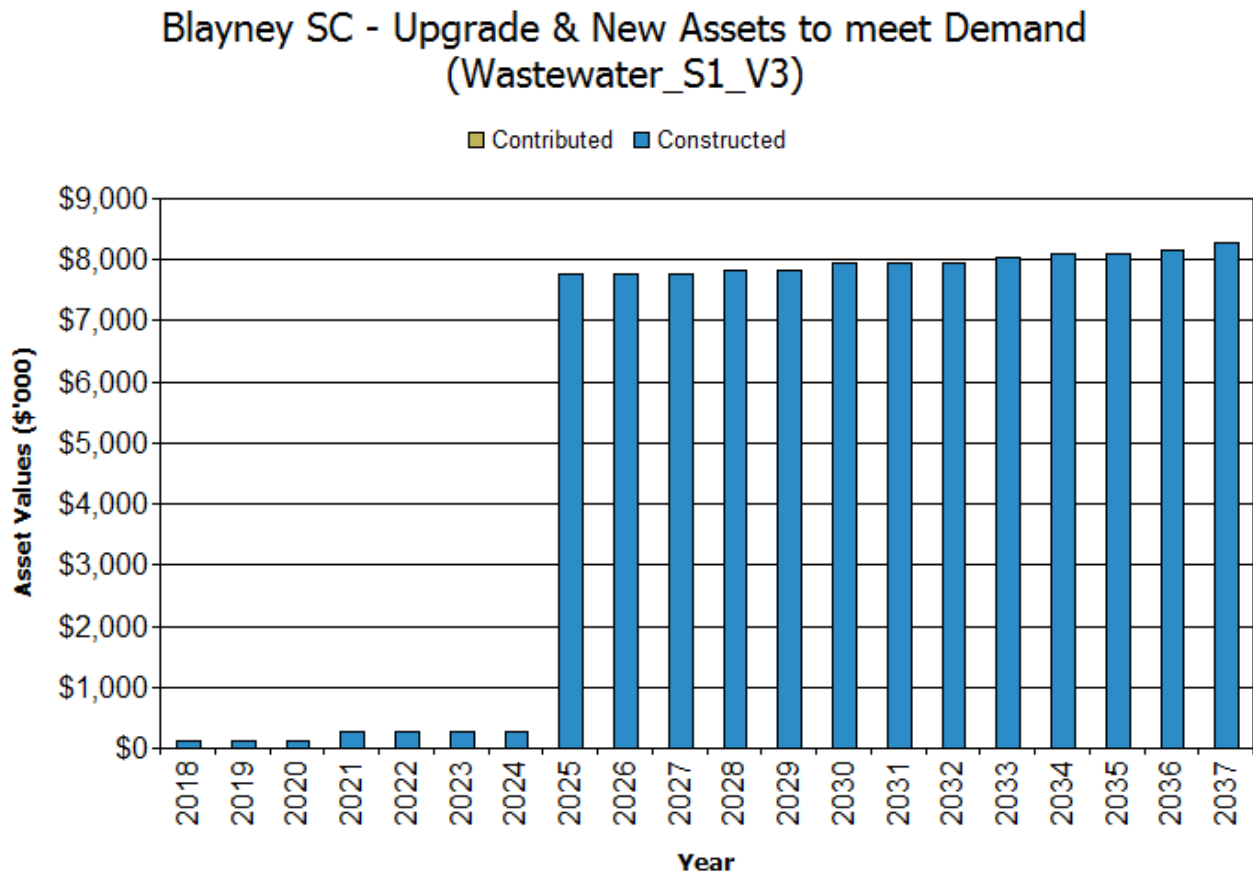


Figure Values are in current (real) dollars.

Figure 1 graph identifies the capital costs of new infrastructure thought to be necessary to maintain the levels of service into the future. The significant increase in the year 2025 demonstrates the projected upgrade of the STP and the associated impact of this to meet the future demand.

The graph shows the cost of the expected upgrades in the years 2018 to 2027 and then averages this figure across the following years. This may not be a true reflection of the costs required in the future as the increase due to the STP upgrade skews the future predictions in the generation of this graph. For this reason, the future beyond 2027 in this graph will not be used to inform the LTFP

Upgrading or acquiring new assets will commit ongoing operations, maintenance and renewal costs for the effective life of the asset. These future costs are identified and considered in developing forecasts of future operations, maintenance and renewal costs for inclusion in the LTFP further in Section 5.

**Recommendation:**

Ensure Future 10 year LTFP takes a considered approach in determining new assets or future upgrade. Approach should rely on future strategic planning for the Shires growth, along with collated data on condition and effective capacity of equipment to meet the current and future needs of the Sewerage network. Establish a priority-ranking list for new assets for determination of new of future assets.

Infrastructure Services department, in particular those responsible for the Sewerage network, to be included in future discussions with Planning department when strategic planning is undertaken. This will further assist in identifying the future growth and requirements beyond 10 years of the sewerage treatment plant.

## 5 LIFECYCLE MANAGEMENT PLAN

The lifecycle management plan details how the Council plans to manage and operate the assets at the agreed levels of service (defined in Section 3) while managing life cycle costs.

### 5.1 Background Data

#### 5.1.1 Physical parameters

The assets covered by this asset management plan are shown in Table 2.1. The sewer network currently incorporates the township of Blayney and village of Millthorpe. The assets in this asset management plan include the transfer system of pipes and pump stations and the treatment infrastructure.

The age profile of the assets included in this AMP are shown in Figure 2.



Figure 2: Asset Age Profile

**Blayney SC - Age Profile (Wastewater\_S1\_V3)**

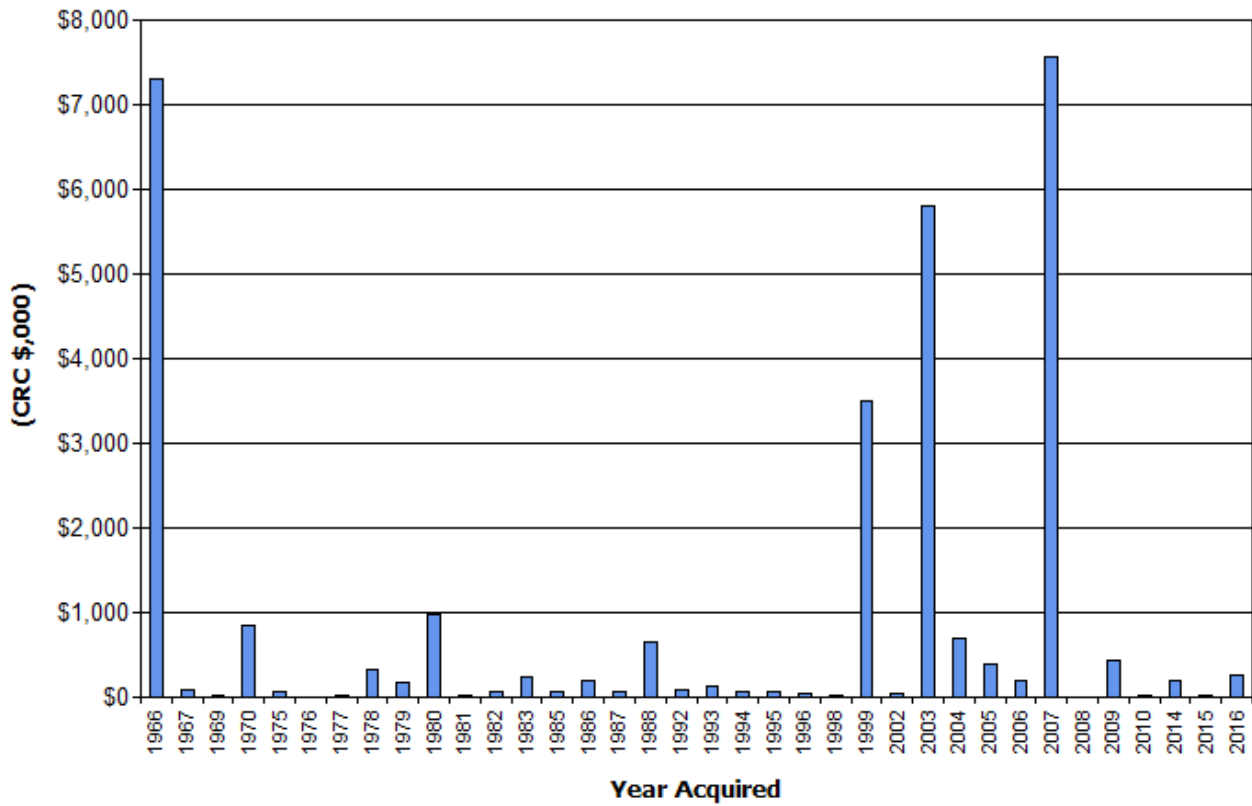


Figure Values are in current (real) dollars.

