

CENTRAL DARLING SHIRE COUNCIL



SEWERAGE

Asset Management Plan



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1.0 EXECUTIVE SUMMARY

1.1 The Purpose of the Plan

Asset management planning is a comprehensive process ensuring delivery of services from infrastructure is financially sustainable.

This Asset Management Plan (AM Plan) details information about infrastructure assets with 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 over the 20 year planning period. The Asset Management Plan will link to a Long-Term Financial Plan which typically considers a 10 year planning period.

This plan covers the infrastructure assets that provide transportation and treatment of sewage for the town of Wilcannia.

1.2 Asset Description

The stormwater network comprises:

- Reticulation Pipework
- Manholes
- House Pumps
- Pump Stations
- Treatment Plants

The above infrastructure assets have significant total renewal value estimated at \$6,575,341. The Valuation was undertaken on 30 June 2017.

1.3 Levels of Service

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

The main service consequences of the Planned Budget are:

- The Wilcannia sewerage system cannot guarantee that no environmental harm will occur on a continuous basis. The current pump stations and reticulation network is costing Central Darling Shire Council significant funds in ongoing maintenance and repairs and without an upgrade, has the potential for failure which could result in public health issues for the community of Wilcannia.
- Council will continue to replace house pumps within the Wilcannia Pressure Sewerage System as failures occur. Currently up to 50 pumps are replaced annually at a cost of \$60,000. Pumps are estimated to have a useful life of 4 years, however some houses experience up to 4 failures per year.
- Council will continue to replace life expired electrical and mechanical components of pumping infrastructure in the Wilcannia Sewerage System.

1.4 Future Demand

The main demands for new services are created by:

- Climate Change
- Population
- Community expectations
- Regulations

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

- Reduce service level
- Educate customers on measures they can implement to reduce the incidents of failure of their house pumps.
- Implement measures to manage any overflows that may occur from failures in the sewerage system.
- Transfer management/ownership of assets to other entities

1.5 Lifecycle Management Plan

1.5.1 What does it Cost?

The forecast lifecycle costs necessary to provide the services covered by this AM Plan includes operation, maintenance, renewal, acquisition, and disposal of assets. Although the AM Plan may be prepared for a range of time periods, it typically informs a Long-Term Financial Planning period of 10 years. Therefore, a summary output from the AM Plan is the forecast of 10 year total outlays, which for the Sewer is estimated as \$1,941,097 or \$194,110 on average per year.

1.6 Financial Summary

1.6.1 What we will do

Estimated available funding for the 10 year period is \$1,450,000 or \$145,000 on average per year as per the Long-Term Financial plan or Planned Budget. This is 74.7% 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 Informed decision making depends on the AM Plan emphasising the consequences of Planned Budgets on the service levels provided and risks.

The anticipated Planned Budget for Sewerage leaves a shortfall of \$-49,110 on average per year of the forecast lifecycle costs required to provide services in the AM Plan compared with the Planned Budget currently included in the Long-Term Financial Plan. This is shown in the figure below.

Forecast Lifecycle Costs and Planned Budgets

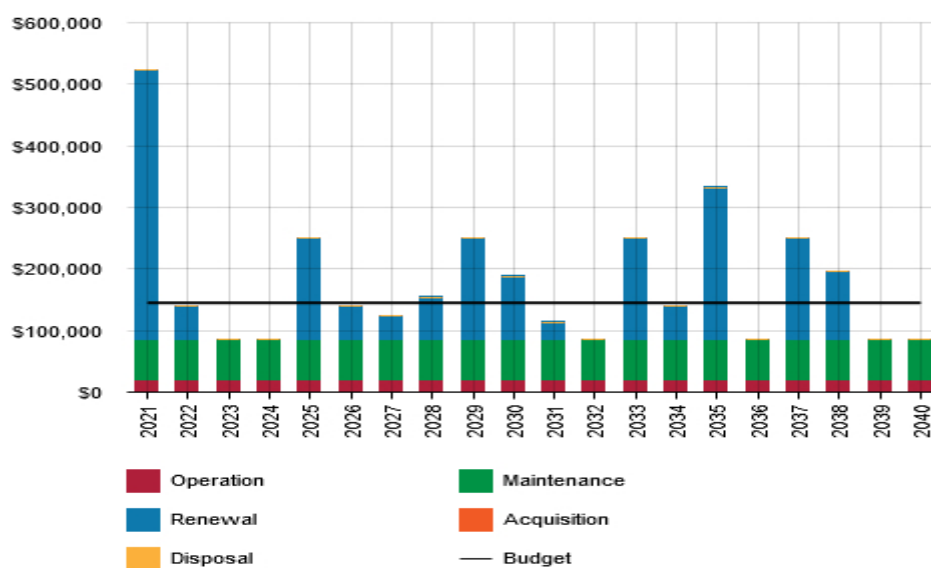


Figure Values are in current dollars.

We plan to provide Sewer services for the following:

- Operation, maintenance, renewal and upgrade of pipework, manholes, house pumps, pump stations and treatment plants to meet service levels set by in annual budgets.
- Undertake renewals within the available budget, within the 10 year planning period.

1.6.2 What we cannot do

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

- Renew the existing pumps and associated infrastructure at the forecast rate.

1.6.3 Managing the Risks

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

The main risk consequences are:

- Failure of pumping stations and associated environmental impacts
- Treatment Ponds reach capacity and overflow
- Ongoing failure of house pumps in Wilcannia, which have a useful life of 4 years
- Rising Main and/or Reticulation failure

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

- Replacing Pump Stations and upgrading with new within available budget.
- Replacing old ponds pipework, desludging lagoons to create more capacity for wet weather and high usage times
- Ongoing replacement of house pumps as failure occurs
- Applying for grant funding to replace the existing Wilcannia low pressure system with a gravity system

1.7 Asset Management Practices

Our systems to manage assets include:

- Civica/ Practical Financial System
- AssetFinda

Assets requiring renewal/replacement are identified from the asset register and from observed asset performance. The Asset Register was used to forecast the renewal life cycle costs for this Asset Management Plan.

1.8 Monitoring and Improvement Program

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

- Audit all assets and add to the new AssetFinda program to improve the asset data in the asset register
- Separate job cost numbers in Councils financial system. Split maintenance and operations. Split capital into renewal and acquisition. This change was made July 1 2020, to improve how Council accounts for asset lifecycle expenditures. System to be implemented by all staff and compliance monitored.
- Undertake customer satisfaction survey to consult with the community and identify the desired level of service. This is planned for mid 2021 with plans to employ a community consultation officer at Council

2.0 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 20-year planning period.

The asset management plan is to be read with the other planning documents. This should include the Asset Management Policy and Asset Management Strategy where these have been developed along with other key planning documents:

- CDSC Community Strategic Plan 2017 - 2027
- CDSC Operational Plan 2020 - 2021

The infrastructure assets covered by this asset management plan are shown in Table 2.1. These assets are used to provide a safe, reliable sewerage service and demonstrate compliance with the regulatory requirements.

Table 2.1: Assets covered by this Plan

Table 2-1: Assets Covered by this Plan

Asset Category	Dimension or No#	Replacement Value
Reticulation Pipework	14,252m	1,980,421
Manholes	40no.	327,000
House Pumps	260no.	221,000
Pump Stations	5no.	906,080
Treatment Plants	2no.	3,140,840
Total		6,575,341

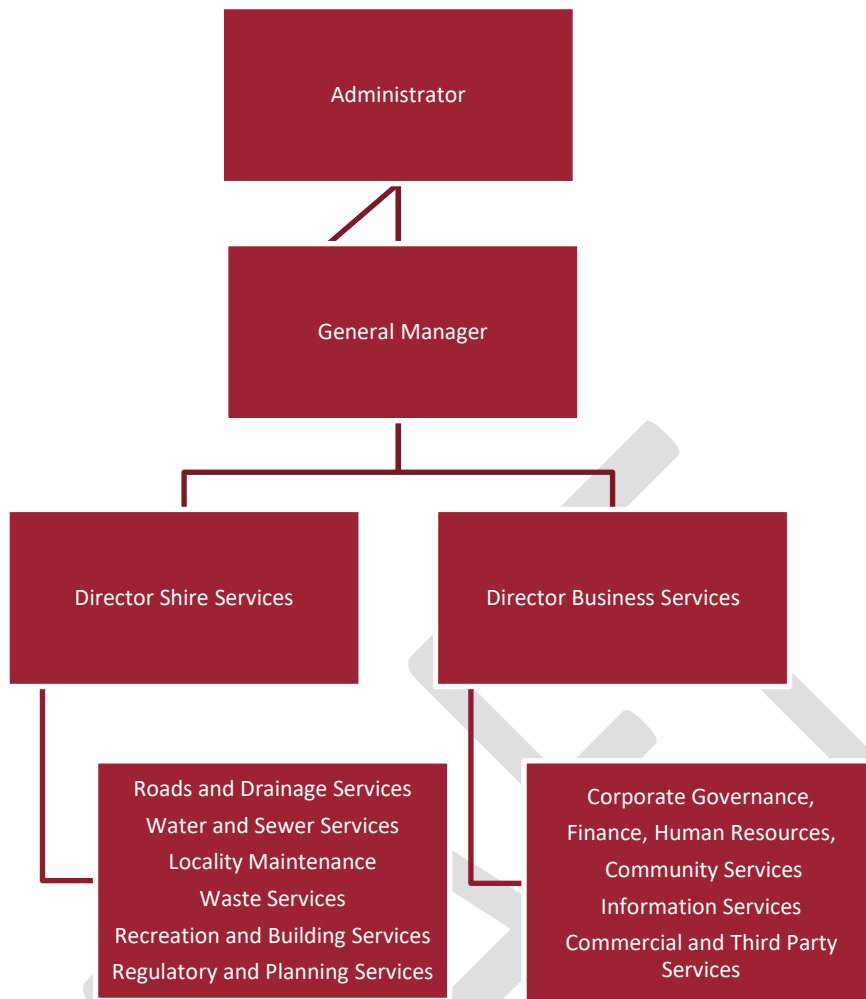
These assets are used to provide safe and efficient sewerage service . The infrastructure assets included in this plan have a total replacement value of insert \$6,575,341. The valuation was prepared on 30 June 2017.

