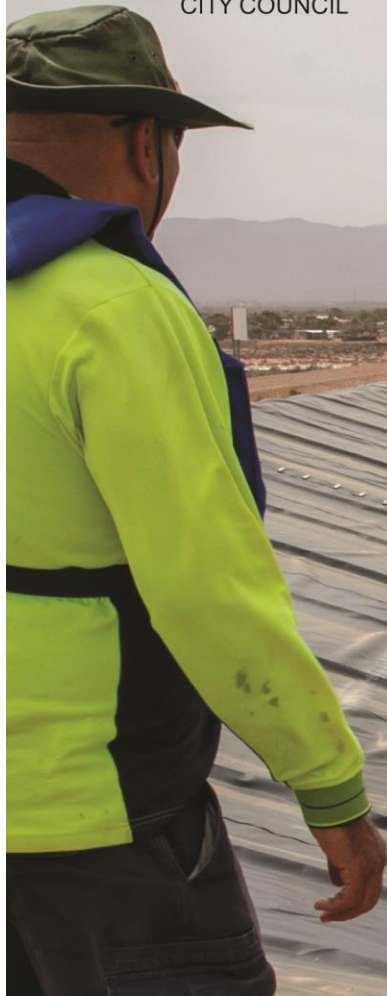




PortAugusta

CITY COUNCIL



PORT AUGUSTA CITY COUNCIL CWMS & WASTEWATER ASSET MANAGEMENT PLAN



Document Control	Asset Management Plan
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1.0 EXECUTIVE SUMMARY

1.1 The Purpose of the Plan

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 AM Plan will link to a Long-Term Financial Plan which typically considers a 10 year planning period.

1.2 Asset Description

This plan covers the infrastructure assets that provide Community Wastewater collection networks and waste water harvesting for open spaces.

The CWMS and Waste Water network comprises:

- Collection Nodes and Pipes
- Pump Stations
- Wastewater Treatment Plant and Lagoon
- Water Reuse Assets

The above infrastructure assets have replacement value estimated at \$11,940,000.

1.3 Levels of Service

The allocation in the planned budget is insufficient to continue providing existing services at current levels for the planning period.

The main service consequences of the Planned Budget are:

- Increased demands to access collection network
- Capacity and reliability of existing pump stations

1.4 Future Demand

The factors influencing future demand and the impacts they have on service delivery are created by:

- Growth in service requirements – population growth
- Reducing reliance on potable water

These demands will be approached using a combination of managing existing assets, upgrading 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.

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 CWMS and Wastewater assets is estimated as \$7,912,058 or \$791,206 on average per year.

1.6 Financial Summary

1.6.1 What we will do

Estimated available funding for the 10 year period is \$7,519,100 or \$751,910 on average per year as per the Long-Term Financial plan or Planned Budget. This is 95.03% 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 CWMS and Wastewater assets leaves a shortfall of \$-39,296 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

