

CENTRAL DARLING SHIRE COUNCIL



Water

Asset Management Plan



Draft Version 1.0

March 2021

Document ID :

Rev No	Date	Revision Details	Author	Reviewer	Approver
0.1	January 2021	First Draft	Mike Brearley	Jacqui Hansen	Reece Wilson
0.2	March 2021	Improvement Plan added	Jacqui Hansen	Mike Brearley	Reece Wilson
1.0	March 2021	Draft Version 1.0	Jacqui Hansen	Mike Brearley	Reece Wilson

© Copyright 2019 – All rights reserved
The Institute of Public Works Engineering Australasia



Contents

- 1.0 EXECUTIVE SUMMARY 5**
- 1.1 The Purpose of the Plan.....5
- 1.2 Asset Description5
- 1.3 Levels of Service.....5
- 1.4 Future Demand5
- 1.5 Lifecycle Management Plan6
- 1.6 Financial Summary.....6
- 1.7 Asset Management Practices7
- 1.8 Monitoring and Improvement Program7
- 2.0 Introduction 8**
- 2.1 Background8
- 2.2 Goals and Objectives of Asset Ownership10
- 3.0 LEVELS OF SERVICE 12**
- 3.1 Customer Research and Expectations12
- 3.2 Strategic and Corporate Goals12
- 3.3 Legislative Requirements.....13
- 3.4 Customer Levels of Service14
- 3.5 Technical Levels of Service.....15
- 4.0 FUTURE DEMAND 18**
- 4.1 Demand Drivers18
- 4.2 Demand Forecasts18
- 4.3 Demand Impact and Demand Management Plan18
- 4.4 Climate Change and Adaption18
- 5.0 LIFECYCLE MANAGEMENT PLAN 20**
- 5.1 Background Data20
- 5.2 Operations and Maintenance Plan22
- 5.3 Renewal Plan25
- 5.4 Summary of future renewal costs.....25
- 5.5 Acquisition Plan27
- 5.6 Disposal Plan.....29
- 6.0 RISK MANAGEMENT PLANNING 30**
- 6.1 Critical Assets.....30
- 6.2 Risk Assessment.....31

6.3	Infrastructure Resilience Approach	33
6.4	Service and Risk Trade-Offs	33
7.0	FINANCIAL SUMMARY	35
7.1	Financial Statements and Projections.....	35
7.2	Funding Strategy.....	36
7.3	Key Assumptions Made in Financial Forecasts	36
7.4	Forecast Reliability and Confidence.....	37
8.0	PLAN IMPROVEMENT AND MONITORING	38
8.1	Status of Asset Management Practices	38
8.2	Improvement Plan	38
8.3	Monitoring and Review Procedures	39
8.4	Performance Measures	39
9.0	REFERENCES	40
10.0	APPENDICES	41
Appendix A	Acquisition Forecast.....	41
Appendix B	Operation Forecast	42
Appendix C	Maintenance Forecast	43
Appendix D	Renewal Forecast Summary	44
Appendix E	Disposal Summary.....	45
Appendix F	Budget Summary by Lifecycle Activity.....	46

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 water supply for the towns of Wilcannia, White Cliffs and Ivanhoe.

1.2 Asset Description

The Water network comprises:

- Water supply sources – dams, weirs and bores
- Reticulation networks
- Pumping stations
- Water treatment plants
- Raw and filtered water pipelines
- Rising mains

The above infrastructure assets have significant total renewal value estimated at \$43,556,883. The Valuation is a desktop adjustment, using staff professional judgement in 2018.

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:

- 6 months capacity of the weir pool in Wilcannia once Darling River flow ceases.
- Service disruption to users from water main breaks and repairs

1.4 Future Demand

The main demands for new services are created by:

- Climate change
- Population
- Agricultural practice
- 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
- 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 Water assets is estimated as \$37,728,016 or \$3,772,802 on average per year.

1.6 Financial Summary

1.6.1 What we will do

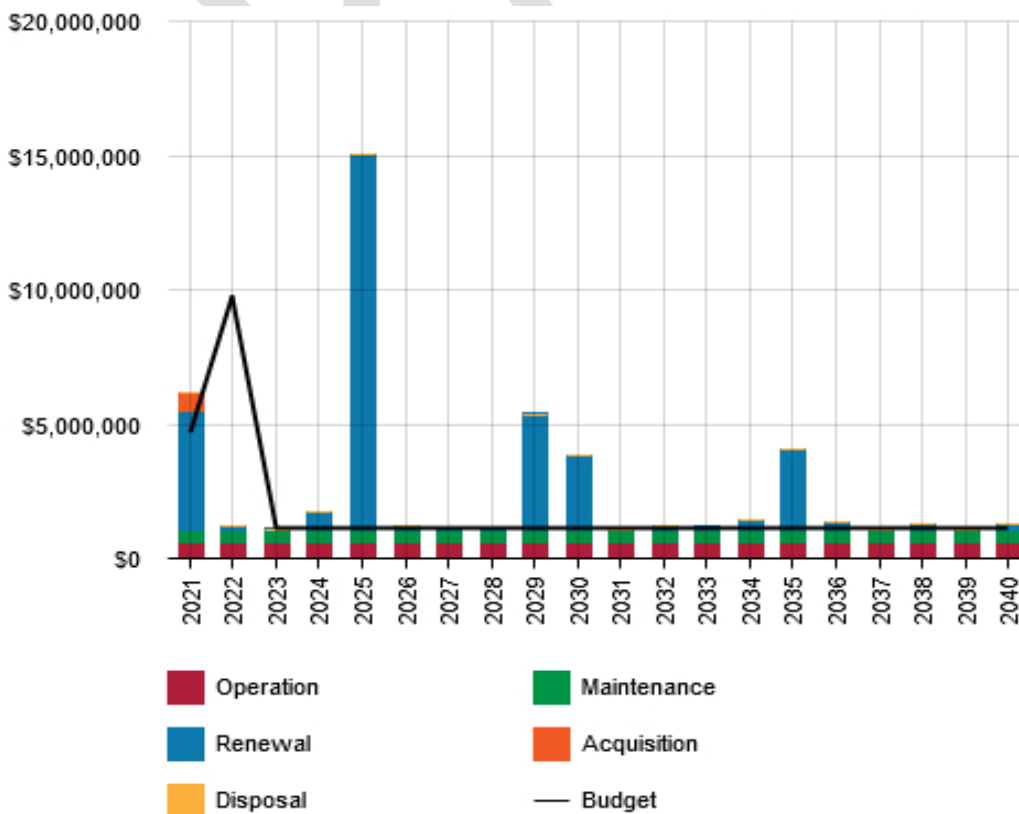
Estimated available funding for the 10 year period is \$23,475,000 or \$2,347,500 on average per year as per the Long-Term Financial plan or Planned Budget. This is 62.2% of the cost to sustain the current level of service at the lowest lifecycle cost.