The graph in figure 2 identifies significant construction activities occurring at times related predominantly to the expansion of the network in the township of Blayney and sewerage of the village of Millthorpe. The key dates for the major works are 1966 being the construction of the first sewerage system in Blayney. In 1999 expansion to include sewerage of the industrial areas and re-use system to transfer effluent to Cadia Operations were completed. 2003 saw the construction of the sewerage infrastructure at Millthorpe, while in 2007 the completion of the augmentation of the STP occurred to cater for the additional input of the Millthorpe scheme.

Blayney Shire Council has historical data to evaluate and create an age model for its asset register. This data has been obtained through the review of works as executed drawings and contract documentation etc. We have a high level of confidence in the age of the asset register for the sewerage network data.

### 5.1.2 Asset capacity and performance

Assets are generally provided to meet design standards where these are available.

Locations where deficiencies in service performance are known are detailed in Table 5.1.2.

**Table 5.1.2: Known Service Performance Deficiencies**

Location	Service Deficiency
STP	The capability of the aerators to generate dissolved oxygen during the peak daily flows is nearing the capacity of the aerators.

The above service deficiencies were identified from monitoring of the DO probe which logs the dissolved oxygen in the intermittent decanting extended aeration tank at the STP. In order to continue to meet levels of service a demand capacity report will be required.

### 5.1.3 Asset condition

Condition monitoring is undertaken in 2 key areas of the wastewater infrastructure. These areas are broken into gravity mains and the rest, to include treatment plant, pump stations and rising mains.

Council invested in a CCTV camera in 2016 to commence a program to review and assess the condition of the Councils gravity mains network. As of Mid 2017 Council have reviewed approximately 15% of our gravity network. As Council continues to assess it's gravity network the data for the condition of the gravity network will become more mature and lead to greater confidence for future planning.

The treatment plant and pump stations are reviewed informally on a regular basis for performance through testing and monitoring. A formal process of asset condition is undertaken every 5 years in-line with the required office of Local Government auditors sewer revaluation program.

The condition profile of our assets is shown in Figure 3.



**Fig 3: Asset Condition Profile**

**Blayney SC - Condition Profile (Wastewater\_S1\_V3)**

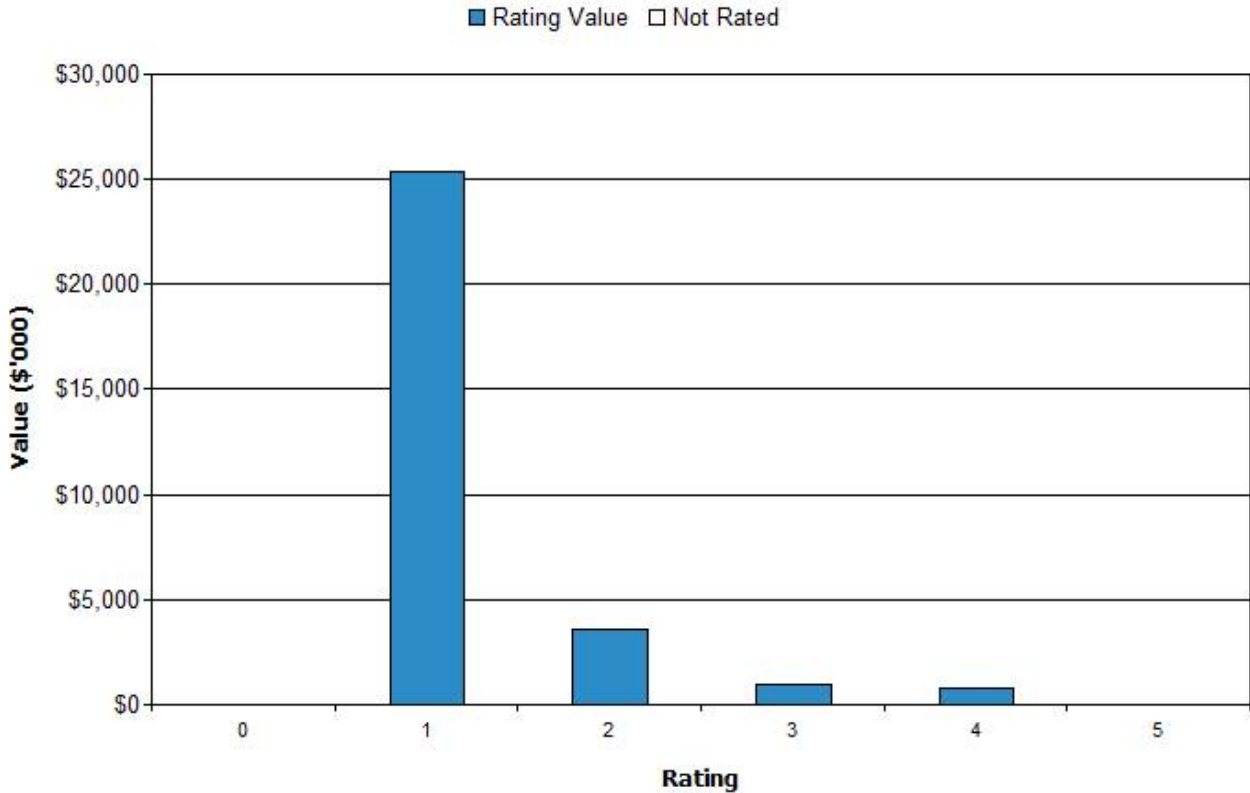


Figure 3 shows a high number of the wastewater asset is in very good condition. An asset condition assessment of the pump stations and STP was undertaken by a qualified quantity surveyor in 2017 and showed many of these assets in condition 1 or 2. A representative sample of the gravity network was assessed using a CCTV camera to establish its condition by qualified Council staff.

Condition is measured using a 1 – 5 grading system<sup>6</sup> as detailed in Table 5.1.3.

**Table 5.1.3: Simple Condition Grading Model**

Condition Grading	Description of Condition
<b>1</b>	<b>Very Good:</b> only planned maintenance required
<b>2</b>	<b>Good:</b> minor maintenance required plus planned maintenance
<b>3</b>	<b>Fair:</b> significant maintenance required
<b>4</b>	<b>Poor:</b> significant renewal/rehabilitation required
<b>5</b>	<b>Very Poor:</b> physically unsound and/or beyond rehabilitation

<sup>6</sup> IPWEA, 2015, IIMM, Sec 2.5.4, p 2|80.



**Recommendation:**

Continue to inspect gravity network to provide more condition data, particularly on the older network to deliver more confidence in this data.

## 5.2 Operations and Maintenance Plan

Operations include regular activities to provide services such as public health, safety and amenity, e.g. cleaning, street sweeping, utilities costs and street lighting.

Routine maintenance is the regular on-going work that is necessary to keep assets operating, including instances where portions of the asset fail and need immediate repair to make the asset operational again, e.g. road patching.

Maintenance includes all actions necessary for retaining an asset as near as practicable to an appropriate service condition including regular ongoing day-to-day work necessary to keep assets operating.