Key stakeholders in the preparation and implementation of this Asset Management Plan are shown in Table 2.2.

Table 2-2: Key Stakeholders in the AM Plan

Key Stakeholder	Role in Asset Management Plan
Councillors/ Administrator	Represent needs of community/shareholders, Allocate resources to meet the organisation’s objectives in providing services while managing risks, Ensure organisation is financial sustainable.
General Manager	Endorse the development of asset management plans and provide the resources required to complete this task. Set high level priorities for asset management development and raise the awareness of this function among staff and contractors. Support the implementation of actions resulting from this plan and prepared to make changes to a better way of managing assets and delivering services. Support for an asset management driven budget and LTFP.
Finance Section	Consolidating the asset register and ensuring the asset valuations are accurate. Development of supporting policies such as capitalisation and depreciation. Preparation of asset sustainability and financial reports incorporating asset depreciation in compliance with current accounting standards.
Operational (Outdoor) Staff	Provide local knowledge level detail on all the sewerage assets. Verify the size, location and condition of assets. They can describe the maintenance standards deployed and the ability to meet technical and customer levels of service.
Asset Management Consultants	Provide support for the development of asset management plans and the implementation of effective asset management principles within Council.
External Parties	Community residents & businesses; Tourist and Visitors (as occasional users); Neighbouring Council’s; Emergency services; Utility companies; Local Businesses and; Federal and State Government authorities & agencies

Our organisational structure for service delivery from infrastructure assets is detailed on the following page,



2.2 Goals and Objectives of Asset Ownership

Our goal in managing 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 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 forecast costs and how it will be allocated.

Key elements of the planning framework are

- Levels of service – specifies the services and levels of service to be provided,
- Future demand – how this will impact on future service delivery and how this is to be met,
- Lifecycle management – how to manage its existing and future assets to provide defined levels of service,
- Financial summary – what funds are required to provide the defined services,
- Asset management practices – how we manage provision of the services,

- Monitoring – how the plan will be monitored to ensure objectives are met,
- Asset management improvement plan – how we increase asset management maturity.

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

- International Infrastructure Management Manual 2015 ¹
- ISO 55000²

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¹ Based on IPWEA 2015 IIMM, Sec 2.1.3, p 2 | 13

² ISO 55000 Overview, principles and terminology

3.0 LEVELS OF SERVICE

3.1 Customer Research and Expectations

During the development of the Community Strategic Plan in 2017, a Community Engagement Strategy was prepared and implemented by Council. The main source of engagement and feedback were hardcopy and online surveys, contacting key stakeholders and leaders in each community. Widespread distribution of surveys was available in common locations and advertising was conducted using various media outlets. A total of 52 surveys were received as part of the process.

Respondents were asked to rank in order of priority the services or facilities that were most important to them. The overall five high ranking services and facilities were:

1. Water
2. Youth facilities
3. Road construction and maintenance
4. Provision of aged care facilities
5. Waste management

At the time of the survey the community was experiencing severe drought, hence the importance attributed to water. With a relatively high population of children aged 5- 9 years (7.2%) and youth 10-14 years (7.0%) compared to the Australian average (6.3% and 6.4% respectively), it is not surprising that youth facilities are important. Waste management was the fifth community priority. The community is concerned about how sewage is removed and treated with minimal environmental impact.

3.2 Strategic and Corporate Goals

This Asset Management Plan is prepared under the direction of the Central Darling Shire vision, mission, goals and objectives.

Our vision is:

Central Darling will be a great place to live and visit.

Our mission is:

Realising quality opportunities for all in the Central Darling Shire through:

- *Effective leadership*
- *Community development through involvement, participation, partnership, ownership and collaborative approach*
- *Facilitation of services*
- *Community ownership*
- *Delivery of consistent, affordable and achievable services and facilities.*

Strategic goals have been set by Council and are outlined in the Draft Operational Plan 2020-21.

The relevant goals and objectives and how these are addressed in this Asset Management Plan are summarised in Table 3.1.

Table 3-1: Goals and how these are addressed in this Plan

Goal	Objective	How Goal and Objectives are addressed in AM Plan
Environment A protected and enhanced natural and built environment	Effective Sewerage Management	Development of an asset management plan for sewer assets will assist Council to set aside funding for the maintenance, renewal and upgrade of the sewer network, which will help to ensure the provision of effective Sewerage management into the future.
Civic Leadership A consultative and professional organisation providing a high standard and efficient delivery of service	Effective strategic and business planning processes	This asset management plan is a strategic business planning document which details how Council is going to strive to achieve better management of sewer assets.
	Improved management and delivery of Council services	By describing current and target levels of service for the sewer network, this management plan provides Council with a framework for improvement.

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

3.3 Legislative Requirements

There are many legislative requirements relating to the management of assets. Legislative requirements that impact the delivery of the Stormwater service are outlined in Table 3.2.

Table 3-2: Legislative Requirements

Legislation	Requirement
Local Government Act, 1993	This is the Act that provides for local government in NSW. It provides the legal framework for an effective, environmentally responsible and open system of local government in the State.
Work Health and Safety Act 2011	This Act aims to secure and promote the health, safety and welfare of people at work and to protect people at a place of work against risks to health or safety arising out of the activities at work.
Native Vegetation Act 2003	This act relates to the sustainable management and conservation of native vegetation. It aims to protect native vegetation of high conservation value and encourage revegetation and rehabilitation of land with appropriate vegetation.
Environmental Planning and Assessment Act 1997	This Act institutes a system of environmental planning and assessment in the State of NSW.
Protection of the Environment Operations Act 1997	Protect, restore and enhance the quality of the environment in NSW
Water Act 2000	Provide sustainable and integrated management of water sources in NSW

3.4 Customer Levels of Service

The Customer Levels of Service are considered in terms of:

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?

In Table 3.4 under each of the service measures types (Quality, Function, Capacity/Use) there is a summary of the performance measure being used, the current performance, and the expected performance based on the current funding level.

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

Table 3-3: Customer Level of Service Measures

	Expectation	Performance Measure Used	Current Performance	Expected Position in 10 Years based on the current budget.
Service Objective: Safe and Reliable Sewer Service for the Community				
Quality	Provide an efficient and safe sewerage system	Customer complaints	10 per year 90%	Customer complaints will increase as the rate of failure to infrastructure increases.
	Response to failures	Customer complaints and staff records	Staff attend site within 8hrs and service re-established within 24hrs	Staff response times will decrease as the rate of infrastructure failure increases.
Function	Service provided to all residents in town	Serviced area	95% of residents within town limits receive reliable sewer services	95% of residents within town limits receive reliable sewer services
	Meet standards and requirements as set out in NSW State Government conditions of approval	Compliance with approval conditions	90% compliance (due to sewer surcharge events)	Rate of Sewer surcharge events will increase as the rate of infrastructure failures occur.
	Confidence levels		Medium	Medium
Capacity and Use	Ensure Sewer Infrastructure is operating at maximum efficiency	Customer expectations and demands. Supply interruption due to breakdowns	65 per year (due to house pump breakdowns)	Increasing rate due to house pump breakdowns.
	Equipment and infrastructure of the sewer supply system are maintained and operational at all times.	Pump Stations and Ponds designed to run at optimum capacity	18hrs per day	18hrs per day
	Confidence levels		Medium	Medium

3.5 Technical Levels of Service

Technical Levels of Service – To deliver the customer values, and impact the achieved Customer Levels of Service, are operational or technical measures of performance. These technical measures relate to the activities and allocation of resources to best achieve the desired customer outcomes and demonstrate effective performance.

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

- **Acquisition** – 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).
- **Operation** – 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 provided (e.g. road resurfacing and pavement reconstruction, pipeline replacement and building component replacement),

Service and asset managers plan, implement and control technical service levels to influence the service outcomes.³

Table 3.6 shows the activities expected to be provided under the current Planned Budget allocation, and the Forecast activity requirements being recommended in this AM Plan.

Table 3.6: Technical Levels of Service

Lifecycle Activity	Purpose of Activity	Activity Measure	Current Performance*	Recommended Performance **
TECHNICAL LEVELS OF SERVICE				
Acquisition	Replace and Upgrade the Wilcannia Sewer System	The current pump stations and reticulation network is costing Central Darling Shire Council significant funds in ongoing maintenance and repairs and without an upgrade, has the potential for failure which could result in public health issues for the	Council will continue to replace house pumps within the Wilcannia Pressure Sewerage System as failures occur.	Replacement gravity system not possible without grant funding. \$7,500,000 cost

³ IPWEA, 2015, IIMM, p 2|28.