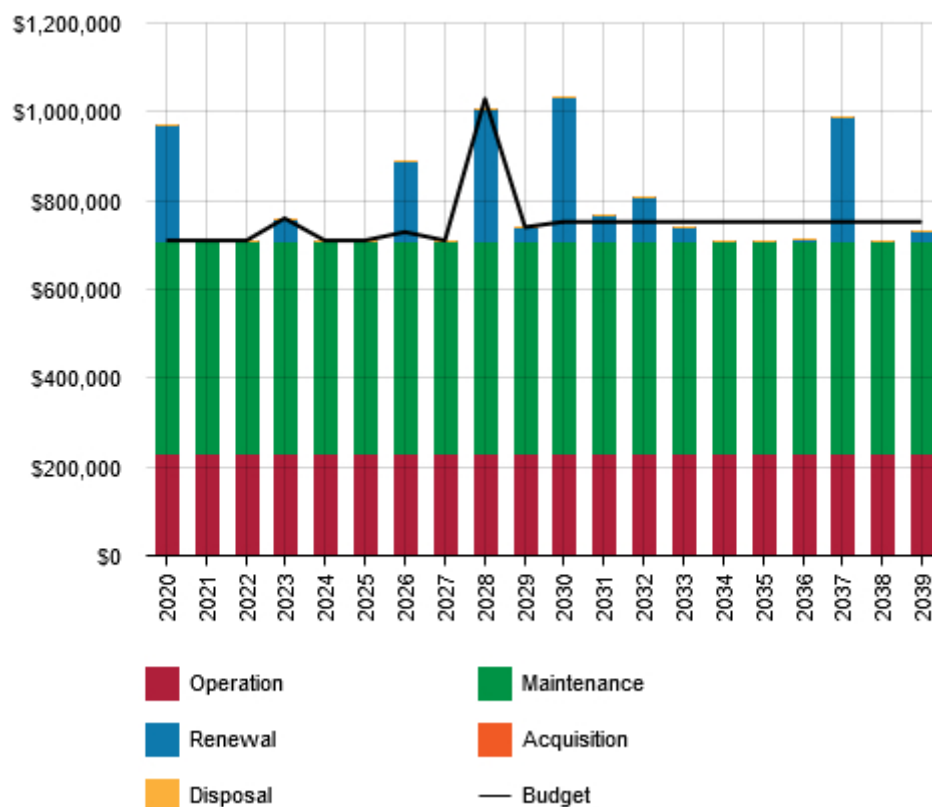


Figure Values are in current dollars.

We plan to provide CWMS and Wastewater services for the following:

- Operation, maintenance, renewal and acquisition of assets to meet service levels set by Port Augusta City Council in annual budgets.
-

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:

- Increase network assets should there be future demand
- Increase wastewater irrigation beyond current capacity under current funding models

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:

- Environmental risk and factors with aging infrastructure
- Potential for service disruption

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

- Identifying efficiencies
- Validating condition data and developing strategies for ongoing management

1.7 Asset Management Planning Practices

Key assumptions made in this AM Plan are:

- It is assumed that the data available is accurate and complete.
- Demand drivers and their impact is understood

Assets requiring renewal are identified from either the asset register or an alternative method.

- The timing of capital renewals based on the asset register is applied by adding the useful life to the year of acquisition or year of last renewal,
- Alternatively, an estimate of renewal lifecycle costs is projected from external condition modelling systems and may be supplemented with, or based on, expert knowledge.

The Asset Register was used to forecast the renewal lifecycle costs for this AM Plan.

This AM Plan is based on a Medium to High level of confidence information.

1.8 Monitoring and Improvement Program

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

- Development of an action plan to address funding shortfall

2.0 Introduction

2.1 Background

This AM Plan communicates the requirements for the sustainable delivery of services through management of assets, compliance with regulatory requirements, and required funding to provide the appropriate levels of service over the planning period.

The AM Plan is to be read with the Port Augusta City Council planning documents. This should include the Asset Management Policy and Asset Management Strategy, where developed, along with other key planning documents:

- Strategic Directions Plan 2019-2029
- Four-Year Priority Action Plan
- Long Term Financial Plan (LTFP)

The infrastructure assets included in this plan have a total replacement value of \$11,930,401.

Key stakeholders in the preparation and implementation of this AM Plan are shown in Table 2.1.

Table 2.1: Key Stakeholders in the AM Plan

Key Stakeholder	Role in Asset Management Plan
Mayor and Elected Members	<ul style="list-style-type: none">■ Represent needs of community/shareholders,■ Ensure service sustainable.
Chief Executive Officer	<ul style="list-style-type: none">■ Allocate resources to meet planning objectives in providing services while managing risks■ Ensure service sustainable.
Director Infrastructure	<ul style="list-style-type: none">■ Overall responsibility for Infrastructure Department.■ Ensuring compliance with Strategic Plans and Objectives.
Manager Regulatory Services	<ul style="list-style-type: none">■ Ensuring development approval meets required compliance standards where impacts on infrastructure are likely or works will result in contributed assets.
Manager Infrastructure	<ul style="list-style-type: none">■ Ensuring compliance of Strategic Plan Objectives.■ Guidance and leadership to Asset Team
Asset Management Officer	<ul style="list-style-type: none">■ Responsibility to ensure asset management tasks and improvement plan are undertaken in line with objectives within AM Plan.■ Drafting of Asset Management Plans for approval.
Technical Officers/Contract Administrator and Property Officer	<ul style="list-style-type: none">■ Capital works projects and contractor engagement■ Report of any asset defects or deficiencies noted during inspections.