Maintenance expenditure is shown in Table 5.2.1.

**Table 5.2.1: Operations and Maintenance Expenditure Trends**

Year	Maintenance Budget \$
2016 -2017	1,651,377
2017-2018	1,669,376
2018-2019	1,697,398

Operation and Maintenance expenditure levels are considered to be adequate to meet projected service levels in the short term, which may be less than or equal to current service levels.

### Summary of future operations and maintenance expenditures

Future operations and maintenance expenditure is forecast to trend in line with the value of the asset stock as shown in Figure 4. Note that all costs are shown in current 2017 dollar values (i.e. real values).

**Figure 4: Projected Operations and Maintenance Expenditure**

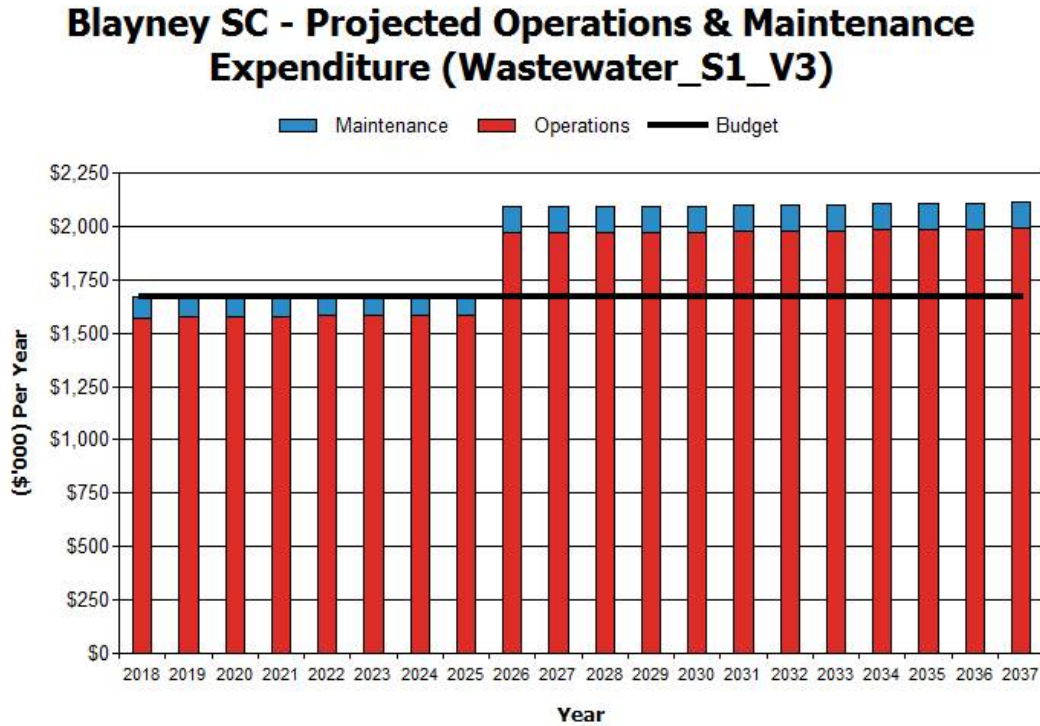


Figure Values are in current (real) dollars.

Operations and maintenance have a direct correlation to levels of service and ability to maintain equipment in good working order. The expenditure will need to be revised should upgrade or new equipment be included, such as the new STP or aerators. Major items of infrastructure such as these will increase operating cost and therefore projected expenditure should reflect the additional resources required to operate the equipment.

Maintenance is funded from the operating budget where available. This is further discussed in Section 7.

**Recommendation:**

Future budgets to provide clearly defined split between operations and maintenance to enable accurate allocation of resources and future planning.

**5.3 Renewal/Replacement Plan**

Renewal and replacement expenditure is major work which does not increase the asset’s design capacity but restores, rehabilitates, replaces or renews an existing asset to its original service potential. Work over and above restoring an asset to original service potential is considered to be an upgrade/expansion or new work expenditure resulting in additional future operations and maintenance costs.

Assets requiring renewal/replacement are identified from one of three methods provided in the 'Expenditure Template'.

- Method 1 uses Asset Register data to project the renewal costs using acquisition year and useful life to determine the renewal year, or
- Method 2 uses capital renewal expenditure projections from external condition modelling systems (such as Pavement Management Systems), or
- Method 3 uses a combination of average network renewals plus defect repairs in the Renewal Plan and Defect Repair Plan worksheets on the 'Expenditure template'.

Method 1 has been used for this asset management plan due to the confidence in age data and current replacement costs.

### 5.3.1 Renewal ranking criteria

Asset renewal and replacement is typically undertaken to either:

- Ensure the reliability of the existing infrastructure to deliver the service it was constructed to facilitate (e.g. replacing a gravity pipeline to prevent infiltration), or
- To ensure the infrastructure is of sufficient quality to meet the service requirements (e.g. flow rate of pump).<sup>7</sup>

It is possible to get some indication of capital renewal and replacement priorities by identifying assets or asset groups that:

- Have a high consequence of failure,
- Have high use and subsequent impact on users would be greatest,
- Have a total value representing the greatest net value,
- Have the highest average age relative to their expected lives,
- Are identified in the AMP as key cost factors,
- Have high operational or maintenance costs, and
- Have replacement with a modern equivalent asset that would provide the equivalent service at a savings.<sup>8</sup>

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<sup>7</sup> IPWEA, 2015, IIMM, Sec 3.4.4, p 3|91.

<sup>8</sup> Based on IPWEA, 2015, IIMM, Sec 3.4.5, p 3|97.

The ranking criteria used to determine priority of identified renewal and replacement proposals is detailed in Table 5.3.1.

**Table 5.3.1: Renewal and Replacement Priority Ranking Criteria**

Criteria	Weighting
Structural Integrity	30%
Function	30%
Safety	20%
Level of Maintenance	20%
Total	100%

### 5.3.2 Summary of future renewal and replacement expenditure

Projected future renewal and replacement expenditures are forecast to increase over time when the asset stock increases. The expenditure is required is shown in Fig 5. Note that all amounts are shown in 2017 dollars.

The projected capital renewal and replacement program is shown in Appendix B.