Lifecycle Activity	Purpose of Activity	Activity Measure	Current Performance*	Recommended Performance **
		community of Wilcannia		
	New Rising Main Mission/ Bridge	Breakages in rising main	\$0	\$90,000
	Lagoon Fencing and Pipework	Security an efficient operation of sewage treatment plant	\$0	\$60,000
		Budget	\$65,000 pa maintenance cost of house pump replacement	\$7,650,000
Operation	Provide a safe and reliable sewer system that meets customer satisfaction	Electrical Costs	Effective pump operation	Effective pump operation
		Budget	\$20,000	\$50,000
Maintenance	Equipment and infrastructure of the sewer system are maintained and operational at all times	Breakdown, blockages, surcharges	Council will continue to replace house pumps within the Wilcannia Pressure Sewerage System as failures occur.	Replacement of all pumps every 4 years
		Budget	\$65,000	\$130,000
Renewal	Ensure Sewer infrastructure is operating at maximum efficiency	Breakdown, blockages, surcharges	Council will continue to renew infrastructure at life expiry	Renewal of infrastructure at optimum time
		Budget	\$60,000	\$93,262

4.0 FUTURE DEMAND

4.1 Demand Drivers

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

4.2 Demand Forecasts

The present position and projections for demand drivers that may impact future service delivery and use of assets have been identified and documented.

4.3 Demand Impact and Demand Management Plan

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

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 4.3. Further opportunities will be developed in future revisions of this Asset Management Plan.

Table 4.3: Demand Management Plan

Demand Driver	Impact on Services	Demand Management Plan
Existing pressure sewer system in Wilcannia is unreliable. Community discontent.	Council is liaising with State Government to obtain funding to replace the pressure sewerage system with a gravity sewerage system, which will lead to increased reliability and will enhance the existing level of service provided.	If funding is obtained, the new gravity sewerage system will be robust and is not vulnerable to a sudden unexpected breakdown. This will enable Council to meet the community demand for a reliable sewer system. This project requires external funding to proceed. Council will pursue all opportunities for grant funding.
Community demand for sewerage services in Ivanhoe, White Cliffs and Menindee, as provided in Wilcannia.	No sewerage systems are maintained by Council in these towns. Council to provide sewerage assets in Ivanhoe, White Cliffs and Menindee. Additional services not previously provided.	Enable Council to manage sewerage effectively and compliantly in all towns. This project requires external funding to proceed. Council will pursue all opportunities for grant funding.

4.4 Climate Change and Adaption

The impacts of climate change can have a significant impact on the assets we manage and the services they provide. In the context of the Asset Management Planning process climate change can be considered as both a future demand and a risk.

How climate change will impact on assets can vary significantly depending on the location and the type of services provided, as will the way in which we respond and manage those impacts.

As a minimum we should consider both how to manage our existing assets given the potential climate change impacts, and then also how to create resilience to climate change in any new works or acquisitions.

Opportunities identified to date for management of climate change impacts on existing assets are shown in Table 4.5.1

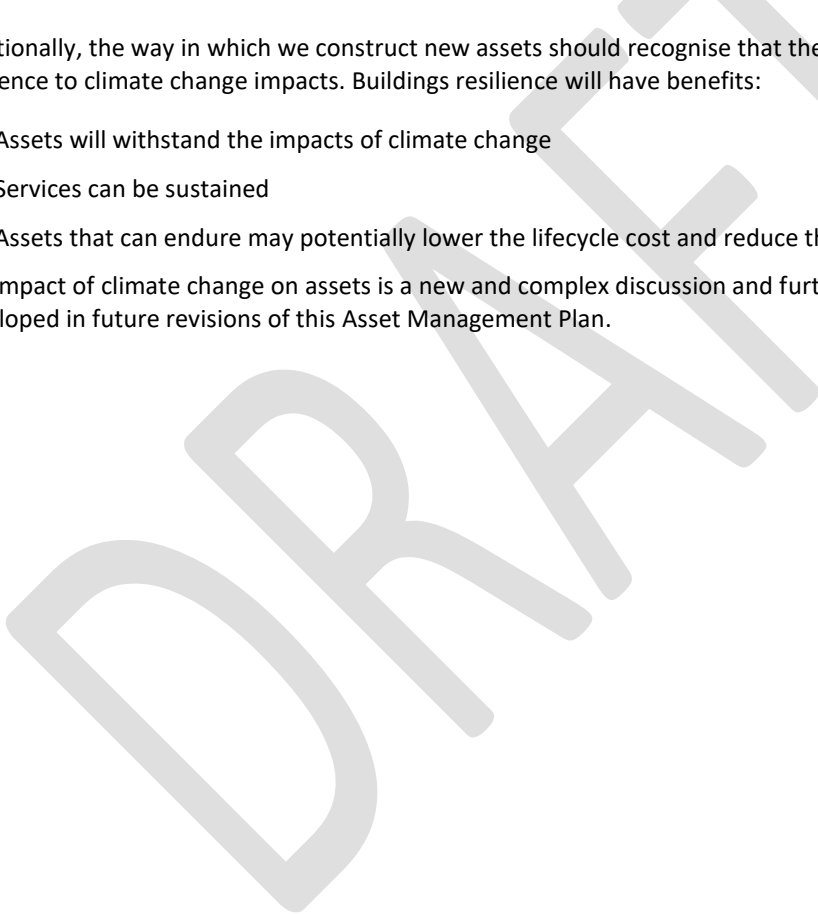
Table 4.5.1 Managing the Impact of Climate Change on Assets

Climate Change Description	Projected Change	Potential Impact on Assets and Services	Management
Global warming	Anticipated that rainfall patterns will change:	Potential for increased flooding of sewerage systems via inflow and infiltration.	Monitor weather trends and act where possible to keep services available
	Anticipated that maximum and minimum temperatures will increase.	Weather could be too dry for sewer system to function effectively.	Plan sewerage services to suit the new climate.

Additionally, the way in which we construct new assets should recognise that there is opportunity to build in resilience to climate change impacts. Buildings resilience will have benefits:

- Assets will withstand the impacts of climate change
- Services can be sustained
- Assets that can endure may potentially lower the lifecycle cost and reduce their carbon footprint

The impact of climate change on assets is a new and complex discussion and further opportunities will be developed in future revisions of this Asset Management Plan.



5.0 LIFECYCLE MANAGEMENT PLAN

The lifecycle management plan details how the Central Darling Shire Council plans to manage and operate the assets at the agreed levels of service (Refer to 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 5.1.1. Central Darling Shire Council provides a sewerage service to the town of Wilcannia only. The towns of Ivanhoe, White Cliffs and Menindee do have onsite septic services that are managed by the property owners

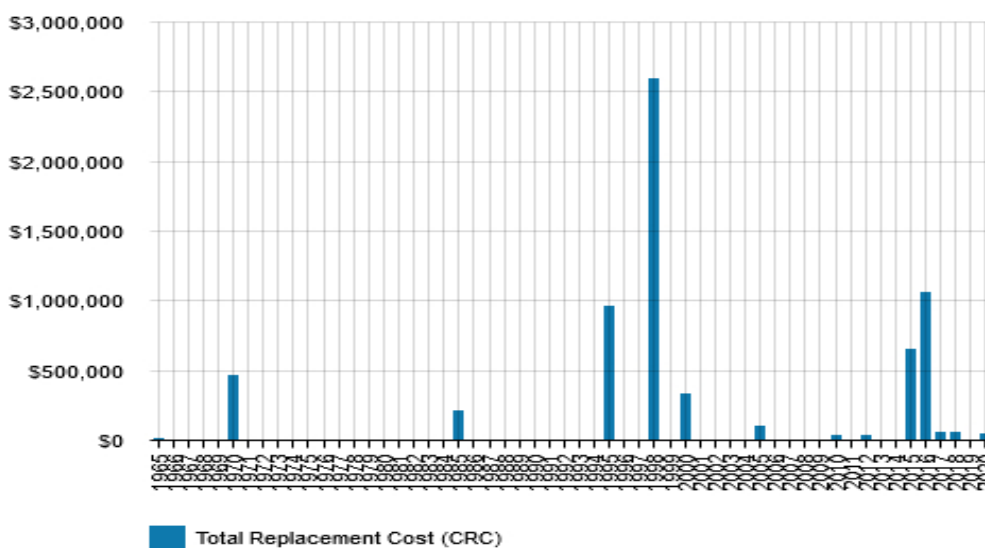
The town of Wilcannia collects sewerage via septic tanks, house pumps, gravity and pressure mains, pump wells and rising mains. The sewerage is transferred to the oxidation ponds for treatment.

The age profile of the assets included in this Asset Management Plan are shown in Figure 5.1.1.

Table 5.1.1: Assets covered by this Plan

Asset Category	Dimension	Replacement Value
Reticulation Pipework	14,252m	1,980,421
Manholes	40no.	327,000
House Pumps	260no.	221,000
Pump Stations	5no.	906,080
Treatment Plants	2no.	3,140,840
Total		6,575,341

Figure 5.1.1: Asset Age Profile



All figure values are shown in current day dollars.

In 2015/ 2016 the discreet Aboriginal communities of “Mallee” and “Waralli Mission” received funding to replace the existing sewer systems with new full gravity systems

The sewerage network provided by Central Darling Shire Council is ageing. A number of assets have exceeded their useful lives and require replacement. For example, the pump stations in Hood St and Martin St, built in 1985, are approaching end of useful life of 30 years. Furthermore, Wilcannia’s low pressure sewerage system has 260 house pumps. These pumps have a life span on average 4 years. On average 50 are renewed each year at a cost of \$60,000. Investigations are underway to replace the low pressure system with a gravity system.