Key Stakeholder	Role in Asset Management Plan
Manager Operations	<ul style="list-style-type: none"> ■ Capital works projects ■ Reactive and planned maintenance schedules ■ Completion of CRM and Skytrust Actions ■ Report of any asset defects or deficiencies noted during inspections
Community (residents, businesses, property owners)	<ul style="list-style-type: none"> ■ Provide feedback on level of service and the implications on revenue and budget expenditure ■ Reporting of any asset defects or deficiencies through Council CRM system
Federal and State Governments	<ul style="list-style-type: none"> ■ Liaise for funding opportunities through various Government Agencies ■ Reporting body for any issues or service deficiencies for DIT infrastructure

2.2 Goals and Objectives of Asset Ownership

Our goal for 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,
- Risk Management,
- 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.

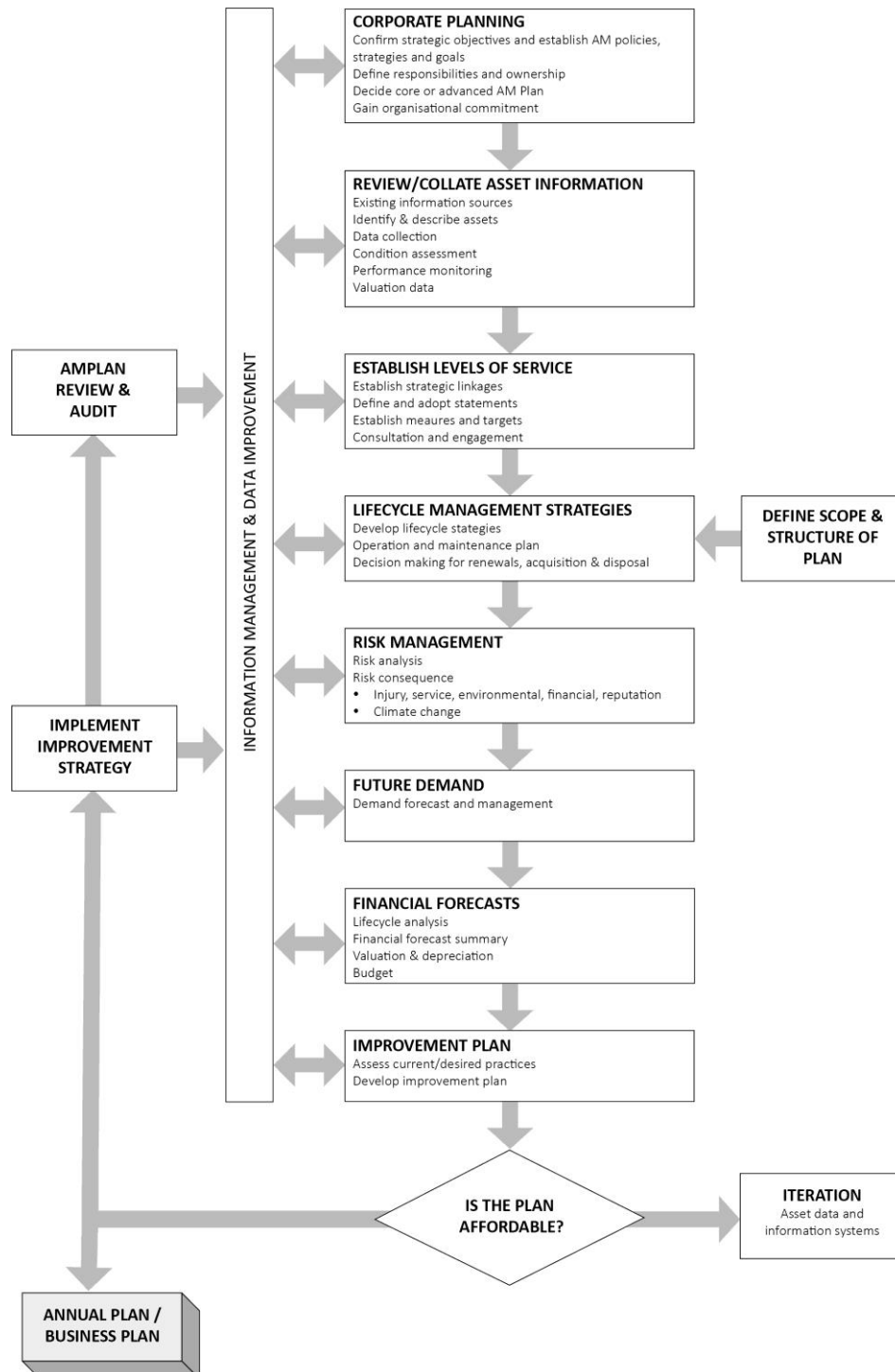
Other references to the benefits, fundamentals principles and objectives of asset management are:

- International Infrastructure Management Manual 2015 ¹
- ISO 55000²

A road map for preparing an AM Plan is shown below.