Significant renewal works are planned in 2021 and 2022 utilising grant funding, including:

Project	Estimate
Wilcannia Water Treatment Plant Replacement	\$3,500,000
Ivanhoe Water Treatment Plant Replacement	\$2,500,000
White Cliffs Water Treatment Plant Replacement	\$2,000,000
White Cliffs Water Main Replacement	\$3,500,000

The infrastructure reality is that only what is funded in the long-term financial plan can be provided. Even with the extensive planned renewal works in 2021 and 2022, there remains a shortfall in funding for renewals over the life of the plan. The anticipated Planned Budget for Water leaves a shortfall of \$-1,510,301 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



We plan to provide Water services for the following:

- Operation, maintenance, renewal and upgrade of dams, weirs, bores, reticulation networks, water treatment plants, raw and filtered water, rising mains to meet service levels set in annual budgets.
- Replace and upgrade the White Cliffs Water Treatment Plant and Reticulation network, install smart meters and renew sections of the reticulation network within the 10-year planning period, with grant funding.
- Replace and upgrade the Wilcannia Water Treatment Plant with grant funding.
- Replace and upgrade the Ivanhoe Water Treatment Plant with grant funding

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 all assets at the optimal time or before they reach end of life.
- Renew rising and trunk mains that are nearing end of useful life without grant funding

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:

- Interruption to water supply system from asset failures.

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

- Review and implementation of our Drinking Water Quality Management Plan
- Inspect and monitor all water assets regularly, prioritise and repair defects in accordance with our inspection schedule to ensure functionality and safety.
- Lobby government entities for grant funding

1.7 Asset Management Practices

Our systems to manage assets include:

- Civica/ Practical Financial System
- AssetFinda
- Asset Management Policy
- Draft Asset Management Strategy

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 water supply service and demonstrate compliance with the regulatory requirements.

Table 2.1: Assets covered by this Plan

Asset Category	Dimension or No#	Replacement Value
Bore	6	\$868,659
Dam	6	\$5,914,440
Potable Water Main	34,485 m	\$5,149,786
Pump Station	7	\$3,930,960
Raw Water Main	71,923 m	\$14,106,215
Reservoir	2	\$609,545
Water Treatment Plant	3	\$12,977,278
		\$43,556,883

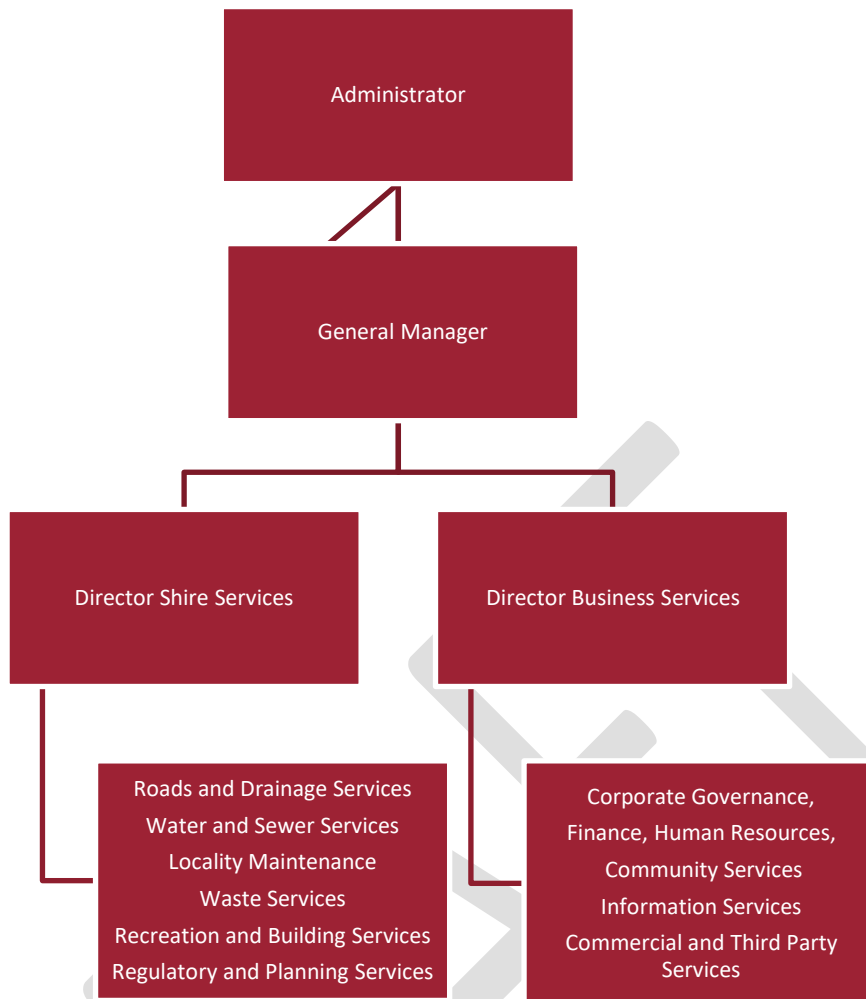
These assets are used to provide the water supply service. The infrastructure assets included in this plan have an estimated total replacement value of \$43,556,883. The most recent formal revaluation in accordance with Australian Accounting Standards was prepared on 30 June 2017. Replacement values were adjusted in 2018 using staff professional judgement.

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

Table 2-1: 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 water supply 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

DRAFT

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

Water supply was the highest priority service provided by Council. This highlights the importance of this AM Plan, in assisting Council to manage water supply assets in financially sustainable manner, that meets the needs of the community.

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
<p>Natural and Built Environment</p> <p>Goal 3 - A protected and supported natural environment and a sustainable and well-maintained built environment</p> <p><i>Goal 3.3 Safe and reliable water supply for Shire communities</i></p>	<p>Lobby for the completion of the Wilcannia Weir</p> <p>Ensure that potable and raw water supplies are provided within designated water districts of Ivanhoe and Wilcannia</p> <p>Maintain the consistency of water supply to the White Cliffs community and investigate and improve the provision of a potable supply as a matter of urgency</p> <p>Construct the new water treatment plant and associated infrastructure to ensure improved water supply for White Cliffs</p> <p>Ensure that potable water meets the guidelines set by NSW Health</p> <p>Review and improve water supply management strategies</p> <p>Review contingency plans for each community to maintain water supplies</p>	<p>Development of an asset management plan for water assets will assist Council to set aside funding for the maintenance, renewal and upgrade of the water network, which will help to ensure the provision of a reliable water supply to Central Darling Shire communities into the future.</p>
<p>Civic Leadership</p> <p>Goal 4 - A consultative and professional organisation providing a high standard and efficient delivery of service</p>	<p>Effective strategic and business planning processes</p> <p>Improved management and delivery of Council services</p>	<p>This asset management plan is a strategic business planning document which details how Council is going to strive to achieve better management of its water assets.</p> <p>By describing current and target levels of service for the water network, this management plan provides Council with a structured framework for improvement.</p>