**Fig 5: Projected Capital Renewal and Replacement Expenditure**

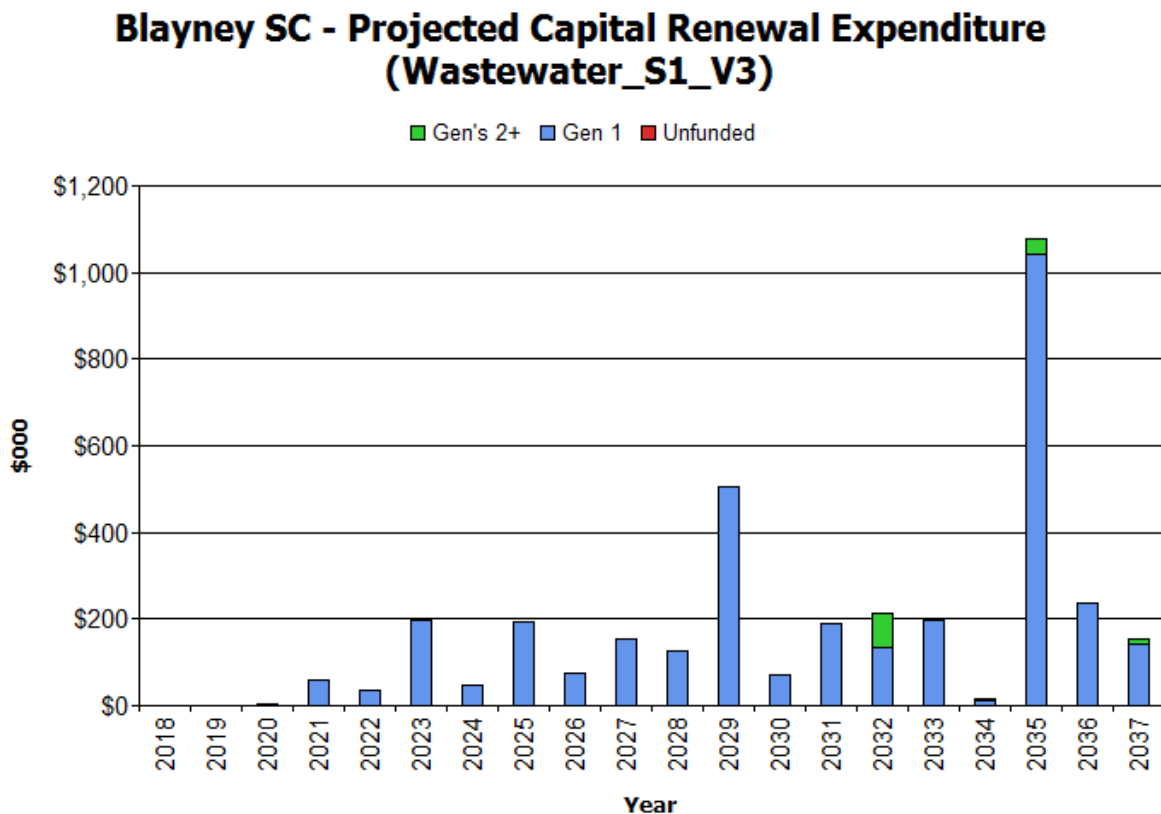


Figure Values are in current (real) dollars.

Council reviewed the useful life of its assets in the recent revaluation process undertaken in early 2017. The capital renewal expenditure reflects the point at which an asset is expected to be renewed or replaced. The process of calculating the useful life is undertaken by assessing the condition of the asset and recalculating the expected useful life. This is particularly of relevance for those assets which may be nearing the end of the expected useful life, however on assessment will continue to provide the required level of service for future years.

Renewals and replacement expenditure in the capital works program will be accommodated in the long term financial plan. This is further discussed in Section 7.

## 5.4 Creation/Acquisition/Upgrade Plan

New works are those that create a new asset that did not previously exist, or works which will upgrade or improve an existing asset beyond its existing capacity. They may result from growth, social or environmental needs. Assets may also be acquired at no cost. These additional assets are considered in Section 4.4.

### **Recommendation:**

Consider discussions with Planning department on future developments and contribution plans to identify “contributed” assets, for example new pump station to allow sewerage transport from fringe development to existing sewerage network.

### 5.4.1 Selection criteria

New assets and upgrade/expansion of existing assets are identified from various sources such as community requests, proposals identified by strategic plans or partnerships with others. Candidate proposals are inspected to verify need and to develop a preliminary renewal estimate. Verified proposals are ranked by priority and available funds and scheduled in future works programmes. The priority ranking criteria is detailed below.

**Table 5.4.1: New Assets Priority Ranking Criteria**

Criteria	Weighting
Inadequate capacity / performance	50%
Improved environmental performance	30%
Changes in re-use requirements	20%
Total	100%

**Recommendation:**

Council do not have a formal process to select expansion of existing assets. Whilst Council use a criteria for prioritising upgrades, expansions require a modified ranking method. The priority ranking for extensions should be confirmed in consultation with technical and financial staff to confirm and verify any proposals requiring extensions.

**5.4.2 Summary of future upgrade/new assets expenditure**

Projected upgrade/new asset expenditures are summarised in Fig 6. The projected upgrade/new capital works program is shown in Appendix C. All amounts are shown in 2017 dollars.

*Fig 6: Projected Capital Upgrade/New Asset Expenditure*

**Blayney SC - Projected Capital Upgrade/New Expenditure (Wastewater\_S1\_V3)**

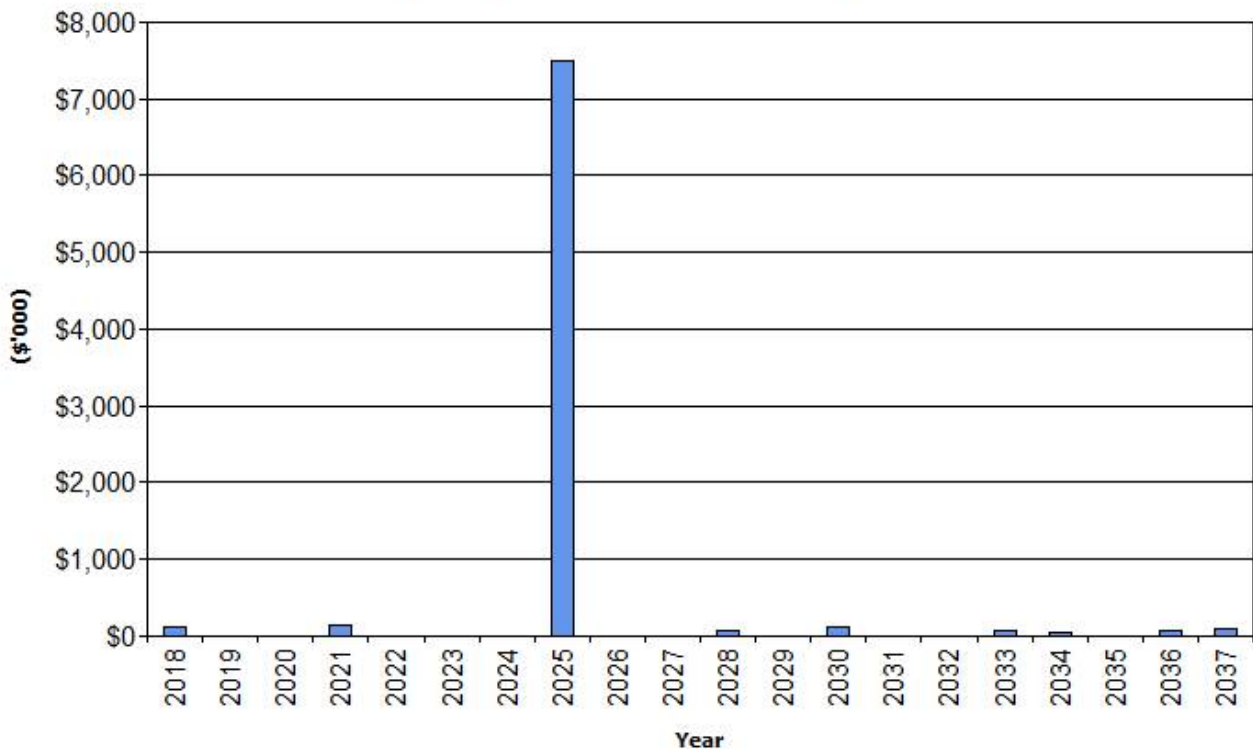


Figure Values are in current (real) dollars.

Expenditure on new assets and services in the capital works program will be accommodated in the LTFP but only to the extent of the available funds or provision of grants where available.

New assets will have potential impact on operation and maintenance resources and expenditure. These items will need to be reflected in the LTFP.

The increase indicated in 2025 shows the inclusion of the STP upgrade. The costing is shown in 1 financial year, however this may occur over several years, in particular planning and designing components.

**Recommendation:**

Review Councils Section 64 sewer developer plan charges to ensure headwork charges are recalculated to include future renewal / new requirements. Consideration of levels of service to be a factor when this review is undertaken

**5.4.3 Summary of asset expenditure requirements**

The financial projections from this asset plan are shown in Fig 7 for projected operating (operations and maintenance) and capital expenditure (renewal and upgrade/expansion/new assets). Note that all costs are shown in real values.

The bars in the graphs represent the anticipated budget needs required to achieve lowest lifecycle costs, the budget line indicates what is currently available. The gap between these informs the discussion on achieving the balance between services, costs and risk to achieve the best value outcome.