5.1.2 Asset capacity and performance

Assets are generally provided to meet design standards where these are available. However, there is insufficient resources to address all known deficiencies. 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
Menindee	Whilst Council is not the Water Authority here, investigations should be made into feasibility of a sewerage system to collect and treat sewerage off site. Existing risk of contamination of Darling River and alluvial water sources.
Ivanhoe	Investigate feasibility of sewerage system in Ivanhoe
White Cliffs	Investigate feasibility of sewerage system in White Cliffs
Wilcannia	The Wilcannia sewerage system cannot guarantee that no Environmental harm will occur on a continuous basis. The current pump stations and reticulation network is costing Central Darling Shire Council significant funds in ongoing maintenance and repairs and without an upgrade, has the potential for failure which could result in public health issues for the community of Wilcannia.

The above service deficiencies were identified from Community Strategic Plan, DCSC staff condition assessments of all pump stations and Retic Assets, Council staff experience and Integrated Water Management Plan.

5.1.3 Asset condition

Condition is monitored annually by Council staff and by professional asset valuers every 4 years. Additional asset condition assessments have recently been completed by Engineering staff.

Condition is measured using a 1 – 5 grading system⁴ as detailed in Table 5.1.3. It is important that consistent condition grades be used in reporting various assets across an organisation. This supports effective communication. At the detailed level assets may be measured utilising different condition scales, however, for reporting in the AM plan they are all translated to the 1 – 5 grading scale.

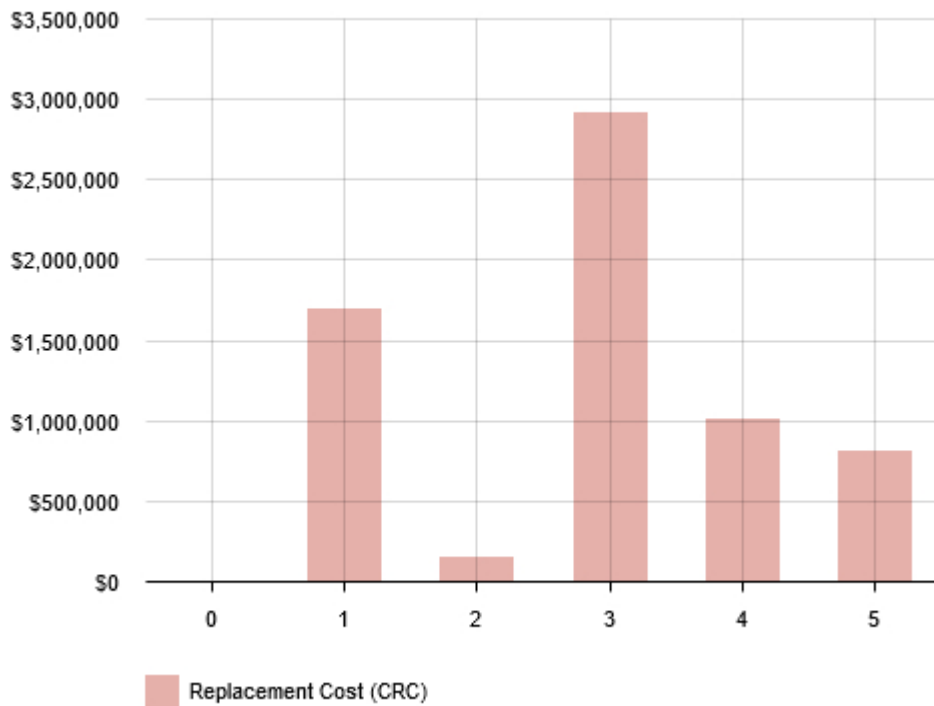
⁴ IPWEA, 2015, IIMM, Sec 2.5.4, p 2|80.

Table 5.1.3: Simple Condition Grading Model

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

The condition profile of our assets is shown in Figure 5.1.3.

Figure 5.1.3: Asset Condition Profile



The majority of assets in condition rating 5 are pump stations and related components. Funding is being sought for the renewal of the majority of assets in condition rating 3,4 and 5 via full gravity sewer upgrade.

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.

The trend in maintenance budgets are shown in Table 5.2.1.

Table 5.2.1: Maintenance Budget Trends

Year	Maintenance Budget \$
2019/20	\$65,000
2020/21	\$65,000
2021/22	\$65,000

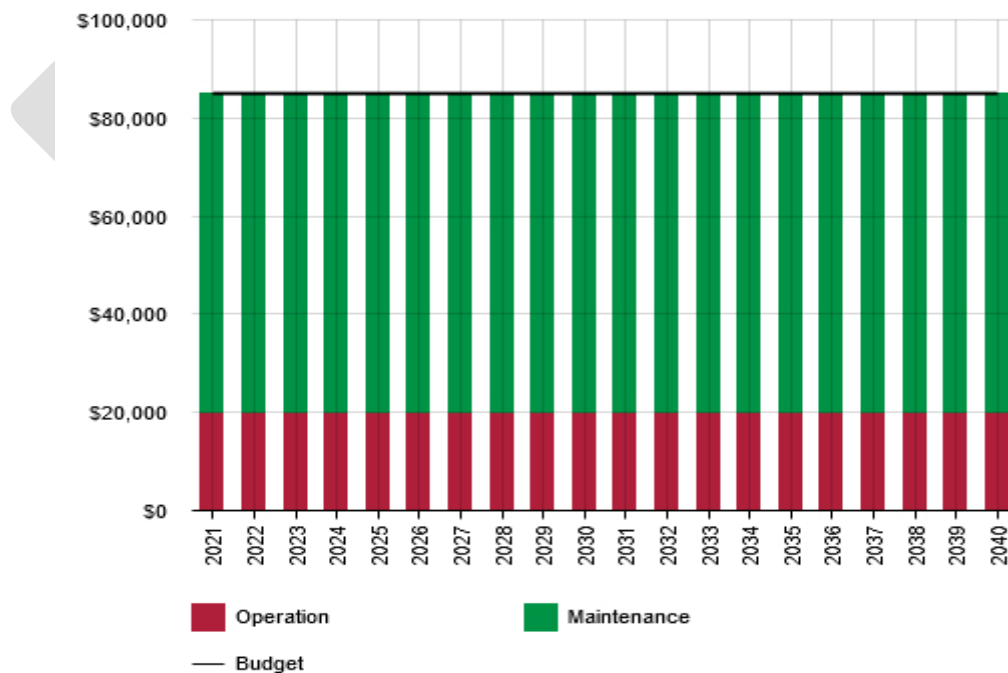
Maintenance budget levels are considered to be adequate to meet projected service levels, which may be less than or equal to current service levels. Where maintenance budget allocations are such that they will result in a lesser level of service, the service consequences and service risks have been identified and are highlighted in this AM Plan and service risks considered in the Infrastructure Risk Management Plan.

Assessment and priority of reactive maintenance is undertaken by staff using experience and judgement.

Summary of forecast operations and maintenance costs

Forecast operations and maintenance costs are expected to vary in relation to the total value of the asset stock. If additional assets are acquired, the future operations and maintenance costs are forecast to increase. If assets are disposed of the forecast operation and maintenance costs are expected to decrease. Figure 5.2 shows the forecast operations and maintenance costs relative to the proposed operations and maintenance Planned Budget.

Figure 5.2: Operations and Maintenance Summary



All figure values are shown in current day dollars.

Council undertakes routine maintenance activities to provide a level of service within allocated budget constraints in the most cost-effective manner. Reactive maintenance resulting from asset failures can, sometimes, exceed allocated budget constraints.

Deferred maintenance (i.e. works that are identified for maintenance activities but unable to be completed due to available resources) should be included in the infrastructure risk management plan.

5.3 Renewal Plan

Renewal is major capital work which does not significantly alter the original service provided by the asset, 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 acquisition resulting in additional future operations and maintenance costs.

Assets requiring renewal are identified from the Asset Register data to project the renewal costs (current replacement cost) and renewal timing (acquisition year plus updated useful life to determine the renewal year), and recorded failures.

Regular failures are observed in the house pumps of Wilcannia’s low pressure sewerage system. These pumps have a life span on average 4 years. On average 50 are renewed each year at a cost of \$60,000. Investigations are underway to replace the low pressure system with a gravity system.

The typical useful lives of assets used to develop projected asset renewal forecasts are shown in Table 5.3. Asset useful lives were last reviewed in December 2020.

Table 5.3: Useful Lives of Assets

Asset (Sub)Category	Useful life
Gravity Main	80
Gravity Main Manholes	60
House pumps	4
Pressure Sewer	60
Rising Main	80
SPS Electrical	15
SPS Pipework	30
SPS Pumps	10
SPS Wet well civil works	30
WWTP Lagoon Civil Works	150
WWTP Lagoon Lining	100
WWTP Lagoon Pipework	40
WWTP Lagoon Perimeter Fencing	30

The estimates for renewals in this Asset Management Plan were based on the asset register or an alternate Method.