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 water supply 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 Water Supply Service for the Community				
Quality	Physical water quality parameters conform to standards (odour, colour, taste and turbidity)	Customer complaints Test results of the water quality monitoring program	5 per year 95%	0 per year 100% *
	Chemical water quality parameters conform to standards (PH, fluoride, residual chlorine, hardness etc)	Customer complaints Test results of the water quality monitoring program	5 per year 95%	0 per year 100% *
	Provide a high quality and pathogen free potable water supply	Customer complaints Test results of the water quality monitoring program	0 per year 95%	0 per year 100% *
Function	No damages to private properties or public places because of reservoir overflows or run-off due to burst/ broken mains.	Number of incidents	1	0 *
	Provide a safe and reliable water supply system that is maintained and operated without interruption	Planned interruption due to main breaks and water service failure.	12 per year	5 per year *
	Confidence levels		Medium	Medium
Capacity and Use	Ensure Water Infrastructure is operating at maximum efficiency	Customer expectations and demands. Supply interruption due to breakdowns	8 per year	0 per year *
	Equipment and infrastructure of the water supply system are maintained and operational at all times	WTP designed to run at optimum capacity	24hrs per day	18hrs per day *
	Confidence levels		Medium	Medium *

* - NOTE Expected position is dependent upon funding confirmation for Wilcannia, White Cliffs and Ivanhoe WTP replacement

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	Improved water security for Tilpa	Tilpa Village Bore		Improved water security for Tilpa
	Improved water supply for roadworks	5 New Bores for Roadworks		Improved water supply for roadworks
		Budget	\$65,000	\$65,000
Operation	Provide a safe and reliable water supply system that meets customer satisfaction		No separate operations budget	Split expenditure into operations and maintenance activities for better monitoring and works planning
	Physical water quality parameters conform to ADWG	ADWG guidelines	ADWG guidelines	ADWG guidelines
		Budget	\$0	\$0
Maintenance	Provide a safe and reliable water supply system that meets customer satisfaction		Maintenance of water supply assets as required within allocated budget	Budget for maintenance appears adequate, provided renewal/upgrade of 3 WTP can proceed as planned, thus preventing future escalation of reactive maintenance expenditures.
	Equipment and infrastructure of the water supply system are maintained and			

³ IPWEA, 2015, IIMM, p 2|28.

Lifecycle Activity	Purpose of Activity	Activity Measure	Current Performance*	Recommended Performance **
	operational at all times			
		Budget	\$416,500	\$416,500
Renewal	Ensure Water infrastructure is operating at maximum efficiency			
	Replace and Upgrade the White Cliffs Water Treatment Plant	Reliable and safe water supply for White Cliffs	White Cliffs WTP in poor condition and cannot produce potable water. In need of a renewal/ upgrade.	Replace White Cliffs WTP with a new facility.
	Replace and upgrade the White Cliffs Reticulation network	Reliable and safe water supply for White Cliffs	White Cliffs reticulation in very poor condition.	Replace with modern pipework to appropriate standards.
	Replace and Upgrade the Wilcannia Water Treatment Plant	Reliable and safe water supply for Wilcannia	Wilcannia WTP in poor condition and in need of renewal/ upgrade.	Replace Wilcannia WTP with a new facility.
	Replace and Upgrade the Ivanhoe Water Treatment Plant	Reliable and safe water supply for Ivanhoe	Ivanhoe WTP in poor condition and in need of renewal/ upgrade.	Replace Ivanhoe WTP with a new facility.
		Budget	\$1,167,500	\$2,677,802

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)

Council plans to seek community consultation with respect to current, and desired levels of service. Future plans will reflect the agreed levels of service.

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.

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
Water treatment plant and reticulation in White Cliffs in poor condition, and not built to modern standards.	Unreliable water supply to the community. Existing supply is non-potable and reticulation has high rate of leakage.	New Water Treatment Plant and reticulation system at White Cliffs to enable reliable, quality potable water to be provided to the community. Ensures that the water treatment plant provides high quality water and is not vulnerable to a sudden unexpected breakdown. Enables Council to meet the community demand for a reliable potable water supply
Capability of bores to supply water into the future is unknown.	Bores may not cope in an emergency or prolonged drought	Run and test all bores to ascertain long term suitability of underground water supply to ensure that Council can meet the demand for water in an emergency or prolonged drought

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 more severe droughts and floods that will impact the reliability and quality of water sources.	Monitor weather trends and act where possible to keep services available. Plan water services to suit the new climate.
	Anticipated that maximum and minimum temperatures will increase.	Potential for reduces river flows and higher evaporation	Plan water 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.

DRAFT

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 2-1.

Central Darling Shire Council provides a water service to the towns of Wilcannia, Ivanhoe and White Cliffs. The town of Menindee does have a water service; however, it is provided by another authority; Essential Water.

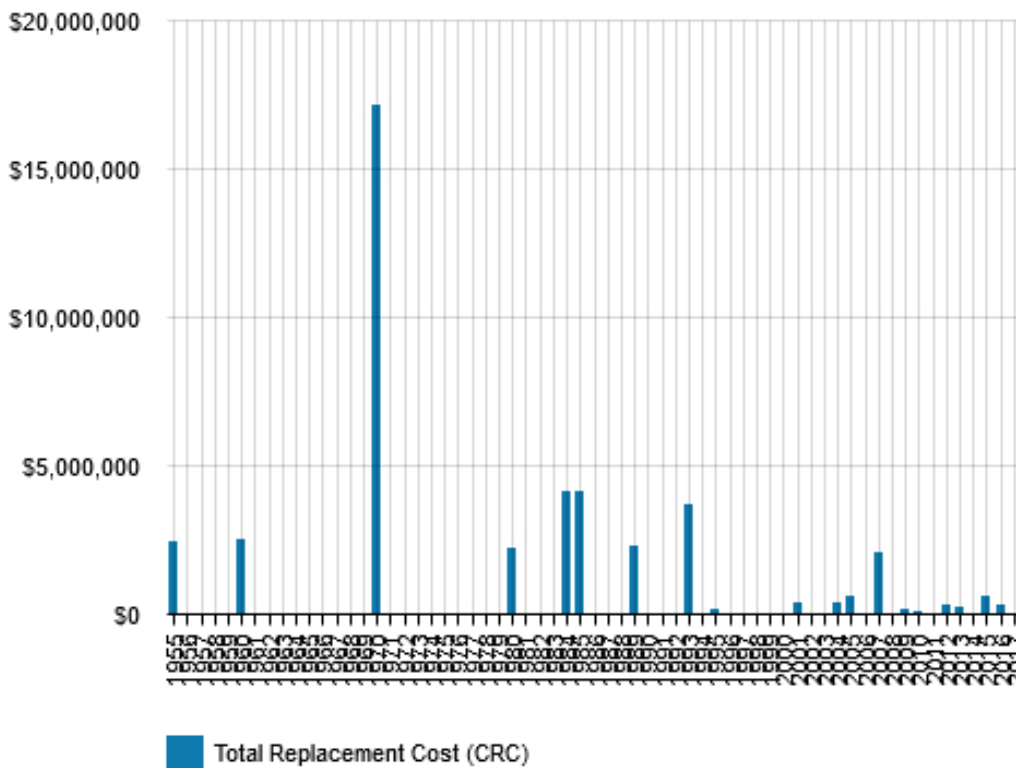
The town of **Wilcannia** sources its water from the Darling River. The raw untreated water is filtered and treated at Council's water treatment plant, prior to reticulation to the community. Bore water is utilised during drought and when the river runs dry.