*Fig 7: Projected Operating and Capital Expenditure*

**Blayney SC - Projected Operating and Capital Expenditure (Wastewater\_S1\_V3)**

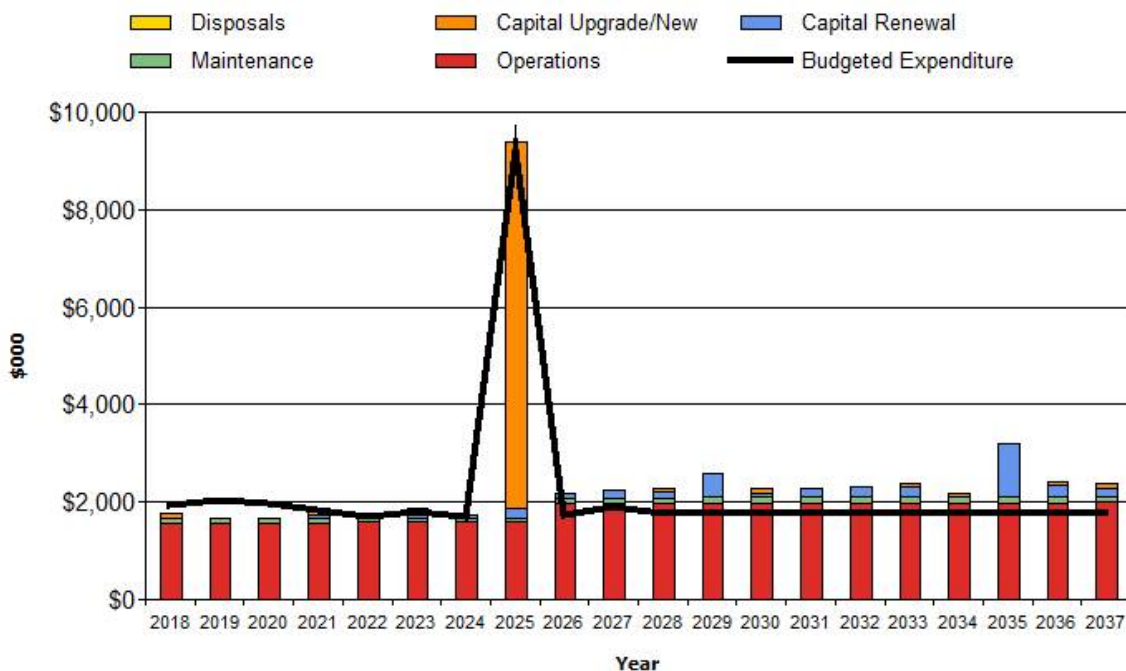


Figure Values are in current (real) dollars.

Council's actual budgeted expenditure (black line) from its LTFP has been utilised. This budget shows a reasonable approach to cost recovery as required by NSW Best Practice Framework in the next 7 years. The projected upgrade of the STP in 2025 and averages applied to each year beyond 2027 need to be considered in terms of sourcing revenue. Council has restricted reserves to fund future upgrades and these reserves should be utilised to fund selected upgrades.

**Recommendation:**

Develop projected operating and capital expenditure chart / plan, to include sewer reserves. Graph could demonstrate when reserves are used to fund asset upgrade or renewal over and above expenditure budget.

## 5.5 Disposal Plan

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

Sewer assets typically do not show a residual value should they be upgraded or decommissioned etc. This is primarily due to the hazard and potential risk to persons and environment should they be passed to an uncontrolled environment. Pipelines would typically stay buried, should they be replaced or upgraded.

For these reasons, this AMP will not include a disposal plan.

**Recommendation:**

Future upgrades that require disposal of an asset will need to form part of project costs.

## 6 RISK MANAGEMENT PLAN

The purpose of infrastructure risk management is to document the results and recommendations resulting from the periodic identification, assessment and treatment of risks associated with providing services from infrastructure, using the fundamentals of International Standard ISO 31000:2009 Risk management – Principles and guidelines.

Risk Management is defined in ISO 31000:2009 as: 'coordinated activities to direct and control with regard to risk'<sup>9</sup>.

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<sup>9</sup> ISO 31000:2009, p 2



An assessment of risks<sup>10</sup> associated with service delivery from infrastructure assets has identified critical risks that will result in loss or reduction in service from infrastructure assets or a 'financial shock'. The risk assessment process identifies credible risks, the likelihood of the risk event occurring, the consequences should the event occur, develops a risk rating, evaluates the risk and develops a risk treatment plan for non-acceptable risks.

## 6.1 Critical Assets

Critical assets are defined as those which have a high consequence of failure causing significant loss or reduction of service. Similarly, critical failure modes are those which have the highest consequences.

Critical assets have been identified and their typical failure mode and the impact on service delivery are as follows:

**Table 6.1 Critical Assets**

Critical Asset(s)	Failure Mode	Impact
Sewerage Pump Station	Mechanical / electrical failure	Potential discharge of sewerage to the environment

By identifying critical assets and failure modes investigative activities, condition inspection programs, maintenance and capital expenditure plans can be targeted at the critical areas.

## 6.2 Risk Assessment

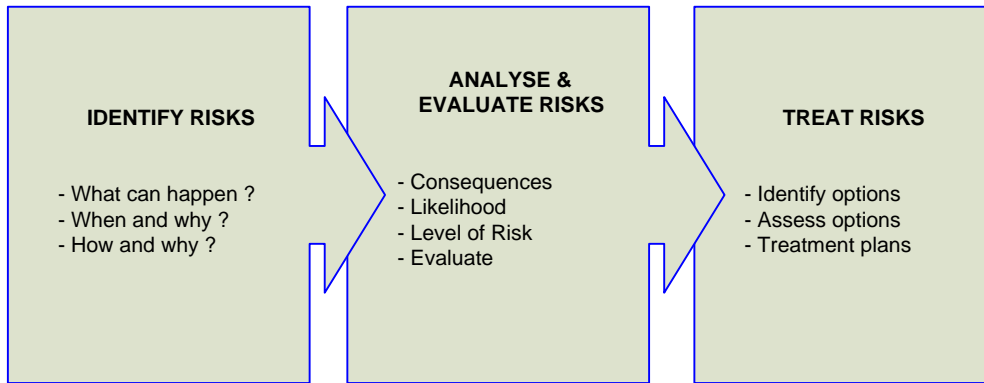
The risk management process used in this project is shown in Figure 6.2 below.

It is an analysis and problem solving technique designed to provide a logical process for the selection of treatment plans and management actions to protect the community against unacceptable risks.

The process is based on the fundamentals of the ISO risk assessment standard ISO 31000:2009.

<sup>10</sup> Blayney Shire Council, 2016, 'Risk Management Register and Plan', Blayney Shire Council

**Fig 6.2 Risk Management Process – Abridged**



The risk assessment process identifies credible risks, the likelihood of the risk event occurring, the consequences should the event occur, develops a risk rating, evaluates the risk and develops a risk treatment plan for non-acceptable risks.

An assessment of risks<sup>11</sup> associated with service delivery from infrastructure assets has identified the critical risks that will result in significant loss, ‘financial shock’ or a reduction in service.

Critical risks are those assessed with ‘Very High’ (requiring immediate corrective action) and ‘High’ (requiring corrective action) risk ratings identified in the Infrastructure Risk Management Plan. The residual risk and treatment cost after the selected treatment plan is implemented is shown in Table 6.2. These risks and costs will be reported to Management and Council.

**Table 6.2: Critical Risks and Treatment Plans**

Service or Asset at Risk	What can Happen	Risk Rating (VH, H)	Risk Treatment Plan	Residual Risk *	Treatment Costs
Power failure at STP	Mechanical and electrical shutdown	H	Knowledge of generator hirer organisations to source generator to power STP and electrical contractor to make temporary connection	Low	\$5,000

<sup>11</sup> Blayney Shire Council, 2016, ‘Risk Management Register and Plan’, Blayney Shire Council

Service or Asset at Risk	What can Happen	Risk Rating (VH, H)	Risk Treatment Plan	Residual Risk *	Treatment Costs
Pump Station failure	Mechanical pump breakdown	VH	Have standby pump at each pump station. Monitoring and maintenance inspections	Low	\$67,000**
Gravity network	Blockage	H	Ensure on-call staff and mechanical cleaning device is on stand-by. Maintain gravity network with cleaning regime.	Low	\$120,000**

Note \* The residual risk is the risk remaining after the selected risk treatment plan is operational.