Road Map for preparing an Asset Management Plan

Source: IPWEA, 2006, IIMM, Fig 1.5.1, p 1.11



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

This AM Plan is prepared to facilitate consultation prior to adoption of levels of service by the Port Augusta City Council. Future revisions of the AM Plan will incorporate customer consultation on service levels and costs of providing the service. This will assist the Port Augusta City Council and stakeholders in matching the level of service required, service risks and consequences with the customer's ability and willingness to pay for the service.

3.2 Strategic and Corporate Goals

This AM Plan is prepared under the direction of the Port Augusta City Council vision, mission, goals and objectives.

Strategic goals have been set by the Port Augusta City Council. The relevant goals and objectives and how these are addressed in this AM Plan are summarised in Table 3.2.

Table 3.2: Goals and how these are addressed in this Plan

Goal	Objective	How Goal and Objectives are addressed in the AM Plan
We provide and advocate for fit for purposed infrastructure that improves the economic, environmental and social wellbeing of our City.	<ul style="list-style-type: none">• Our physical infrastructure meets our community needs.• Our City develops and evolves in a planned way, improving the appearance of our City and making efficient use of infrastructure.	<ul style="list-style-type: none">• Continuous improvement in asset management practices• Determining a defined level of service and monitoring performance using a lifecycle approach.
We conduct our Council business ethically and transparently and seek financial sustainability and legislative compliance to allow the Council to provide the infrastructure and services required to achieve our 2029 aspirations.	<ul style="list-style-type: none">• Investigate and implement a contingency approach for planning for growth or decline.	<ul style="list-style-type: none">• Managing the impact of growth through demand management and infrastructure investment• Having a long-term financial plan which identifies required, affordable expenditure and how it will be financed (Based on IPWEA, 2011, IIMM, Sec 1.2 p1/7)

3.3 Legislative Requirements

There are many legislative requirements relating to the management of assets. Legislative requirements that impact the delivery of the CWMS and Wastewater service are outlined in Table 3.3.

Table 3.3: Legislative Requirements

Legislation	Requirement
Local Government Act 1999	Sets out role, purpose, responsibilities and powers of local governments including the preparation of a long term financial plan supported by asset management plans for sustainable service delivery.
Work Health and Safety Act 2012 & Regulations	Set out roles and responsibilities to secure the health, safety and welfare of persons at work.
South Australian Public Health Act 2011 & Community Wastewater Management Systems Code	Enables administration of the Wastewater Regulations and Department for Health and Wellbeing codes relating to on-site wastewater systems
Water Industry Act 2012	Regulatory function of water and sewer retail service providers

3.4 Customer Values

Service levels are defined in three ways, customer values, customer levels of service and technical levels of service.

Customer Values indicate:

- what aspects of the service is important to the customer,
- whether they see value in what is currently provided and
- the likely trend over time based on the current budget provision

Future revisions of the AM Plan will incorporate customer values once fully researched through community engagement and satisfaction surveys

3.5 Customer Levels of Service

The Customer Levels of Service are considered in terms of:

Condition 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 3.5 under each of the service measures types (Condition, Function, Capacity/Use) there is a summary of the performance measure being used, the current performance, and the expected performance based on the current budget allocation.

These are measures of fact related to the service delivery outcome (e.g. number of occasions when service is not available or proportion of replacement value by condition %'s) to provide a balance in comparison to the customer perception that may be more subjective.

Table 3.5: Customer Level of Service Measures

Key Performance Measure	Level of Service Objective	Performance Measure Process	Service Target
Reliability	Minimise interruption to service provision.	Reported service interruptions due to CWMS infrastructure failure	<5 per year
	Collection system operation without blockage	Reported or identified blockages.	<5 per year
	Maintenance of service during power outage.	Manage system in accordance with contingency plan to minimise and manage overflow.	Activation of contingency plan as required.
Responsiveness	Response to blockages and alarms within set timeframe.	Response to critical alarms and complaints.	Within 1 hour
Amenity	Maintain visual amenity of CWMS infrastructure.	Maintain equipment and land clear from weeds and debris.	Weed spraying of CWMS sites in conjunction with footpath spraying program. <5 per year
	Control odour generation from pump stations, treatment plants and storage lagoons.	Reported odour complaints.	
Safety	Ensure public safety around high risk system components including pump stations, manholes, treatment plant and storage lagoons.	All lockable infrastructure secured from public access.	No unauthorised access to CWMS infrastructure.
	Manage public access to sites irrigated with reclaimed water.	Irrigation operation in conformance with Irrigation Management Plan.	Minimise risk to public health from public area irrigation.