The town of **Ivanhoe** sources its water supply from the Willandra Creek 30km south of town, when available it is pumped into a storage dam. Bore water is utilised during drought and when the river runs dry.

White Cliffs sources water from overland storage dams, from which water is pumped into the town. Each household has a piped water supply however the water is classified as non-potable because of limited treatment infrastructure and class of reticulation pipes. The old poly pipes providing reticulation are classified as not suitable for potable water.

The age profile of the assets included in this Asset Management Plan are shown in Figure 2.

Figure 5.1.1: Asset Age Profile



The water network provided by Central Darling Shire Council is ageing. A number of assets have exceeded their useful lives and require replacement. For example, the untreated water network, laid in 1970, is approaching its end of useful life of 50 years.

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
White Cliffs	Water provided to the community of White Cliffs is not classified as potable because the pipes providing reticulation are not considered to be suitable for potable water. The upgrade of the water reticulation network in White Cliffs to provide a potable water supply to the community is considered by Council to be a high priority. Funding has now been secured to upgrade the Treatment Plant and retic system
Ivanhoe	The Ivanhoe WTP is ageing, and cannot reliably produce drinking water that meets the Australian Drinking Water Guidelines (ADWG) on a continuous basis. The current plant 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 Ivanhoe.
Wilcannia	The Wilcannia WTP is ageing, and cannot reliably produce drinking water that meets the Australian Drinking Water Guidelines (ADWG) on a continuous basis. The current plant 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.
Ivanhoe and Wilcannia	The trunk mains and Reticulation network assets are approaching end of useful life which increases risk of failure. For example; Ivanhoe trunk main, 150mm AC pipe, supply to town is 30km in length and built in 1970.

The above service deficiencies were identified from Community Strategic Plan, NSW Public Works condition assessments of all Water Treatment Plants and Retic Assets and Council staff experience.

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.

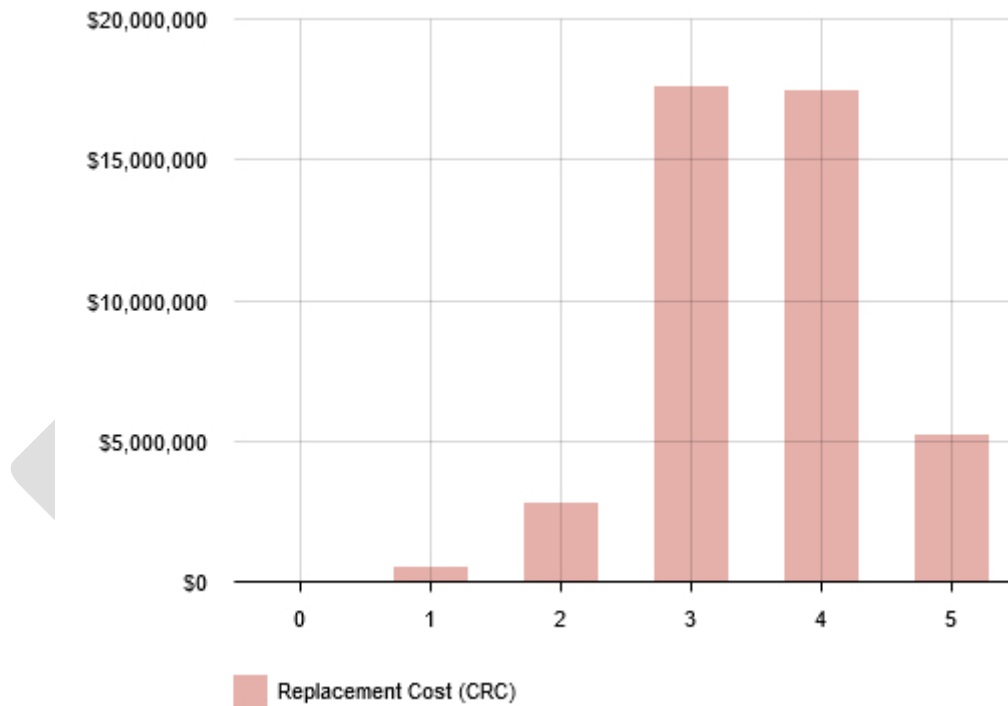
⁴ IPWEA, 2015, IIMM, Sec 2.5.4, p 2|80.

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



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 and operations budgets are shown in Table 5.2.1.

Table 5.2.1: Maintenance and Operations Budget Trends

Maintenance and Operations Expenditure	2020/21 Budget	Actual 2018/19 Expenditure
Maintenance	416,500	326,392
Ivanhoe Filtered Water	29,000	25,791
Ivanhoe Treatment Plant	45,000	60,424
Ivanhoe Unfiltered Water	19,000	8,880
Ivanhoe Untreated Water	17,000	14,742
Ivanhoe Water	30,000	75,382
Tilpa Water Supply	5,000	207
Water Admin & Mgt-Ivanhoe	-	-
Water Admin & Mgt-White Cliffs	-	-
Water Admin & Mgt-Wilcannia	2,000	1,354
White Cliffs Non-Potable Water	21,500	17,418
White Cliffs Treatment Plant	5,000	2,103
White Cliffs Untreated Water	15,000	8,052
White Cliffs Water	10,000	8,637
Wilcannia Filtered Water	28,000	26,861
Wilcannia Treatment Plant	120,000	8,952
Wilcannia Unfiltered Water	36,000	39,556
Wilcannia Untreated Water	22,000	13,343
Wilcannia Water	12,000	14,690
Operations	613,500	406,451
Ivanhoe Filtered Water	10,000	905
Ivanhoe Treatment Plant	168,500	161,890
Ivanhoe Unfiltered Water	2,500	799
Ivanhoe Untreated Water	37,500	31,345
Ivanhoe Water	2,500	14,671
Water Admin & Mgt-Ivanhoe	20,000	6,487
Water Admin & Mgt-White Cliffs	17,000	-
Water Admin & Mgt-Wilcannia	60,000	10,960
White Cliffs Non-Potable Water	2,500	1,251
White Cliffs Treatment Plant	78,000	68,103
White Cliffs Untreated Water	6,500	4,733
White Cliffs Water	10,000	6,470
Wilcannia Bore	30,000	15,895
Wilcannia Filtered Water	10,000	1,322
Wilcannia Treatment Plant	115,000	35,158
Wilcannia Unfiltered Water	-	-
Wilcannia Untreated Water	27,500	30,766
Wilcannia Water	15,000	14,739
Wilcannia Water - Other Costs	1,000	958