Note \*\* Council currently includes the risk treatment plan for both pump station failure and gravity network. These costs are currently included in our operation and maintenance expenditure.

**Recommendation:**

Develop list of generator hiring companies and electrical contractors and include in the Pollution Incident Response Management Plan (PIRMP)

### 6.3 Infrastructure Resilience Approach

The resilience of our critical infrastructure is vital to our customers and the services we provide. To adapt to changing conditions and grow over time we need to understand our capacity to respond to possible disruptions and be positioned to absorb disturbance and act effectively in a crisis to ensure continuity of service.

Resilience is built on aspects such as response and recovery planning, financial capacity and crisis leadership.

Our current measure of resilience is shown in Table 6.4 which includes the type of threats and hazards, resilience assessment and identified improvements and/or interventions.

**Table 6.4: Resilience**

Threat / Hazard	Resilience LMH	Improvements / Interventions
Increased utility charges	Low	Energy audit and implement renewable energy project to provide on-site power generation

## 6.4 Service and Risk Trade-Offs

The decisions made in adopting this AMP are based on the objective to achieve the optimum benefits from the available resources.

### 6.4.1 What we cannot do

There are some operations and maintenance activities and capital projects that are unable to be undertaken within the next 10 years. These include:

- Replacement of aged assets that are still performing adequately
- Extension of services to un-sewered villages
- Extension of services to existing urban areas that are not experiencing growth

### 6.4.2 Service trade-off

Operations and maintenance activities and capital projects that cannot be undertaken will maintain or create service consequences for users. These include:

- Reduced levels of service
- Damage to property and public assets
- Maintain current environmental and health standards despite increasing standards being enforced by regulators.

### 6.4.3 Risk trade-off

The operations and maintenance activities and capital projects that cannot be undertaken may maintain or create risk consequences. These include:

- Increasing reactive maintenance costs
- Exposure to claims and litigation against Council for environmental breaches
- Political pressure for improved levels of service
- Lower performance on asset and financial indicators

These actions and expenditures are considered in the projected expenditures, and where developed are included in the Risk Management Plan.

## 7 FINANCIAL SUMMARY

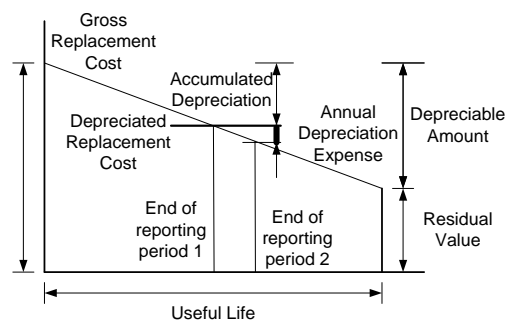
This section contains the financial requirements resulting from all the information presented in the previous sections of this asset management plan. The financial projections will be improved as further information becomes available on desired levels of service and current and projected future asset performance.

### 7.1 Financial Statements and Projections

#### 7.1.1 Asset valuations

The best available estimate of the value of assets included in this Asset Management Plan are shown below. Assets are valued at fair value.

Gross Replacement Cost	\$30,657,000
Depreciable Amount	\$30,657,000
Depreciated Replacement Cost <sup>12</sup>	\$20,235,000
Annual Average Asset Consumption	\$508,000



#### 7.1.1 Sustainability of service delivery

Two key indicators for service delivery sustainability that have been considered in the analysis of the services provided by this asset category, these being the:

- asset renewal funding ratio, and
- medium term budgeted expenditures/projected expenditure (over 10 years of the planning period).

#### Asset Renewal Funding Ratio

Asset Renewal Funding Ratio<sup>13</sup> 202%

The Asset Renewal Funding Ratio is the most important indicator and indicates that over the next 10 years of the forecasting that we expect to have 202% of the funds required for the optimal renewal and replacement of assets.

<sup>12</sup> Also reported as Written Down Value, Carrying or Net Book Value.

<sup>13</sup> AIFMM, 2015, Version 1.0, Financial Sustainability Indicator 3, Sec 2.6, p 9.

### Medium term – 10 year financial planning period

This asset management plan identifies the projected operations, maintenance and capital renewal expenditures required to provide an agreed level of service to the community over a 10 year period. This provides input into 10 year financial and funding plans aimed at providing the required services in a sustainable manner.

These projected expenditures may be compared to budgeted expenditures in the 10 year period to identify any funding shortfall. In a core asset management plan, a gap is generally due to increasing asset renewals for ageing assets.

The projected operations, maintenance and capital renewal expenditure required over the 10 year planning period is \$1,838,000 on average per year.

Estimated (budget) operations, maintenance and capital renewal funding is \$1,807,000 on average per year giving a 10 year funding shortfall of \$-31,000 per year. This indicates 98% of the projected expenditures are needed to provide the services documented in the asset management plan. This excludes upgrade/new assets.

Providing services from infrastructure in a sustainable manner requires the matching and managing of service levels, risks, projected expenditures and financing to achieve a financial indicator of approximately 1.0 for the first years of the asset management plan and ideally over the 10-year life of the Long Term Financial Plan.

### 7.1.2 Projected expenditures for long term financial plan

Table 7.1.2 shows the projected expenditures for the 10 year long term financial plan.

Expenditure projections are in 2017 real values.

**Table 7.1.2: Projected Expenditures for Long Term Financial Plan (\$000)**

Year	Operations (\$000)	Maintenance (\$000)	Projected Capital Renewal (\$000)	Capital Upgrade/ New (\$000)	Disposals (\$000)
2018	\$1,572	\$97	\$0	\$115	\$0
2019	\$1,578	\$97	\$0	\$0	\$0
2020	\$1,578	\$97	\$5	\$0	\$0
2021	\$1,578	\$97	\$58	\$150	\$0
2022	\$1,586	\$98	\$36	\$0	\$0
2023	\$1,586	\$98	\$198	\$0	\$0
2024	\$1,586	\$98	\$48	\$0	\$0
2025	\$1,586	\$98	\$195	\$7,500	\$0

Year	Operations (\$000)	Maintenance (\$000)	Projected Capital Renewal (\$000)	Capital Upgrade/ New (\$000)	Disposals (\$000)
2026	\$1,970	\$122	\$75	\$0	\$0
2027	\$1,970	\$122	\$152	\$0	\$0
2028	\$1,970	\$122	\$127	\$75	\$0
2029	\$1,974	\$122	\$506	\$0	\$0
2030	\$1,974	\$122	\$69	\$120	\$0
2031	\$1,980	\$122	\$189	\$0	\$0
2032	\$1,980	\$122	\$213	\$0	\$0
2033	\$1,980	\$122	\$197	\$80	\$0
2034	\$1,984	\$122	\$16	\$50	\$0
2035	\$1,987	\$123	\$1,078	\$0	\$0
2036	\$1,987	\$123	\$237	\$80	\$0
2037	\$1,991	\$123	\$154	\$100	\$0

All dollar values are in (\$'000)'s

## 7.2 Funding Strategy

Funding for assets is provided from the budget and long-term financial plan.

The financial strategy of the entity determines how funding will be provided, whereas the asset management plan communicates how and when this will be spent, along with the service and risk consequences of differing options.

## 7.3 Valuation Forecasts

Asset values are forecast to increase as additional assets are added.

Additional assets will generally add to the operations and maintenance needs in the longer term, as well as the need for future renewal. Additional assets will also add to future depreciation forecasts.

To allow for upgrade of the sewerage treatment plant to cater for increased flow there will be additional costs and therefore income required to maintain current levels of service, primarily ability to treat the volumes of sewerage to meet the EPA licence conditions.