Financing	Ensure annual services charges meet requirements for compliant operations of scheme and planned asset renewals.	Adequate recording and reporting on costs and charges.	Charges cover operations, maintenance and renewal.
	Annual budget reporting in line with Council financial processes		

3.6 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 10 year Planned Budget allocation, and the Forecast activity requirements being recommended in this AM Plan.

³ IPWEA, 2015, IIMM, p 2 | 28.

Table 3.6: Technical Levels of Service

Key Performance Measure	Level of Service Objective	Performance Measure Process	Service Target
Quality	Treated effluent to comply with license conditions. Infrastructure compliant with current Dept of Health and EPA standards.	Quarterly sampling and testing by NATA accredited laboratory. Infrastructure compliant or plans for upgrade to meet compliant levels.	Within DH requirements for water quality.
	Ongoing operation of pump stations and treatment plant.	System outage frequency and duration due to CWMS infrastructure failure	<48 hours treatment plant downtime per annum.
Reliability	Availability of treated effluent for irrigation.	Acceptable quantity and quality of water to meet irrigation requirements.	Council can purchase SA Water potable water for irrigation at a higher cost. 90% of Council's irrigation requirements met through treated effluent water.
Maintenance	System maintenance in accordance with component manufacturers' recommendations and Council Operations and Maintenance Plan.	Reporting	Records maintained of all system maintenance.
		Budget	\$231430
Renewal	Planned asset renewal and upgrade undertaken to maintain system in compliant operational condition.	Asset management plan integrated with Long Term Financial Plan and annual budget process.	Updated plans adopted for 2021/22 budgeting and reviewed annually.
		Budget	\$478680
Capacity	Ensure adequate capacity for future growth forecasts.	System planning based on growth forecasts and	System catchment component plans completed and aligned to growth

Key Performance Measure	Level of Service Objective	Performance Measure Process	Service Target
		development planning.	forecasts and development planning.
Safety	System free of preventable hazards	Assessment of hazardous components and tasks in accordance with Hazard Management Procedure.	No lost time injury associated with CWMS operations.

It is important to monitor the service levels regularly as circumstances can and do change. Current performance is based on existing resource provision and work efficiencies. It is acknowledged changing circumstances such as technology and customer priorities will change over time.

4.0 FUTURE DEMAND

4.1 Demand Drivers

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

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 AM Plan.

Table 4.3: Demand Management Plan

Demand driver	Current position	Projection	Impact on services	Demand Management Plan
Growth in connections	Increased development density (land divisions). Council WWTP, storage lagoon and reuses irrigation areas independent of growth in connections.	Growth in connections unlikely in Council CWMS areas as catchment areas are developed and defined areas.	No impact expected in Council CWMS collection areas. No impact to WWTP, Storage lagoon or reuse irrigation systems.	Capacity Assessment and integration into future reviews of the AMP
Population growth	13,474 (2001 Census) 13,874 (2006 Census) 13,985 (2011 Census) 14,102 (2018 ABS) Population continuing to grow, albeit slowing.	Limited change	Downstream impact on existing collection networks and pumping stations.	Developer contributions are per Council Specifications and Policy

Growth in Council Irrigation	Irrigation of Council parks, ovals and gardens. Potential to increase Council irrigation areas. Potential to sell treated effluent to irrigate private areas	Potential increase in irrigation areas. Potential for second storage lagoon to be situated adjacent to existing storage lagoon.	Impact on capacity requirements	Potential for second storage lagoon to be situated adjacent to existing storage lagoon.
Regulatory change to requirements under Water Industry Act	CWMS collection, WWTP, storage lagoon, irrigation systems meet EPA and DH requirements.	Additional operational or reporting requirements expected under ESCOSA/OTR.	Requirements not yet known.	

4.4 Asset Programs to meet Demand

The new assets required to meet demand may be acquired, donated or constructed. Acquiring new assets will commit the Port Augusta City Council to ongoing operations, maintenance and renewal costs for the period that the service provided from the assets is required. These future costs are identified and considered in developing forecasts of future operations, maintenance and renewal costs for inclusion in the long-term financial plan (Refer to Section 5).