5.3.1 Renewal ranking criteria

Asset renewal 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 bridge that has a 5 t load limit), or
- To ensure the infrastructure is of sufficient quality to meet the service requirements (e.g. condition of a playground).⁵

It is possible to prioritise renewals by identifying assets or asset groups that:

- Have a high consequence of failure,
- Have high use and subsequent impact on users would be significant,
- Have higher than expected operational or maintenance costs, and
- Have potential to reduce life cycle costs by replacement with a modern equivalent asset that would provide the equivalent service.⁶

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

Table 5.3.1: Renewal Priority Ranking Criteria

Criteria	Weighting
Criticality	40%
Condition	40%
Asset Age	10%
Cost Benefit	10%
Total	100%

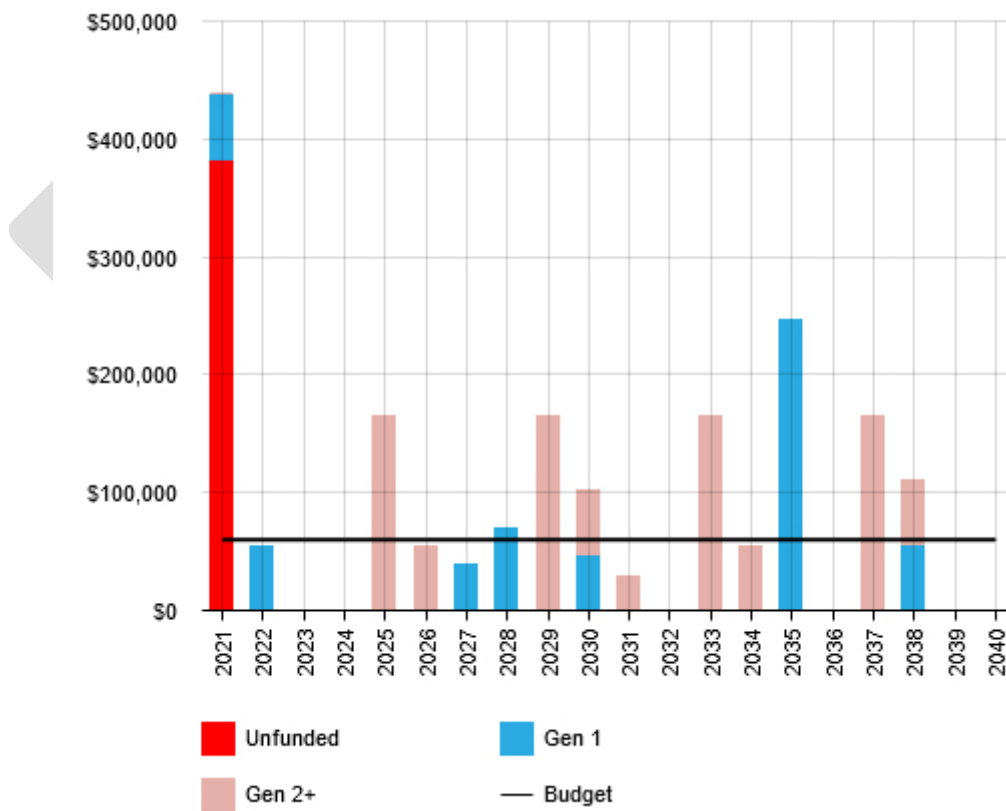
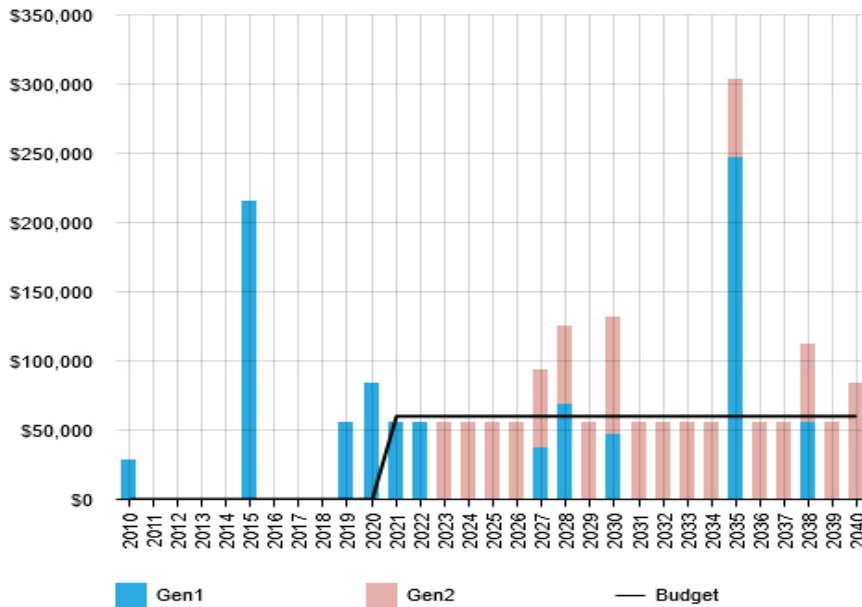
5.4 Summary of future renewal costs

Forecast renewal costs are projected to increase over time if the asset stock increases. The forecast costs associated with renewals are shown relative to the proposed renewal budget in Figure 5.4.1. A detailed summary of the forecast renewal costs is shown in Appendix D.

⁵ IPWEA, 2015, IIMM, Sec 3.4.4, p 3|91.

⁶ Based on IPWEA, 2015, IIMM, Sec 3.4.5, p 3|97.

Figure 5.4.1: Forecast Renewal Costs



All figure values are shown in current day dollars.

There is a significant backlog associated with pump stations and house pumps in Wilcannia. At the time of writing, discussions are underway with state government representatives to assess the viability of replacing this system with a gravity system.

5.5 Acquisition Plan

Acquisition reflects are new assets that did not previously exist or works which will upgrade or improve an existing asset beyond its existing capacity. They may result from growth, demand, social or environmental needs. Assets may also be donated to the Central Darling Shire Council.

5.5.1 Selection criteria

Proposed upgrade of existing assets, and new assets, are identified from various sources such as community requests, proposals identified by strategic plans or partnerships with others. Potential upgrade and new works should be reviewed to verify that they are essential to the Entities needs. Proposed upgrade and new work analysis should also include the development of a preliminary renewal estimate to ensure that the services are sustainable over the longer term. Verified proposals can then be ranked by priority and available funds and scheduled in future works programmes. The priority ranking criteria is detailed in Table 5.4.1.

Table 5.5.1: Acquired Assets Priority Ranking Criteria

Criteria	Weighting
Criticality	40%
Condition	40%
Asset Age	10%
Cost Benefit	10%
Total	100%

Summary of future asset acquisition costs

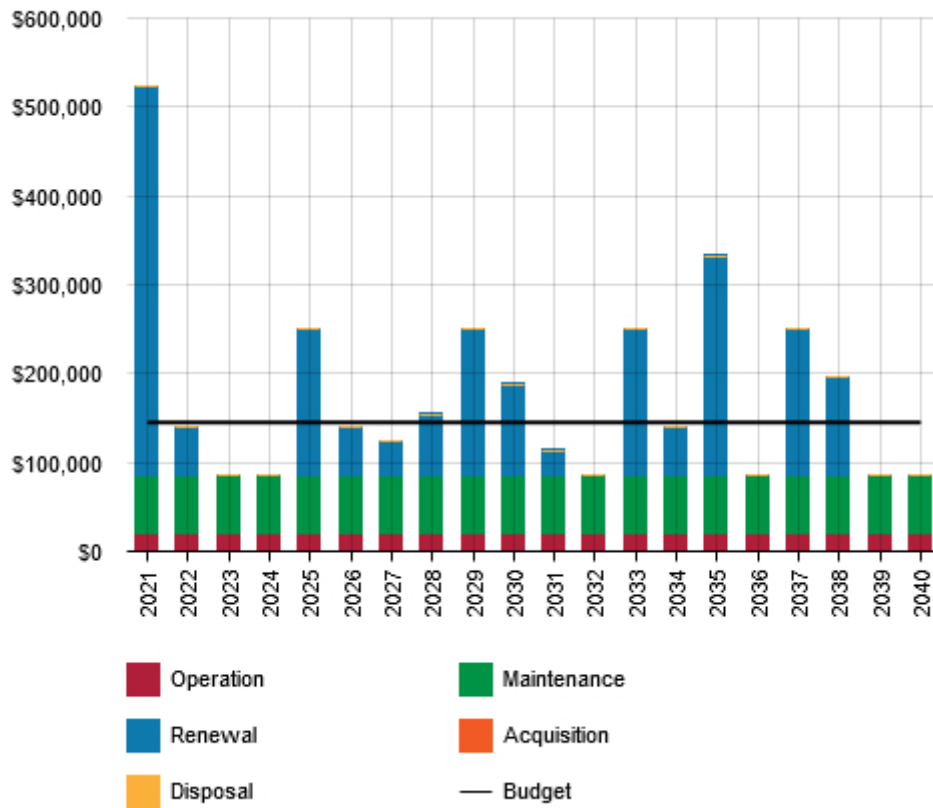
No acquisitions are currently planned.

Summary of asset forecast costs

The financial projections from this asset plan are shown in Figure 5.4.3. These projections include forecast costs for acquisition, operation, maintenance, renewal, and disposal. These forecast costs are shown relative to the proposed budget.

The bars in the graphs represent the forecast costs needed to minimise the life cycle costs associated with the service provision. The proposed budget line indicates the estimate of available funding. The gap between the forecast work and the proposed budget is the basis of the discussion on achieving balance between costs, levels of service and risk to achieve the best value outcome.

Figure 5.5.3: Lifecycle Summary



All figure values are shown in current day dollars.

5.6 Disposal Plan

Disposal includes any activity associated with the disposal of a decommissioned asset including sale, demolition or relocation. Assets identified for possible decommissioning and disposal are shown in Table 5.6. A summary of the disposal costs and estimated reductions in annual operations and maintenance of disposing of the assets are also outlined in Table 5.6. Any costs or revenue gained from asset disposals is included in the long-term financial plan.