## 7.4 Key Assumptions Made in Financial Forecasts

This section details the key assumptions made in presenting the information contained in this asset management plan. It is presented to enable readers to gain an understanding of the levels of confidence in the data behind the financial forecasts.

Key assumptions made in this asset management plan are:4.

**Table 7.4: Key Assumptions made in AMP and Risks of Change**

Key Assumptions	Risk of change
Data in asset register accurate	Change in asset register data may impact on financial forecasts
Expenditure budgets	Actual budget costs differ from preliminary sources.

## 7.5 Forecast Reliability and Confidence

The expenditure and valuations projections in this AMP are based on best available data. Currency and accuracy of data is critical to effective asset and financial management. Data confidence is classified on a 5 level scale<sup>14</sup> in accordance with Table 7.5.

**Table 7.5: Data Confidence Grading System**

Confidence Grade	Description
A Highly reliable	Data based on sound records, procedures, investigations and analysis, documented properly and agreed as the best method of assessment. Dataset is complete and estimated to be accurate $\pm 2\%$
B Reliable	Data based on sound records, procedures, investigations and analysis, documented properly but has minor shortcomings, for example some of the data is old, some documentation is missing and/or reliance is placed on unconfirmed reports or some extrapolation. Dataset is complete and estimated to be accurate $\pm 10\%$
C Uncertain	Data based on sound records, procedures, investigations and analysis which is incomplete or unsupported, or extrapolated from a limited sample for which grade A or B data are available. Dataset is substantially complete but up to 50% is extrapolated data and accuracy estimated $\pm 25\%$
D Very Uncertain	Data is based on unconfirmed verbal reports and/or cursory inspections and analysis. Dataset may not be fully complete and most data is estimated or extrapolated. Accuracy $\pm 40\%$
E Unknown	None or very little data held.

<sup>14</sup> IPWEA, 2015, IIMM, Table 2.4.6, p 2|71.



The estimated confidence level for and reliability of data used in this AMP is considered to be **B – Reliable**. This has been assessed based on the reliable age data and replacement costings. Shortcomings would include robust condition data and expenditure figures, both of which would form part of the improvement plan.

## 8 PLAN IMPROVEMENT AND MONITORING

### 8.1 Status of Asset Management Practices<sup>15</sup>

#### 8.1.1 Accounting and financial data sources

Long Term Financial Plan (LTFP) 2017-2027

#### 8.1.2 Asset management data sources

AssetFinda – Wastewater asset register

### 8.2 Improvement Plan

The asset management improvement plan generated from this asset management plan is shown in Table 8.1.

**Table 8.1: Improvement Plan**

Task No	Task	Responsibility	Resources Required	Timeline
1	Analyse customer satisfaction survey to identify service levels. (Section 3.5)	Manager Infrastructure	Administration officer	June 2018
2	Review renewal models (section 3.5)	Manager Infrastructure	Asset Officer	June 2018
3	Review and update SBP and IWCM. Include outcomes of customer satisfaction survey	Director Infrastructure Services Manager Water & Wastewater	Consultants	June 2018
4	Discuss and implement formal process with Planning department to ensure sewerage network is aware and considered in future expansion plans. (Section 4.5)	Director Infrastructure Services	Director of Planning and Environmental Services	June 2018
5	Develop priority ranking list for expansion of existing assets	Manager Infrastructure	Manager Water and	June 2018

<sup>15</sup> ISO 55000 Refers to this the Asset Management System

Task No	Task	Responsibility	Resources Required	Timeline
	(Section 4.5 & 5.4)		Wastewater	
6	Increase condition assessment regime in gravity network to provide data that has a higher level of confidence across the entire network. (Section 5.1)	Manager Water & Wastewater	2 staff and CCTV camera equipment and accessories	Complete condition assessment of entire gravity network in 5 years.
7	Consult with finance department to create budget lines to clearly reflect maintenance and operation	Manager Water & Wastewater	Chief Financial Officer, Accountant	June 2018
8	Discuss with Planning department to identify contributed assets in future planning (Section 5.4)	Manager Infrastructure	Director of Planning	June 2018
9	Review Councils Section 64 developer plan charges to include for revised LTFP (Section 5.4)	Director Infrastructure Services	Consultant	June 2018
10	Develop projected operating and capital expenditure chart to include sewer reserves (Section 5.4)	Manager Water & Wastewater	Chief Financial Officer, Accountant	June 2018
11	Develop list of generator hiring companies and electrical contractors and include in the PIRMP	Manager Water & Wastewater	Yellow pages	June 2018

### 8.3 Monitoring and Review Procedures

This asset management plan will be reviewed during annual budget planning processes and amended to show any material changes in service levels and/or resources available to provide those services as a result of budget decisions.

The AMP will be updated annually to ensure it represents the current service level, asset values, projected operations, maintenance, capital renewal and replacement, capital upgrade/new and asset disposal expenditures and projected expenditure values incorporated into the long term financial plan.

The AMP has a life of 4 years and is due for complete revision and updating within 12 months of each Blayney Shire Council election, as part of the Resourcing Strategy in line with the Integrated Planning and Reporting Framework cycle.

## 8.4 Performance Measures

The effectiveness of the asset management plan can be measured in the following ways:

- The degree to which the required projected expenditures identified in this asset management plan are incorporated into the long term financial plan,
- The degree to which 1-5 year detailed works programs, budgets, business plans and corporate structures take into account the 'global' works program trends provided by the asset management plan,
- The degree to which the existing and projected service levels and service consequences (what we cannot do), risks and residual risks are incorporated into the Strategic Plan and associated plans,
- The Asset Renewal Funding Ratio achieving the target of 1.0.

## 9. REFERENCES

- IPWEA, 2006, 'International Infrastructure Management Manual', Institute of Public Works Engineering Australasia, Sydney, [www.ipwea.org/IIMM](http://www.ipwea.org/IIMM)
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- IPWEA, 2012 LTFP Practice Note 6 PN Long Term Financial Plan, Institute of Public Works Engineering Australasia, Sydney
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- Blayney Shire Council, 2016, 'Long Term Financial Plan (LTFP) 2016-2026', Blayney Shire Council