4.5 Climate Change Adaptation

The impacts of climate change may 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 impacts on assets will vary depending on the location and the type of services provided, as will the way in which we respond and manage those impacts.⁴

As a minimum we consider how to manage our existing assets given potential climate change impacts for our region.

Risk and opportunities identified to date are shown in Table 4.5.1

Table 4.5.1 Managing the Impact of Climate Change on Assets and Services

Climate Change Description	Projected Change	Potential Impact on Assets and Services	Management
Limited availability to water (Drought conditions)	Increase in demand for water reuse schemes	Increase in asset base, arid smart methodologies for City beatification	Understand capacity and include within review of AM Plan

⁴ IPWEA Practice Note 12.1 Climate Change Impacts on the Useful Life of Infrastructure

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

- Assets will withstand the impacts of climate change;
- Services can be sustained; and
- 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 AM Plan.

5.0 LIFECYCLE MANAGEMENT PLAN

The lifecycle management plan details how the Port Augusta City 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

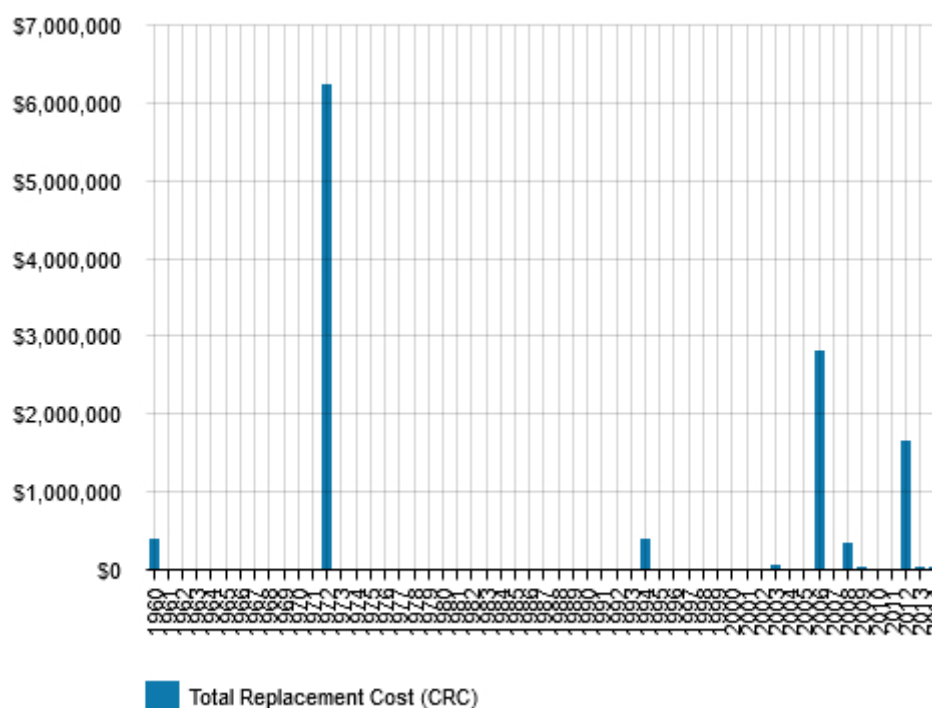
5.1.1 Physical parameters

The assets covered by this AM Plan are shown in Table 5.1.1.

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

Table 5.1.1: Assets covered by this Plan

Asset Category	Dimension	Replacement Value
Collection Nodes	1744 items	\$1,350,984
Collection Pipes	31,661m	\$5,195,346
Pump Stations	7 with combined 65 items	\$408,293
Wastewater Treatment Plant and Lagoon	71 Items	\$2,524,546
Wastewater Reuse	44 items & 22,295m	\$2,461,182
TOTAL		\$11,940,351



All figure values are shown in current day dollars.

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 will be monitored for improvement.

Table 5.1.2: Known Service Performance Deficiencies

Location	Service Deficiency
Tassie Ponds	Due to closure of the facility the current waste in the cells will need to be excavated and sent off for disposal, current investing costs and closure requirements.
Stirling North Lagoon	The liner has deteriorated beyond repair and the site is no longer operating as efficiently as it should be investigation occurring into renewal of the liner and improved practices.

Both deficiencies are unfunded.