Table 5.6: Assets Identified for Disposal

Asset	Reason for Disposal	Timing	Disposal Costs	Operations & Maintenance Annual Savings
Nil				

6.0 RISK MANAGEMENT PLANNING

The purpose of infrastructure risk management is to document the findings 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 31000:2018 Risk management – Principles and guidelines.

Risk Management is defined in ISO 31000:2018 as: ‘coordinated activities to direct and control with regard to risk’⁷.

An assessment of risks⁸ associated with service delivery will identify risks that will result in loss or reduction in service, personal injury, environmental impacts, a ‘financial shock’, reputational impacts, or other consequences. The risk assessment process identifies credible risks, the likelihood of the risk event occurring, and the consequences should the event occur. The risk assessment should also include the development of a risk rating, evaluation of the risks and development of a risk treatment plan for those risks that are deemed to be non-acceptable.

6.1 Critical Assets

Critical assets are defined as those which have a high consequence of failure causing significant loss or reduction of service. Critical assets have been identified and along with their typical failure mode, and the impact on service delivery, are summarised in Table 6.1. Failure modes may include physical failure, collapse or essential service interruption.

The Wilcannia sewerage system cannot guarantee that no environmental harm will occur on a continuous basis. The current pump stations and reticulation network is costing Central Darling Shire Council significant funds in ongoing maintenance and repairs and without an upgrade, has the potential for failure which could result in public health issues for the community of Wilcannia .

Table 6.1 Critical Assets

Critical Asset(s)	Failure Mode	Impact
Pump Stations	Mechanical and/or electrical failure of pump stations	Sewer surcharge, contamination of natural environment and loss of service. Possible fine from EPA. Council image and reputation damaged. Public safety at risk
Pump Stations	Structural and/or civil failure of pump stations	Sewer surcharge, contamination of natural environment and loss of service. Possible fine from EPA. Council image and reputation damaged. Public safety at risk

⁷ ISO 31000:2009, p 2

⁸ REPLACE with Reference to the Corporate or Infrastructure Risk Management Plan as the footnote

Critical Asset(s)	Failure Mode	Impact
Treatment Ponds	Ponds reach capacity and overflow	Sewer surcharge, contamination of natural environment Possible fine from EPA. Council image and reputation damaged.
House pumps	Pump failures	Local sewer surcharge on property, loss of individual service. Public safety. Minor Environmental harm
Reticulation	Sewer rising main or retic break	Sewer surcharge, contamination of natural environment and loss of service. Council image and reputation damaged. Public safety at risk

By identifying critical assets and failure modes an organisation can ensure that investigative activities, condition inspection programs, maintenance and capital expenditure plans are targeted at critical assets.

6.2 Risk Assessment

The risk management process used 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 International Standard ISO 31000:2018.

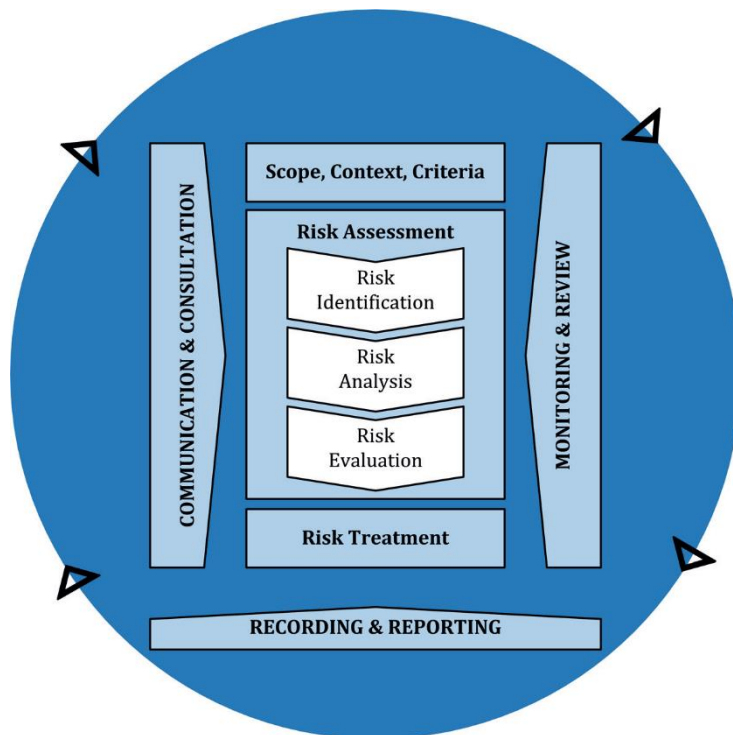


Fig 6.2 Risk Management Process – Abridged
 Source: ISO 31000:2018, Figure 1, p9

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

An assessment of risks associated with service delivery will identify risks that will result in loss or reduction in service, personal injury, environmental impacts, a ‘financial shock’, reputational impacts, or other consequences.

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 costs of implementing the selected treatment plan is shown in Table 6.2. It is essential that these critical risks and costs are reported to management and the Administrator/ Councillors.

Table 6.2: Risks and Treatment Plans

Service or Asset at Risk	What can Happen	Risk Rating (VH, H)	Risk Treatment Plan	Residual Risk *	Treatment Costs
Sewer	Pump Station Failure	VH	Replace Pump Stations and upgrade with new. Build in capacity for overflow events and monitor use and breakdown with telemetry and alerts.	L-M	\$500,000
Sewer	Treatment Ponds reach capacity and overflow	H	Replace old ponds pipework, desludge lagoons to create more capacity for wet weather and high usage times.	L-M	\$28,000
Sewer	House pump failures	H	Replace one quarter of pumps annually	M-H	\$130,000
Sewer	Rising Main and/or Reticulation failure	H	Replace existing STEP system with new gravity sewer system	L-M	\$7,500,000

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

6.3 Infrastructure Resilience Approach

The resilience of our critical infrastructure is vital to the ongoing provision of services to customers. To adapt to changing conditions we need to understand our capacity to 'withstand a given level of stress or demand', 1 and to respond to possible disruptions to ensure continuity of service.

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

Our current measure of resilience is shown in Table 6.3 which includes the type of threats and hazards and the current measures that the organisation takes to ensure service delivery resilience.

Table 6.3: Resilience

Threat / Hazard	Current Resilience Approach
Pump Station failure	When pump stations fail staff need to attend within 1hr to stop a surcharge event. Telemetry monitoring and phone alerts alert staff to pump malfunction and swift action is required
Surcharge event	In the event surcharge occurs, environmental controls need to be installed ASAP to reduce impact to the environment. Procedures and protocols developed and staff trained in use.
Electrical fault	No Electricians are available less than 200km away. In the event of electrical malfunction install bypass pumps and generators. Develop procedures for installation and monitoring.

6.4 Service and Risk Trade-Offs

The decisions made in adopting this AM Plan 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/ Upgrade of the Wilcannia Sewerage System
- Replacement/ Upgrade of the 2 main pump stations
- Replace all reticulation pipes with new

6.4.2 Service trade-off

If there is forecast work (operations, maintenance, renewal, acquisition or disposal) that cannot be undertaken due to available resources, then this will result in service consequences for users. These service consequences include:

- disruption to sewer system and possible surcharge events
- rising main breaks and reticulation breaks, disruption to service.

6.4.3 Risk trade-off

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

- Risk to community health
- Risk of sewer surcharge
- Risk of environmental impact
- Risk of detrimental public image and reputation

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

7.0 FINANCIAL SUMMARY

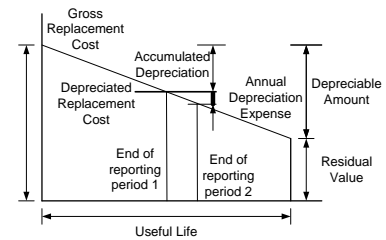
This section contains the financial requirements resulting from the information presented in the previous sections of this Asset Management Plan. The financial projections will be improved as the discussion on desired levels of service and asset performance matures.

7.1 Financial Statements and Projections

7.1.1 Asset valuations

The best available estimate of the value of assets included in this AM Plan are shown below. The assets are valued at 30 June 2020.

Replacement Cost (Current/Gross)	\$6,575,341
Depreciable Amount	\$6,575,341
Depreciated Replacement Cost ⁹	\$4,688,313
Depreciation	\$152,378



7.1.2 Sustainability of service delivery

There are two key indicators of sustainable service delivery that are considered in the Asset Management Plan for this service area. The two indicators are the:

- asset renewal funding ratio (proposed renewal budget for the next 10 years / forecast renewal costs for next 10 years), and
- medium term forecast costs/proposed budget (over 10 years of the planning period).

Asset Renewal Funding Ratio

Asset Renewal Funding Ratio¹⁰ 54.99%

The Asset Renewal Funding Ratio is an important indicator and illustrates that over the next 10 years we expect to have 54.99% of the funds required for the optimal renewal of assets.

The forecast renewal work along with the proposed renewal budget, and the cumulative shortfall, is illustrated in Appendix D.

Medium term – 10 year financial planning period

This AM Plan identifies the forecast operations, maintenance and renewal costs 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.

This forecast work can be compared to the proposed budget over the first 10 years of the planning period to identify any funding shortfall.

The forecast operations, maintenance and renewal costs over the 10 year planning period is \$194,110 average per year.

The proposed (budget) operations, maintenance and renewal funding is \$145,000 on average per year giving a 10 year funding shortfall of \$49,110 per year. This indicates that 74.7% of the forecast costs needed to provide the services documented in this AM Plan are accommodated in the proposed budget. Note, these calculations exclude acquired assets.

⁹ Also reported as Written Down Value, Carrying or Net Book Value.