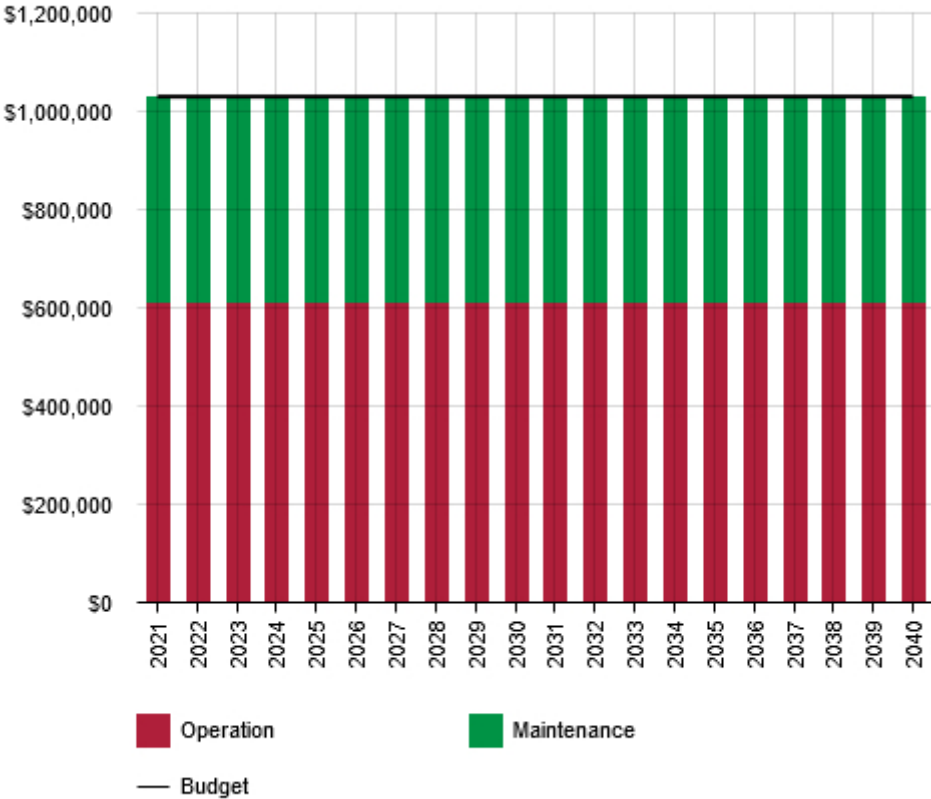
Maintenance budget levels are considered to be adequate to meet projected service levels, which may be less than or equal to current service levels. Where maintenance budget allocations are such that they will result in a lesser level of service, the service consequences and service risks have been identified 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. If planned upgrades to the three water treatment plants, and the White Cliffs reticulation does not proceed, it is anticipated that reactive maintenance expenditure will escalate.

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.

The typical useful lives of assets used to develop projected asset renewal forecasts vary according to the material and componentisation of each asset, and are documented in the Asset Register. Asset useful lives were last reviewed at the time of the valuation in 2017.

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, or
- To ensure the infrastructure is of sufficient quality to meet the service requirements (e.g. condition of a water main).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%

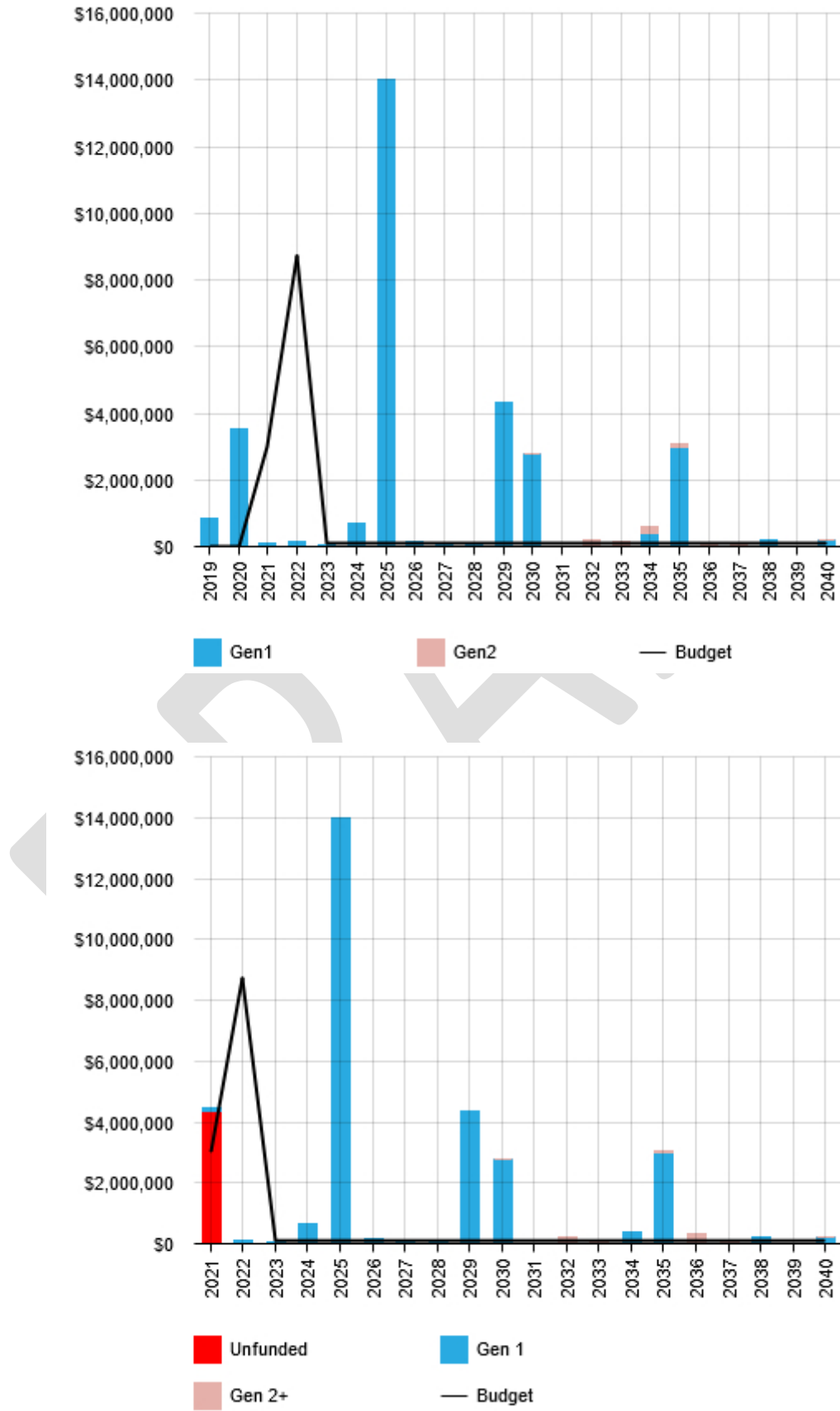
5.4 Summary of future renewal costs

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. The spike in budget in 2022 represents the planned replacement of the three water treatment plants and the white cliffs reticulation. Note that the value of the planned replacement works does not match the value of the assets reaching end of life in 2025. This is because there are assets, due for replacement in the next decade, not located at the three water treatment plants or at White Cliffs. When the replacement assets are constructed, the asset register will be amended and the spike in 2025 will be eliminated.