5.1.3 Asset condition

CWMS and Land Improvement Assets are condition assessed on a five (5) year cyclic inspection program. Data is currently being compiled from the most recent inspection undertaken during 2020 and will be included within a future review of this AM Plan.

5.2 Operations and Maintenance Plan

Operations include regular activities to provide services. Examples of typical operational activities include cleaning, street sweeping, asset inspection, and utility costs.

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. Examples of typical maintenance activities include pipe repairs, asphalt patching, and equipment repairs.

The trend in maintenance budgets are shown in Table 5.2.1.

Table 5.2.1: Maintenance Budget Trends

Year	Maintenance Budget \$
2019/2020	\$590,352
2018/2019	\$415,488
2017/2018	\$430,200

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.

Asset hierarchy

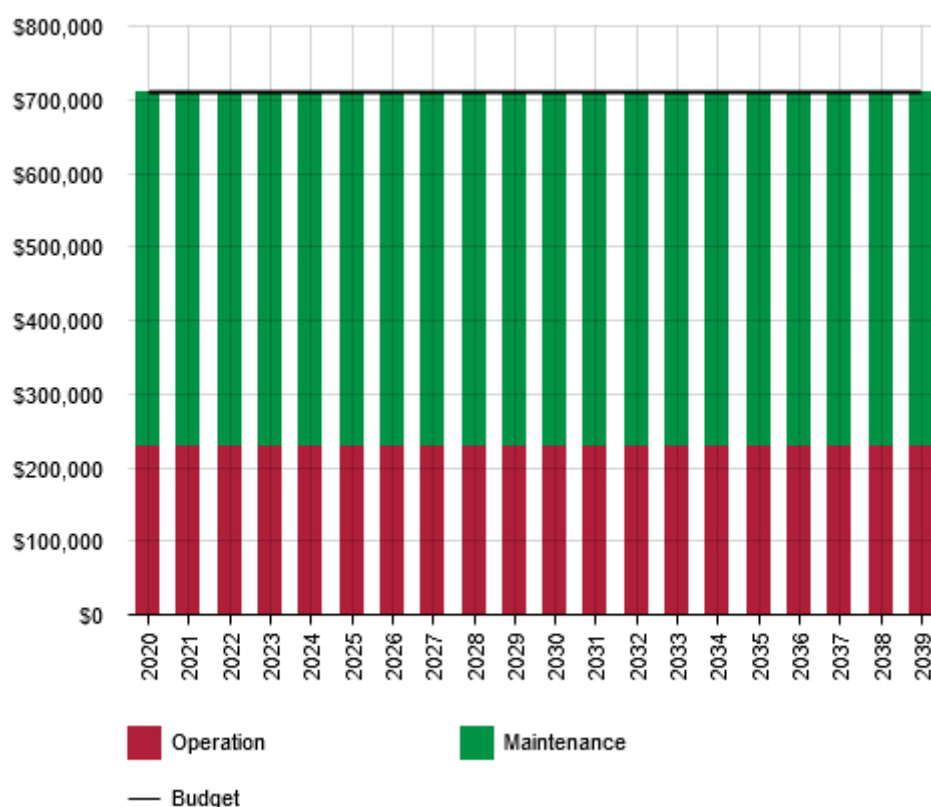
An asset hierarchy provides a framework for structuring data in an information system to assist in collection of data, reporting information and making decisions. The hierarchy is to be formally documented and will be provided in future revision of the AM Plan.

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.

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 one of two approaches in the Lifecycle Model.

- The first method uses 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), or
- The second method uses an alternative approach to estimate the timing and cost of forecast renewal work (i.e. condition modelling system, staff judgement, average network renewals, or other).

The typical useful lives of assets used to develop projected asset renewal forecasts are shown in Table 5.3. Asset useful lives are currently being validated, this AM Plan is based on useful life assumptions from the 2016 valuation.⁵

⁵ Enter Reference to Report documenting Review of Useful Life of Assets

Table 5.3: Useful Lives of Assets

Asset (Sub)Category	Useful life
CWMS Pipes and Collection Nodes	70 years
CWMS Pumps, PS Mechanical Assets, PS Electrical Assets	25 years
CWMS PS Sumps and PS Civic Assets	50 years
WWTP & Lagoon Tanks	50 years
WWTP & Lagoon Pumps	20 years
Water reuse pipe	20 years

The estimates for renewals in this AM Plan were based on the asset register.

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).⁶

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.⁷

The ranking criteria used to determine priority of identified renewal proposals is to be formally developed.