¹⁰ AIFMM, 2015, Version 1.0, Financial Sustainability Indicator 3, Sec 2.6, p 9.

Providing sustainable services from infrastructure requires the management of service levels, risks, forecast outlays and financing to achieve a financial indicator of approximately 1.0 for the first years of the AM Plan and ideally over the 10 year life of the Long-Term Financial Plan.

7.1.3 Forecast Costs (outlays) for the long-term financial plan

Table 7.1.3 shows the forecast costs (outlays) for the 10 year long-term financial plan.

Forecast costs are shown in 2021 dollar values.

Table 7.1.3: Forecast Costs (Outlays) for the Long-Term Financial Plan

Year	Acquisition	Operation	Maintenance	Renewal	Disposal
2021	0	20,000	65,000	438,007	0
2022	0	20,000	65,000	55,250	0
2023	0	20,000	65,000	0	0
2024	0	20,000	65,000	0	0
2025	0	20,000	65,000	165,750	0
2026	0	20,000	65,000	55,250	0
2027	0	20,000	65,000	38,400	0
2028	0	20,000	65,000	69,440	0
2029	0	20,000	65,000	165,750	0
2030	0	20,000	65,000	103,250	0
2031	0	20,000	65,000	28,800	0
2032	0	20,000	65,000	0	0
2033	0	20,000	65,000	165,750	0
2034	0	20,000	65,000	55,250	0
2035	0	20,000	65,000	247,360	0
2036	0	20,000	65,000	0	0
2037	0	20,000	65,000	165,750	0
2038	0	20,000	65,000	111,250	0
2039	0	20,000	65,000	0	0
2040	0	20,000	65,000	0	0

7.2 Funding Strategy

The proposed funding for assets is outlined in the Entity's 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 various service alternatives.

7.3 Key Assumptions Made in Financial Forecasts

In compiling this Asset Management Plan, it was necessary to make some assumptions. This section details the key assumptions made in the development of this AM plan and should provide readers with an understanding of the level of confidence in the data behind the financial forecasts.

Key assumptions made in this Asset Management Plan are:

- Asset registers are based on 2018 information, and have been updated to reflect renewals undertaken since this time.

- Budget information is based on an average of costs to undertake renewals and maintenance, noting the very short life span of pumps in the Wilcannia low pressure system

7.4 Forecast Reliability and Confidence

The forecast costs, proposed budgets, and valuation projections in this AM Plan are based on the best available data. For effective asset and financial management, it is critical that the information is current and accurate. Data confidence is classified on a A - E level scale¹¹ in accordance with Table 7.5.1.

Table 7.5.1: 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.

The estimated confidence level for and reliability of data used in this AM Plan is shown in Table 7.5.2.

Table 7.5.2: Data Confidence Assessment for Data used in AM Plan

Data	Confidence Assessment	Comment
Demand drivers	C	
Growth projections	B	
Acquisition forecast	C	Acquisition forecasts are dependent upon the availability of grant funding
Operation forecast	C	Operational costs are not clearly defined
Maintenance forecast	B	
Renewal forecast		
- Asset values	B	
- Asset useful lives	B	Asset useful lives reflect a realistic assessment of known condition
- Condition modelling	B	
Disposal forecast	B	

The estimated confidence level for and reliability of data used in this AM Plan is considered to be B.

¹¹ IPWEA, 2015, IIMM, Table 2.4.6, p 2|71.

8.0 PLAN IMPROVEMENT AND MONITORING

8.1 Status of Asset Management Practices¹²

8.1.1 Accounting and financial data sources

This Asset Management Plan utilises accounting and financial data. The source of the data is 2021 budgetary information prepared in April 2020.

8.1.2 Asset management data sources

This Asset Management Plan also utilises asset management data. The source of the data is The source of the data is the 2018 asset register, and condition assessment information prepared in 2017.

8.2 Improvement Plan

It is important that an entity recognise areas of their Asset Management Plan and planning process that require future improvements to ensure effective asset management and informed decision making. The improvement plan generated from this Asset Management Plan is shown in Table 8.2.

Table 8.2: Improvement Plan

Task	Task	Responsibility	Resources Required	Timeline
Improvement Actions Identified during the 2021 Asset Management Maturity Assessment				
1	Develop a consolidated, integrated, up to date asset register with appropriate components and the required functionality to ensure security and data integrity, which includes all information about each asset sorted by asset group.	Director Shire Services	CDSC Staff	
2	Define and document internal procedures for determining asset replacement and treatment unit rates, not dependent on third parties. Unit rates to be determined by Council to suit local conditions.	Director Shire Services	CDSC Staff	
3	Document methodologies used to carry out consistent asset condition surveys and defect identification assessments, in a Condition Rating Assessment Manual, for each asset class. Asset condition assessment should not be limited to the small sample of assets inspected by the third parties every four years for accounting compliance purposes.	Director Shire Services	CDSC Staff	
Outstanding Improvement Actions identified in the 2018 Sewerage Asset Management Plan				
4	Audit the WasteWater Assets register and breakdown the large assets into individual components	DSS	staff, consultant	
5	Update the asset register and add any unregistered assets such as valves and fittings	DSS	Staff, consultant	
6	Inspect and assess the condition of the wastewater assets in order to estimate the	DSS	Staff, consultant	

¹² ISO 55000 Refers to this the Asset Management System

	remaining useful life and reassess the useful life of assets			
7	Establish a reporting system to update the asset register with feedback from the field including new assets, replaced assets, renewed assets etc.	DSS, DBS	Staff, IT	
8	Separate wastewater related job costs. Maintenance job costs should be split into reactive, planned and cyclic. Capital job costs into: renewal, upgrade and new.	DSS, DBS, Senior Accountant	Civica guidance	
9	Undertake a customer satisfaction survey and consult with the community to identify the desired levels of service.	DSS, GM	Administration, possibly consultant	
10	Install all Asset data on AssetFinda and dedicate staff to its continued use, monitoring and upkeep.	DSS, DBS	staff	

8.3 Monitoring and Review Procedures

This Asset Management Plan will be reviewed during the annual budget planning process and revised to show any material changes in service levels, risks, forecast costs and proposed budgets as a result of budget decisions.

The AM Plan will be reviewed and updated annually to ensure it represents the current service level, asset values, forecast operations, maintenance, renewals, upgrade/new and asset disposal costs and proposed budgets. These forecast costs and proposed budget are incorporated into the Long-Term Financial Plan or will be incorporated into the Long-Term Financial Plan once completed.

The AM Plan has a maximum life of 4 years and is due for complete revision and updating within 2 years of each Council election..

8.4 Performance Measures

The effectiveness of this Asset Management Plan can be measured in the following ways:

- The degree to which the required forecast costs identified in this Asset Management Plan are incorporated into the long-term financial plan,
- The degree to which the 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, risks and residual risks are incorporated into the Strategic Plan and associated plans,
- The Asset Renewal Funding Ratio achieving the Organisational target (this target is often 1.0).

9.0 REFERENCES

- IPWEA, 2006, 'International Infrastructure Management Manual', Institute of Public Works Engineering Australasia, Sydney, www.ipwea.org/IIMM
- IPWEA, 2008, 'NAMS.PLUS Asset Management', Institute of Public Works Engineering Australasia, Sydney, www.ipwea.org/namsplus.
- IPWEA, 2015, 2nd edn., 'Australian Infrastructure Financial Management Manual', Institute of Public Works Engineering Australasia, Sydney, www.ipwea.org/AIFMM.
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- IPWEA, 2012 LTFP Practice Note 6 PN Long-Term Financial Plan, Institute of Public Works Engineering Australasia, Sydney
- ISO, 2018, ISO 31000:2018, Risk management – Guidelines
- Central Darling Shire Community Strategic Plan 2017-2023
- Central Darling Shire Delivery Program 2018-21 and Draft Operational Plan 2020-21

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10.0 APPENDICES

Appendix A Acquisition Forecast

No acquisitions are planned.

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Appendix B Operation Forecast

Table B2 - Operation Forecast Summary

Year	Operation Forecast
2021	20000
2022	20000
2023	20000
2024	20000
2025	20000
2026	20000
2027	20000
2028	20000
2029	20000
2030	20000
2031	20000
2032	20000
2033	20000
2034	20000
2035	20000
2036	20000
2037	20000
2038	20000
2039	20000
2040	20000

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Appendix C Maintenance Forecast

Table C2 - Maintenance Forecast Summary

Year	Maintenance Forecast
2021	65000
2022	65000
2023	65000
2024	65000
2025	65000
2026	65000
2027	65000
2028	65000
2029	65000
2030	65000
2031	65000
2032	65000
2033	65000
2034	65000
2035	65000
2036	65000
2037	65000
2038	65000
2039	65000
2040	65000

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Appendix D Renewal Forecast Summary

Table D3 - Renewal Forecast Summary

Year	Renewal Forecast	Renewal Budget
2021	438007	60000
2022	55250	60000
2023	0	60000
2024	0	60000
2025	165750	60000
2026	55250	60000
2027	38400	60000
2028	69440	60000
2029	165750	60000
2030	103250	60000
2031	28800	60000
2032	0	60000
2033	165750	60000
2034	55250	60000
2035	247360	60000
2036	0	60000
2037	165750	60000
2038	111250	60000
2039	0	60000
2040	0	60000