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	25%
Condition	40%
Asset Age	10%
Cost Benefit	25%
Total	100%

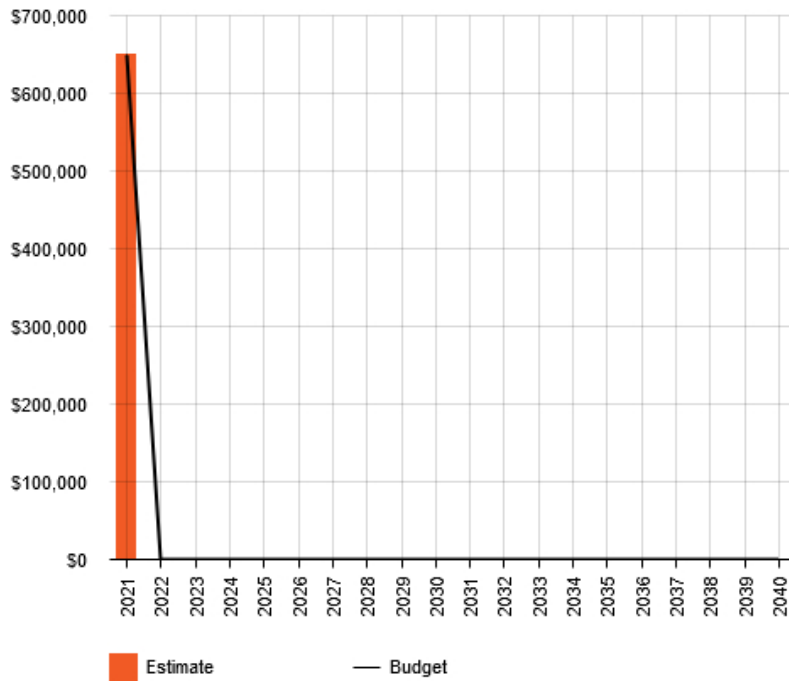
Summary of future asset acquisition costs

The following acquisitions are planned in 2021.

- Tilpa Village Bore
- 5 New Bores for Roadworks

Forecast acquisition asset costs are summarised / summarized in Figure 5.4.1 and shown relative to the proposed acquisition budget. The forecast acquisition capital works program is shown in Appendix A.

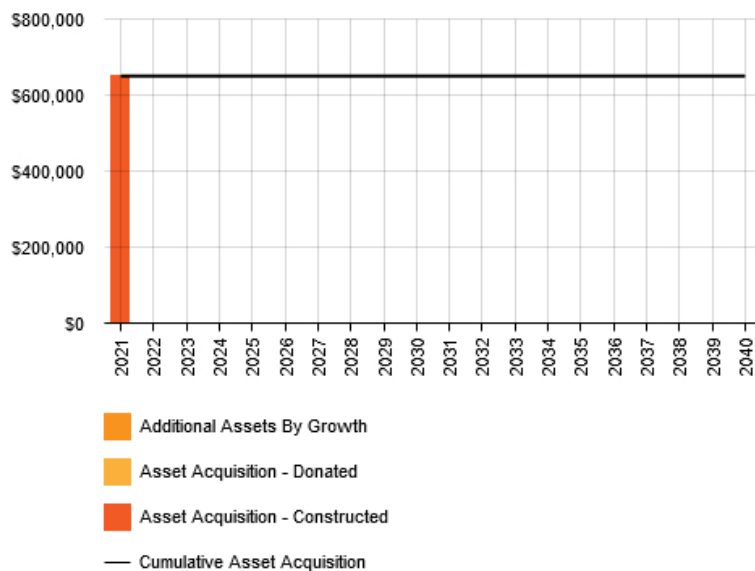
Figure 5.5.1: Acquisition (Constructed) Summary



All figure values are shown in current day dollars.

When an Entity commits to new assets, they must be prepared to fund future operations, maintenance and renewal costs. They must also account for future depreciation when reviewing long term sustainability. When reviewing the long-term impacts of asset acquisition, it is useful to consider the cumulative value of the acquired assets being taken on by the Entity. The cumulative value of all acquisition work, including assets that are constructed and contributed shown in Figure 5.4.2.

Figure 5.5.2: Acquisition Summary



All figure values are shown in current dollars.

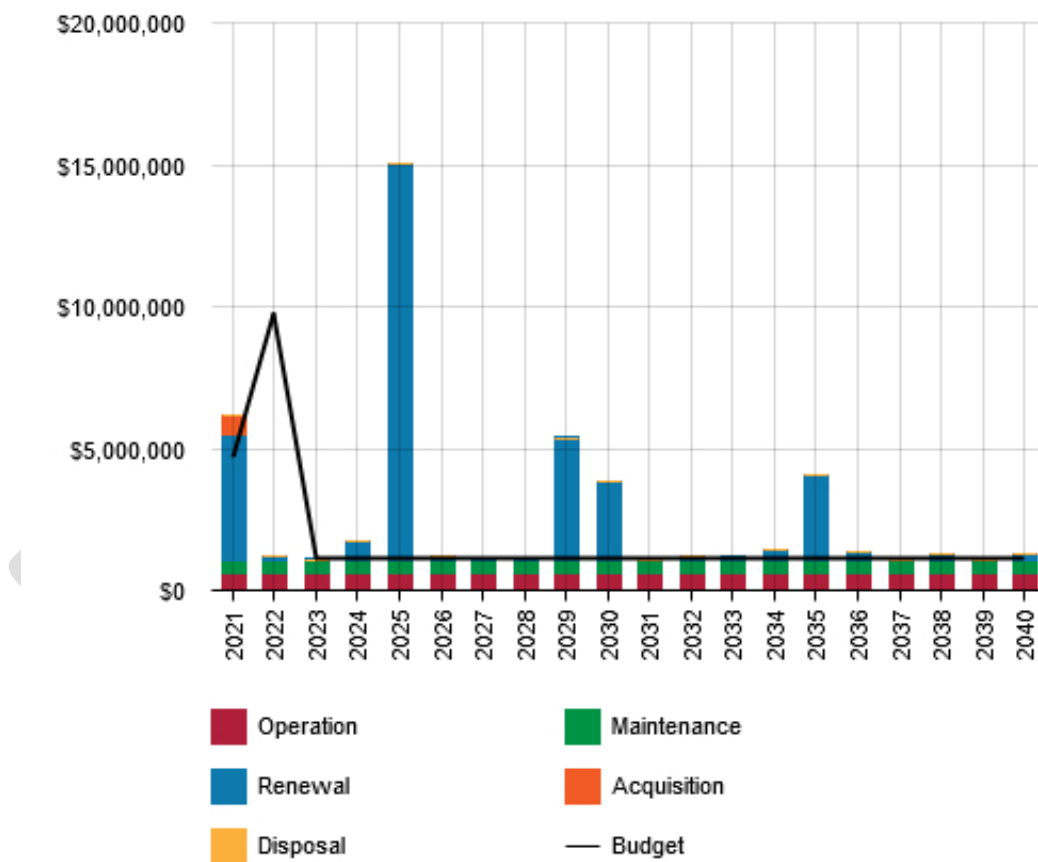
Expenditure on new assets and services in the capital works program will be accommodated in the long-term financial plan, but only to the extent that there is available funding.