## 10. APPENDICES

Appendix A Projected 10 year Capital Renewal and Replacement Works Program

Appendix B Projected 10 year Capital Upgrade/New Works Program

Appendix C LTFP Budgeted Expenditures Accommodated in AMP

**Appendix A Projected 10-year Capital Renewal and Replacement Works Program**

Blayney SC - Report 6 - Appendix 10 year Renewal & Replacement Program (Wastewater_S1_V2)								
Asset ID	Sub Category	Asset Name	From	To	Rem Life (Years)	Planned Renewal Year	Renewal Cost (\$)	Useful Life (Years)
178	Pump_Stations_STP	Alum Dosing	STP1	Pump	2	2020	\$4,550	13.5
							<b>Subtotal</b>	<b>\$4,550</b>
206	Pump_Stations_STP	Electrical	STP1	Scada	3	2021	\$35,000	14
116	Pump_Stations_STP	Pump 1	SPS 5 Palmer St	SPS5	3	2021	\$5,850	17
166	Pump_Stations_STP	Pump 1	SPS 7 Newbridge Rd	SPS7	3	2021	\$5,850	16
117	Pump_Stations_STP	Pump 2	SPS 5 Palmer St	SPS5	3	2021	\$5,850	17
167	Pump_Stations_STP	Pump 2	SPS 7 Newbridge Rd	SPS7	3	2021	\$5,850	16
							<b>Subtotal</b>	<b>\$58,400</b>
171	Pump_Stations_STP	Disinfection System	SPS 9 Cadia Mine Reuse	None	4	2022	\$4,550	22.5
174	Pump_Stations_STP	Pump 1	SPS 9 Cadia Mine Reuse	SPS9	4	2022	\$15,600	22.5
176	Pump_Stations_STP	Pump 2	SPS 9 Cadia Mine Reuse	SPS9	4	2022	\$15,600	22.5
							<b>Subtotal</b>	<b>\$35,750</b>
WWPnt835	Pump_Stations_STP	Electrical	SPS 3 Farm St	RTU	5	2023	\$15,600	9
WWPnt834	Pump_Stations_STP	Electrical	SPS 6 Radburn St	RTU	5	2023	\$15,600	9
WWPnt836	Pump_Stations_STP	Electrical	SPS 7 Newbridge Rd	RTU	5	2023	\$15,600	9
101	Pump_Stations_STP	Electrical	SPS 8 Millthorpe	RTU	5	2023	\$15,600	9
172	Pump_Stations_STP	Electrical	SPS 9 Cadia Mine Reuse	RTU	5	2023	\$15,600	9
215	Pump_Stations_STP	Hardstand	STP1	Seal	5	2023	\$29,400	16
213	Pump_Stations_STP	Potable Water Booster PS	STP1	Pump	5	2023	\$4,620	16.25
129	Pump_Stations_STP	Pump 1	SPS 1 Henry St	SPS1	5	2023	\$42,900	57
130	Pump_Stations_STP	Pump 2	SPS 1 Henry St	SPS1	5	2023	\$42,900	57
							<b>Subtotal</b>	<b>\$197,820</b>
194	Pump_Stations_STP	Odour Control	STP1	Blower	6	2024	\$16,900	17
239	Pump_Stations_STP	Pump 1	STP1	None	6	2024	\$6,300	17.5
150	Pump_Stations_STP	Pump 2	SPS 6 Radburn St	SPS6	6	2024	\$18,200	25.5
240	Pump_Stations_STP	Pump 2	STP1	None	6	2024	\$6,300	17.5
							<b>Subtotal</b>	<b>\$47,700</b>
187	Pump_Stations_STP	Electrical	STP1	Instrumentation STP1	7	2025	\$78,000	18
203	Pump_Stations_STP	Electrical	STP1	PLC	7	2025	\$105,000	18
169	Pump_Stations_STP	Wet Well	SPS 7 Newbridge Rd	Mechanical SPS7	7	2025	\$11,700	20
							<b>Subtotal</b>	<b>\$194,700</b>
156	Pump_Stations_STP	Electrical	SPS 3 Farm St	Switchboard	8	2026	\$36,400	27
135	Pump_Stations_STP	Siteworks	SPS 2 Adelaide St	Fencing	8	2026	\$7,280	60
154	Pump_Stations_STP	Siteworks	SPS 3 Farm St	Fencing	8	2026	\$5,460	27
134	Pump_Stations_STP	Valves	SPS 4 King George Oval	SPS4	8	2026	\$26,000	48
							<b>Subtotal</b>	<b>\$75,140</b>
143	Pump_Stations_STP	Wet Well	SPS 2 Adelaide St	structure SPS2	9	2027	\$152,445	61
							<b>Subtotal</b>	<b>\$152,445</b>
							<b>Program Total</b>	<b>\$766,505</b>

## Appendix B Projected Upgrade/Exp/New 10-year Capital Works Program

### Blayney SC

#### Projected Capital Upgrade/New Works Program - Wastewater\_S1\_V3

(\$000)

Year	Item	Description	Estimate
2018	1	PV Renewable Energy project	\$75
	2	Pump Station VFD	\$40
<b>2018</b>		<b>Total</b>	<b>\$115</b>

(\$000)

Year	Item	Description	Estimate
2019	1		
<b>2019</b>		<b>Total</b>	<b>\$0</b>

(\$000)

Year	Item	Description	Estimate
<b>2020</b>		<b>Total</b>	<b>\$0</b>

(\$000)

Year	Item	Description	Estimate
2021	1	Aerator upgrades	\$150
<b>2021</b>		<b>Total</b>	<b>\$150</b>

(\$000)

Year	Item	Description	Estimate
2022	1		
<b>2022</b>		<b>Total</b>	<b>\$0</b>

(\$000)

Year	Item	Description	Estimate
<b>2023</b>		<b>Total</b>	<b>\$0</b>

(\$000)

Year	Item	Description	Estimate
2024	1		
<b>2024</b>		<b>Total</b>	<b>\$0</b>

(\$000)

Year	Item	Description	Estimate
2025	1	STP - Capacity Upgrade	\$7,500
<b>2025</b>		<b>Total</b>	<b>\$7,500</b>

(\$000)

Year	Item	Description	Estimate
2026	1		
2026		<b>Total</b>	<b>\$0</b>

(\$000)

Year	Item	Description	Estimate
2027		<b>Total</b>	<b>\$0</b>



# Appendix C Budgeted Expenditures Accommodated in LTFP

## NAMS.PLUS3 Asset Management Blayney SC

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### Wastewater\_S1\_V3

### Asset Management Plan

First year of expenditure projections **2018** (financial yr ending)

#### Wastewater

##### Asset values at start of planning period

Current replacement cost	\$30,657 (000)
Depreciable amount	\$30,657 (000)
Depreciated replacement cost	\$20,235 (000)
Annual depreciation expense	\$508 (000)

Calc CRC from Asset Register

\$30,657 (000)

This is a check for you.

#### Operations and Maintenance Costs for New Assets

	% of asset value
Additional operations costs	5.13%
Additional maintenance	0.32%
Additional depreciation	1.66%
Planned renewal budget (information only)	

You may use these values calculated from your data or overwrite the links.

#### Planned Expenditures from LTFP

20 Year Expenditure Projections Note: Enter all values in current **2018** values

Financial year ending	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000
<b>Expenditure Outlays included in Long Term Financial Plan (in current \$ values)</b>										
<b>Operations</b>										
Operations budget	\$1,572	\$1,572	\$1,572	\$1,572	\$1,572	\$1,572	\$1,572	\$1,572	\$1,572	\$1,572
Management budget	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
AM systems budget	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
<b>Total operations</b>	<b>\$1,572</b>	<b>\$1,572</b>	<b>\$1,572</b>	<b>\$1,572</b>	<b>\$1,572</b>	<b>\$1,572</b>	<b>\$1,572</b>	<b>\$1,572</b>	<b>\$1,572</b>	<b>\$1,572</b>
<b>Maintenance</b>										
Reactive maintenance budget	\$97	\$97	\$97	\$97	\$97	\$97	\$97	\$97	\$97	\$97
Planned maintenance budget	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Specific maintenance items budget	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
<b>Total maintenance</b>	<b>\$97</b>	<b>\$97</b>	<b>\$97</b>	<b>\$97</b>	<b>\$97</b>	<b>\$97</b>	<b>\$97</b>	<b>\$97</b>	<b>\$97</b>	<b>\$97</b>
<b>Capital</b>										
Planned renewal budget	\$170	\$363	\$305	\$12	\$35	\$125	\$26	\$53	\$53	\$235
Planned upgrade/new budget	\$115	\$0	\$0	\$150	\$0	\$0	\$0	\$7,500	\$0	\$0
<b>Non-growth contributed asset value</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
<b>Asset Disposals</b>										
Est Cost to dispose of assets	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Carrying value (DRC) of disposed assets	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
<b>Additional Expenditure Outlays Requirements (e.g from Infrastructure Risk Management Plan)</b>										
Additional Expenditure Outlays required and not included above	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000
Operations	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Maintenance	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Capital Renewal	to be incorporated into Forms 2 & 2.1 (where Method 1 is used) OR Form 2B Defect Repairs (where Method 2 or 3 is used)									
Capital Upgrade	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
User Comments #2										
<b>Forecasts for Capital Renewal using Methods 2 &amp; 3 (Form 2A &amp; 2B) &amp; Capital Upgrade (Form 2C)</b>										
Forecast Capital Renewal from Forms 2A & 2B	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000
Forecast Capital Upgrade from Form 2C	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	\$115	\$0	\$0	\$150	\$0	\$0	\$0	\$7,500	\$0	\$0