Renewal Plan

Detail output from NAMS+ Report for the Register Method

Asset ID	Category	Asset Name	Asset Type	Remaining Life	Register Renewal Year	Renewal Cost	Useful Life
10230	Biological Treatment	Wilcannia Town "Old" WWTP	Lagoon	-11	2010	28,000,00	40
10005	Pump Station	SPS 1 Hood Street	Electrical	-6	2015	4,800,00	15
10010	Pump Station	SPS 1 Hood Street	Electrical	-6	2015	13,440,00	15
10020	Pump Station	SPS 1 Hood Street	Pipework	-6	2015	6,400,00	30
10025	Pump Station	SPS 1 Hood Street	Pipework	-6	2015	16,000,00	30
10035	Pump Station	SPS 1 Hood Street	Wet Well	-6	2015	70,400,00	30
10040	Pump Station	SPS 1 Hood Street	Wet Well	-6	2015	9,600,00	30
10045	Pump Station	SPS 2 Martin St	Electrical	-6	2015	8,000,00	15
10050	Pump Station	SPS 2 Martin St	Electrical	-6	2015	13,440,00	15
10060	Pump Station	SPS 2 Martin St	Pipework	-6	2015	7,200,00	30
10065	Pump Station	SPS 2 Martin St	Pipework	-6	2015	16,000,00	30
10075	Pump Station	SPS 2 Martin St	Wet Well	-6	2015	70,400,00	30
10080	Pump Station	SPS 2 Martin St	Wet Well	-6	2015	9,600,00	30

Asset ID	Category	Asset Name	Asset Type	Remaining Life	Register Renewal Year	Renewal Cost	Useful Life
10280	Reticulation	Rising Main	50mm Gal Reticulation Mains	-6	2015	9,857,00	50
10295	Reticulation	House pumps	Pumps	-2	2019	55,250,00	4
10300	Reticulation	House pumps	Pumps	-1	2020	55,250,00	4
10070	Pump Station	SPS 2 Martin St	Pumps	-1	2020	14,400,00	10
10030	Pump Station	SPS 1 Hood Street	Pumps	-1	2020	14,400,00	10
10305	Reticulation	House pumps	Pumps	0	2021	55,250,00	4
10310	Reticulation	House pumps	Pumps	1	2022	55,250,00	4
10305	Reticulation	House pumps	Pumps			55,250,00	4
10300	Reticulation	House pumps	Pumps			55,250,00	4
10295	Reticulation	House pumps	Pumps			55,250,00	4
10310	Reticulation	House pumps	Pumps			55,250,00	4
10015	Pump Station	SPS 1 Hood Street	Electrical	6	2027	19,200,00	15
10055	Pump Station	SPS 2 Martin St	Electrical	6	2027	19,200,00	15
10235	Biological Treatment	Wilcannia Town "Old" WWTP	Perimeter Fencing	7	2028	69,440,00	30
10295	Reticulation	House pumps	Pumps			55,250,00	4
10300	Reticulation	House pumps	Pumps			55,250,00	4
10305	Reticulation	House pumps	Pumps			55,250,00	4
10310	Reticulation	House pumps	Pumps			55,250,00	4
10150	Pump Station	SPS 6 Barkinji Drv West	Pumps	9	2030	14,400,00	15
10190	Pump Station	SPS 7 Barkinji Drv East	Pumps	9	2030	14,400,00	15
10120	Pump Station	SPS 5 Warrali Ave	Wet Well	9	2030	19,200,00	15
10070	Pump Station	SPS 2 Martin St	Pumps			14,400,00	10
10030	Pump Station	SPS 1 Hood Street	Pumps			14,400,00	10
10300	Reticulation	House pumps	Pumps			55,250,00	4
10295	Reticulation	House pumps	Pumps			55,250,00	4
10305	Reticulation	House pumps	Pumps			55,250,00	4
10310	Reticulation	House pumps	Pumps			55,250,00	4
10175	Pump Station	SPS 7 Barkinji Drv East	Electrical	14	2035	19,200,00	20
10185	Pump Station	SPS 7 Barkinji Drv East	Pipework	14	2035	24,000,00	20
10220	Biological Treatment	Wilcannia Town "New" WWTP	Perimeter Fencing	14	2035	94,080,00	30
10160	Pump Station	SPS 6 Barkinji Drv West	Wet Well	14	2035	19,200,00	20
10085	Pump Station	SPS 5 Warrali Ave	Electrical	14	2035	8,000,00	20
10135	Pump Station	SPS 6 Barkinji Drv West	Electrical	14	2035	19,200,00	20
10105	Pump Station	SPS 5 Warrali Ave	Pipework	14	2035	24,000,00	20
10010	Pump Station	SPS 1 Hood Street	Electrical			13,440,00	15
10005	Pump Station	SPS 1 Hood Street	Electrical			4,800,00	15
10050	Pump Station	SPS 2 Martin St	Electrical			13,440,00	15

Asset ID	Category	Asset Name	Asset Type	Remaining Life	Register Renewal Year	Renewal Cost	Useful Life
10045	Pump Station	SPS 2 Martin St	Electrical			8,000,00	15
10295	Reticulation	House pumps	Pumps			55,250,00	4
10300	Reticulation	House pumps	Pumps			55,250,00	4
10305	Reticulation	House pumps	Pumps			55,250,00	4
10310	Reticulation	House pumps	Pumps			55,250,00	4
10215	Biological Treatment	Wilcannia Town "New" WWTP	Lagoon	17	2038	56,000,00	40
10165	Pump Station	SPS 7 Barkinji Drv East	Electrical	24	2045	8,000,00	30
10170	Pump Station	SPS 7 Barkinji Drv East	Electrical	24	2045	44,800,00	30
10195	Pump Station	SPS 7 Barkinji Drv East	Wet Well	24	2045	38,400,00	30
10200	Pump Station	SPS 7 Barkinji Drv East	Wet Well	24	2045	19,200,00	30
10110	Pump Station	SPS 5 Warrali Ave	Pumps	24	2045	7,200,00	30
10115	Pump Station	SPS 5 Warrali Ave	Wet Well	24	2045	38,400,00	30
10095	Pump Station	SPS 5 Warrali Ave	Electrical	24	2045	19,200,00	30
10140	Pump Station	SPS 6 Barkinji Drv West	Pipework	24	2045	12,000,00	30
10125	Pump Station	SPS 6 Barkinji Drv West	Electrical	24	2045	8,000,00	30
10145	Pump Station	SPS 6 Barkinji Drv West	Pipework	34	2055	24,000,00	40
10100	Pump Station	SPS 5 Warrali Ave	Pipework	34	2055	12,000,00	40
10270	Reticulation	Pressure Sewer	75MM UPVC Reticulation Mains	34	2055	277,761,00	60
10275	Reticulation	Pressure Sewer	50mm UPVC Reticulation Mains	34	2055	680,767,00	60
10180	Pump Station	SPS 7 Barkinji Drv East	Pipework	34	2055	12,000,00	40
10155	Pump Station	SPS 6 Barkinji Drv West	Wet Well	54	2075	99,200,00	60
10130	Pump Station	SPS 6 Barkinji Drv West	Electrical	54	2075	44,800,00	60
10090	Pump Station	SPS 5 Warrali Ave	Electrical	54	2075	44,800,00	60
10285	Reticulation	Gravity Main Manholes	Manholes 0.5m to 1.5m	55	2076	132,300,00	60
10290	Reticulation	Gravity Main Manholes	Manholes 1.5m to 3.0m	55	2076	194,700,00	60
10240	Reticulation	Rising Main	200MM PVC Rising Mains	59	2080	238,960,00	80
10245	Reticulation	Rising Main	150MM UPVC Rising Mains	59	2080	96,181,00	80
10250	Reticulation	Gravity Main	150mm UPVC Gravity Mains	75	2096	285,882,00	80

Asset ID	Category	Asset Name	Asset Type	Remaining Life	Register Renewal Year	Renewal Cost	Useful Life
10255	Reticulation	Gravity Main	100mm UPVC Gravity Mains	75	2096	172,913,00	80
10260	Reticulation	Gravity Main	100mm UPVC Gravity Mains	75	2096	103,747,00	80
10265	Reticulation	Gravity Main	150mm UPVC Gravity Mains	75	2096	114,353,00	80
10210	Biological Treatment	Wilcannia Town "New" WWTP	Lagoon	77	2098	403,200,00	100
10225	Biological Treatment	Wilcannia Town "Old" WWTP	Lagoon	99	2120	430,920,00	150
10205	Biological Treatment	Wilcannia Town "New" WWTP	Lagoon	127	2148	2,059,200,00	150

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Appendix E Disposal Summary

No disposals are planned

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Appendix F Budget Summary by Lifecycle Activity

Table F1 – Budget Summary by Lifecycle Activity

Year	Acquisition	Operation	Maintenance	Renewal	Disposal	Total
2021	0	20000	65000	60000	0	145000
2022	0	20000	65000	60000	0	145000
2023	0	20000	65000	60000	0	145000
2024	0	20000	65000	60000	0	145000
2025	0	20000	65000	60000	0	145000
2026	0	20000	65000	60000	0	145000
2027	0	20000	65000	60000	0	145000
2028	0	20000	65000	60000	0	145000
2029	0	20000	65000	60000	0	145000
2030	0	20000	65000	60000	0	145000
2031	0	20000	65000	60000	0	145000
2032	0	20000	65000	60000	0	145000
2033	0	20000	65000	60000	0	145000
2034	0	20000	65000	60000	0	145000
2035	0	20000	65000	60000	0	145000
2036	0	20000	65000	60000	0	145000
2037	0	20000	65000	60000	0	145000
2038	0	20000	65000	60000	0	145000
2039	0	20000	65000	60000	0	145000
2040	0	20000	65000	60000	0	145000

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