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.

Note, there are number of renewals within the life of the plan that are unfunded. Council has a very limited budget for asset renewal, and relies on external funding to replace significant assets as they reach end of life. This Lifecycle Summary Figure highlights that Council will needs to continue to work with other tiers of government, to secure funding to replace end of life assets after 2022.

5.6 Disposal Plan

No assets are planned for disposal.

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.

Table 6.1 Critical Assets

Critical Asset(s)	Failure Mode	Impact
Water supply	Water level in the Darling River drops below the pumping capacity of the pumps	The Village of Tilpa and the Town of Wilcannia have no above ground water supply. New bores are proposed.
Water supply	External Impacts, such as drought	White Cliffs and Ivanhoe have no water supply due to dams being dry
Raw water pump station at Wilcannia weir	Failure of the pumps to supply raw water to the treatment plant.	No water supply to the WTP from the Darling River
Wilcannia water treatment plant	Quantity and Quality of water provided by water treatment plant does not meet standards	Provision of poor quality water that does not meet ADWG standards and/or not sufficient capacity
Ivanhoe water treatment plant	Quantity and Quality of water provided by water treatment plant does not meet standards	Provision of poor quality water that does not meet ADWG standards and/or not sufficient capacity
White Cliffs water treatment plant	Quantity and Quality of water provided by water treatment plant does not meet standards	Provision of poor quality water that does not meet ADWG standards and/or not sufficient capacity Plant

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
White Cliffs reticulation network	Rural class poly continually breaking due to age and unable to deliver a potable supply	Disruption to service, extended periods of pressure loss, loss of chlorine residuals in retic.

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.

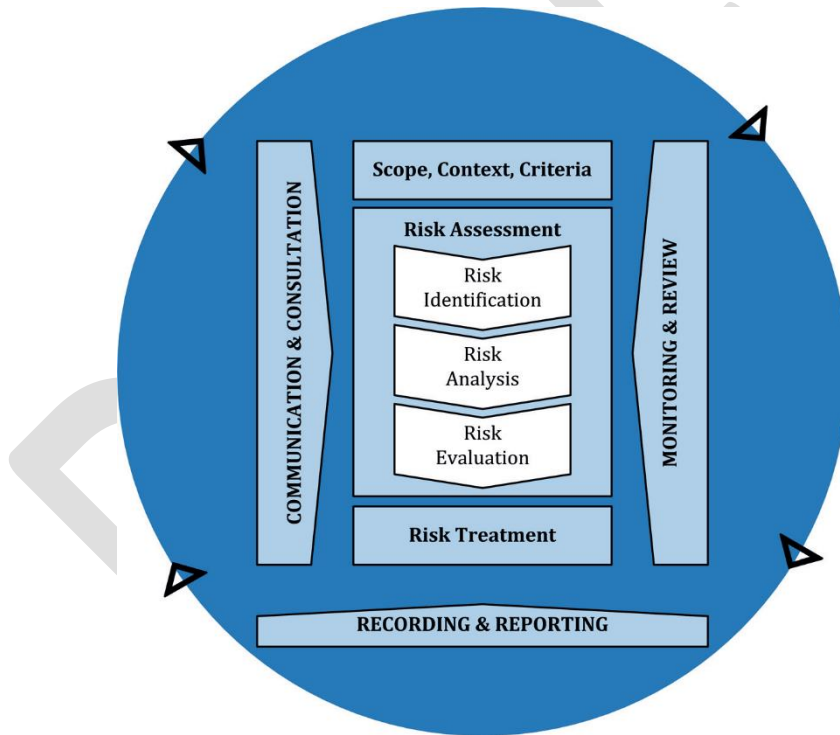


Fig 6.2 Risk Management Process – Abridged

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
Water supply	Darling River and/or Willandra Creek flow ceases and river dries up	H	Drought Management Plan, use of emergency bores ready and fully functional for use. Undertake water quality testing and monitoring at emergency bores to ascertain long term suitability for water supply.	M - H	\$5,000
Water Supply	External impacts such as drought cause above ground storages to dry up	H	Drought Management Plan, implement water restrictions. Use of emergency bores	M - H	\$5,000
Asbestos AC pipes	Contamination of water supply from asbestos	M	Replacement of all AC pipes	L	\$10.4M
Water Treatment Plants	Quantity is insufficient for community use. Quality does not meet standards	H	Replace and upgrade all three Water Treatment Plants	M - L	\$8.75M
Water Reservoirs	Erosion of the internal walls and floor coatings	H	Remove existing internal coating and repaint with new epoxy coating	M - L	\$1.4M
Water supply service	Lack of skilled staff to operate and maintain water supply assets	H	Staff training and succession planning. Work with State government to import necessary specialist skills.	M	\$30,000
Water Treatment Plants	External funding not provided to replace/ upgrade the 3 WTP	M	Work with State government to ensure that sufficient funding is provided to ensure project success	L	\$8.75M

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
Darling River Flow Ceases	When water ceases to flow over the weir there is approximately 6 months supply remaining. Test run bores, check quantity, quality, pump and pipeline functionality. Trigger point for water restrictions.
White Cliffs Water Supply	In drought conditions, monitor water supplies and prepare for drought management intervention, including water carting from Wilcannia/ Broken Hill. Contact NSW DPIE for financial assistance under water carting provisions.
Ivanhoe Water Supply	Monitor above ground storages and predicted releases for Willandra Creek. Test run bores, check quantity, quality, pump and pipeline functionality.

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 without grant funding within the next 10 years. These include:

- Replacement/ Upgrade of the Wilcannia Water Treatment Plant
- Replacement/ Upgrade of the Ivanhoe Water Treatment Plant
- Replace all older AC Asbestos pipes with new uPVC
- Replace/ Upgrade the Wilcannia Weir

Council is currently working with State government to obtain grant funding for these renewals.

Council does not have the budget to renew assets at the optimum time, or before they reach end of life.

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:

- 6 months capacity of the weir pool in Wilcannia once Darling River Flow ceases.
- Lower quality of water produced from Water Treatment plants in Ivanhoe and Wilcannia
- Service disruption to users from water main breaks and repairs

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 water supply contamination
- Risk of water supply service disruption

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

DRAFT

7.0 FINANCIAL SUMMARY

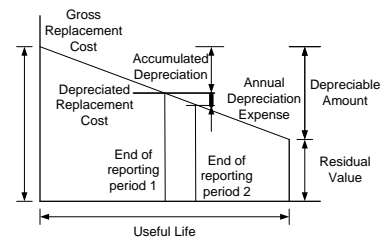
This section contains the financial requirements resulting from the information presented in the previous sections of this Asset Management Plan. The financial projections will be improved as the discussion on desired levels of service and asset performance matures.

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)	\$43,556,883
Depreciable Amount	\$43,556,883
Depreciated Replacement Cost ⁹	\$10,522,931
Depreciation	\$903,698.0



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 46.77%

The Asset Renewal Funding Ratio is an important indicator and illustrates that over the next 10 years we expect to have 46.77% 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 \$3,707,802 average per year.

The proposed (budget) operations, maintenance and renewal funding is \$2,282,500 on average per year giving a 10 year funding shortfall of \$-1,425,301 per year. This indicates that 61.567% 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	650,000	613500	416,500	4,486,963	0
2022	0	613500	416,500	136,000	0
2023	0	613500	416,500	58,800	0
2024	0	613500	416,500	673,950	0
2025	0	613500	416,500	14,003,024	0
2026	0	613500	416,500	149,673	0
2027	0	613500	416,500	69,800	0
2028	0	613500	416,500	68,423	0
2029	0	613500	416,500	4,332,557	0
2030	0	613500	416,500	2,798,825	0
2031	0	613500	416,500	2,400	0
2032	0	613500	416,500	166,700	0
2033	0	613500	416,500	130,000	0
2034	0	613500	416,500	395,750	0
2035	0	613500	416,500	3,031,908	0
2036	0	613500	416,500	322,025	0
2037	0	613500	416,500	46,500	0
2038	0	613500	416,500	213,213	0
2039	0	613500	416,500	0	0
2040	0	613500	416,500	227,631	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 analysis of the May 2020 budget information

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	B	
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	C	
Renewal forecast		Renewal forecasts are dependent upon the availability of grant funding
- Asset values	C	
- Asset useful lives	B	Asset useful lives reflect a realistic assessment of known condition
- Condition modelling	B	Good condition information from 2017 PWA report
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 Water Asset Management Plan				
4	Audit the Water 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 water meters, valves, fire hydrants etc	DSS	Staff, consultant	
6	Inspect and assess the condition of the water assets in order to estimate the remaining useful life and reassess the useful life of assets	DSS	Staff, consultant	

¹² ISO 55000 Refers to this the Asset Management System

Task	Task	Responsibility	Resources Required	Timeline
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 water 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.
- IPWEA, 2015, 3rd edn., 'International Infrastructure Management Manual', Institute of Public Works Engineering Australasia, Sydney, www.ipwea.org/IIMM
- 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

DRAFT

10.0 APPENDICES

Appendix A Acquisition Forecast

Table A3 - Acquisition Forecast Summary

Year	Constructed	Donated	Growth
2021	650,000	0	0
2022	0	0	0
2023	0	0	0
2024	0	0	0
2025	0	0	0
2026	0	0	0
2027	0	0	0
2028	0	0	0
2029	0	0	0
2030	0	0	0
2031	0	0	0
2032	0	0	0
2033	0	0	0
2034	0	0	0
2035	0	0	0
2036	0	0	0
2037	0	0	0
2038	0	0	0
2039	0	0	0
2040	0	0	0

DRAFT

Appendix B Operation Forecast

Table B2 - Operation Forecast Summary

Year	Operation Forecast	Additional Operation Forecast	Total Operation Forecast
2021	613500	0	613500
2022	613500	0	613500
2023	613500	0	613500
2024	613500	0	613500
2025	613500	0	613500
2026	613500	0	613500
2027	613500	0	613500
2028	613500	0	613500
2029	613500	0	613500
2030	613500	0	613500
2031	613500	0	613500
2032	613500	0	613500
2033	613500	0	613500
2034	613500	0	613500
2035	613500	0	613500
2036	613500	0	613500
2037	613500	0	613500
2038	613500	0	613500
2039	613500	0	613500
2040	613500	0	613500

DRAFT

Appendix C Maintenance Forecast

Table C2 - Maintenance Forecast Summary

Year	Maintenance Forecast	Additional Maintenance Forecast	Total Maintenance Forecast
2021	416500	0	416500
2022	416500	0	416500
2023	416500	0	416500
2024	416500	0	416500
2025	416500	0	416500
2026	416500	0	416500
2027	416500	0	416500
2028	416500	0	416500
2029	416500	0	416500
2030	416500	0	416500
2031	416500	0	416500
2032	416500	0	416500
2033	416500	0	416500
2034	416500	0	416500
2035	416500	0	416500
2036	416500	0	416500
2037	416500	0	416500
2038	416500	0	416500
2039	416500	0	416500
2040	416500	0	416500



Appendix D Renewal Forecast Summary

D.2 – Renewal Project Summary

The project titles included in the lifecycle forecast are included here.

Table D3 - Renewal Projects Summary

Year	Project	Estimate
2021	Wilcannia Water Treatment Plant Replacement	875,000
2021	Ivanhoe Water Treatment Plant Replacement	625,000
2021	White Cliffs Water Treatment Plant Replacement	500,000
2021	White Cliffs Water Main Replacement	875,000
2021	Valve Replacements	50,000
2021	Reservoir upgrade works	75,000
2022	Wilcannia Water Treatment Plant Replacement	2,625,000
2022	Ivanhoe Water Treatment Plant Replacement	1,875,000
2022	White Cliffs Water Treatment Plant Replacement	1,500,000
2022	White Cliffs Water Main Replacement	2,625,000
2022	Water main and valve renewals	100,000
2023	Water main and valve renewals	100,000
2024	Water main and valve renewals	100,000
2025	Water main and valve renewals	100,000
2026	Water main and valve renewals	100,000
2027	Water main and valve renewals	100,000
2028	Water main and valve renewals	100,000
2029	Water main and valve renewals	100,000
2030	Water main and valve renewals	100,000
2031	Water main and valve renewals	100,000
2032	Water main and valve renewals	100,000
2033	Water main and valve renewals	100,000
2034	Water main and valve renewals	100,000
2035	Water main and valve renewals	100,000
2036	Water main and valve renewals	100,000
2037	Water main and valve renewals	100,000
2038	Water main and valve renewals	100,000
2039	Water main and valve renewals	100,000
2040	Water main and valve renewals	100,000

Appendix E Disposal Summary

No assets are proposed for disposal

DRAFT

Appendix F Budget Summary by Lifecycle Activity

Table F1 – Budget Summary by Lifecycle Activity

Year	Acquisition	Operation	Maintenance	Renewal	Disposal	Total
2021	650000	613500	416500	3000000	0	4680000
2022	0	613500	416500	8725000	0	9755000
2023	0	613500	416500	100000	0	1130000
2024	0	613500	416500	100000	0	1130000
2025	0	613500	416500	100000	0	1130000
2026	0	613500	416500	100000	0	1130000
2027	0	613500	416500	100000	0	1130000
2028	0	613500	416500	100000	0	1130000
2029	0	613500	416500	100000	0	1130000
2030	0	613500	416500	100000	0	1130000
2031	0	613500	416500	100000	0	1130000
2032	0	613500	416500	100000	0	1130000
2033	0	613500	416500	100000	0	1130000
2034	0	613500	416500	100000	0	1130000
2035	0	613500	416500	100000	0	1130000
2036	0	613500	416500	100000	0	1130000
2037	0	613500	416500	100000	0	1130000
2038	0	613500	416500	100000	0	1130000
2039	0	613500	416500	100000	0	1130000
2040	0	613500	416500	100000	0	1130000

DRAFT