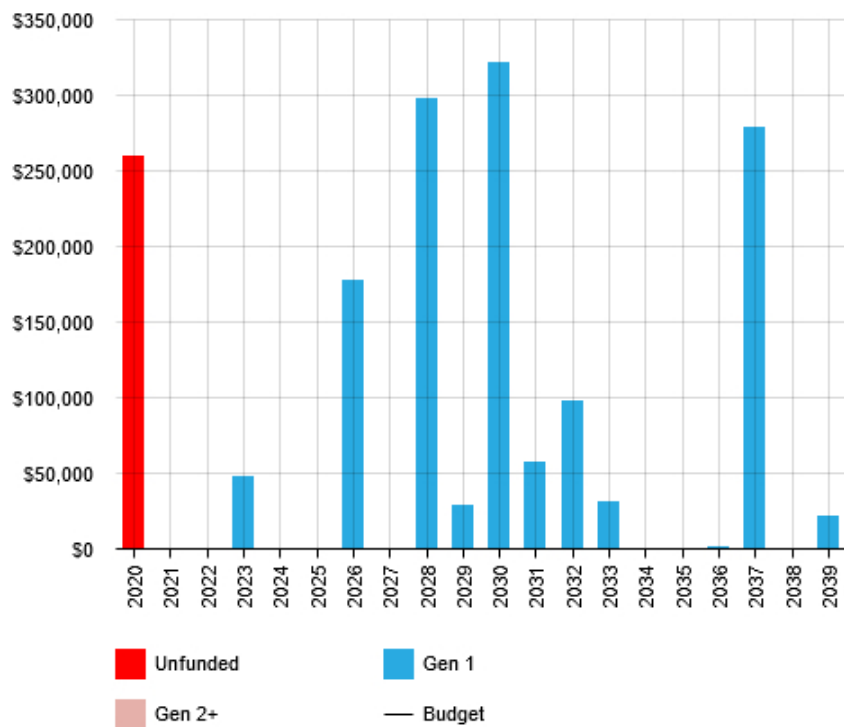
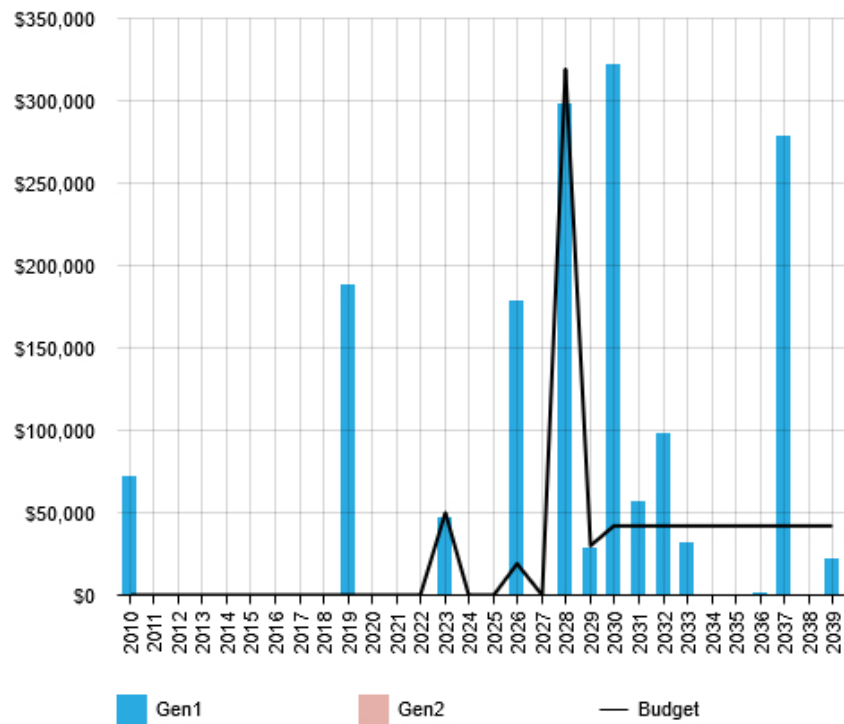
5.4 Summary of future renewal costs

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.

⁶ IPWEA, 2015, IIMM, Sec 3.4.4, p 3|91.

⁷ 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.

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 Port Augusta City Council.

5.5.1 Selection criteria

Proposed acquisition of new assets, and upgrade of existing 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.

Summary of future asset acquisition costs

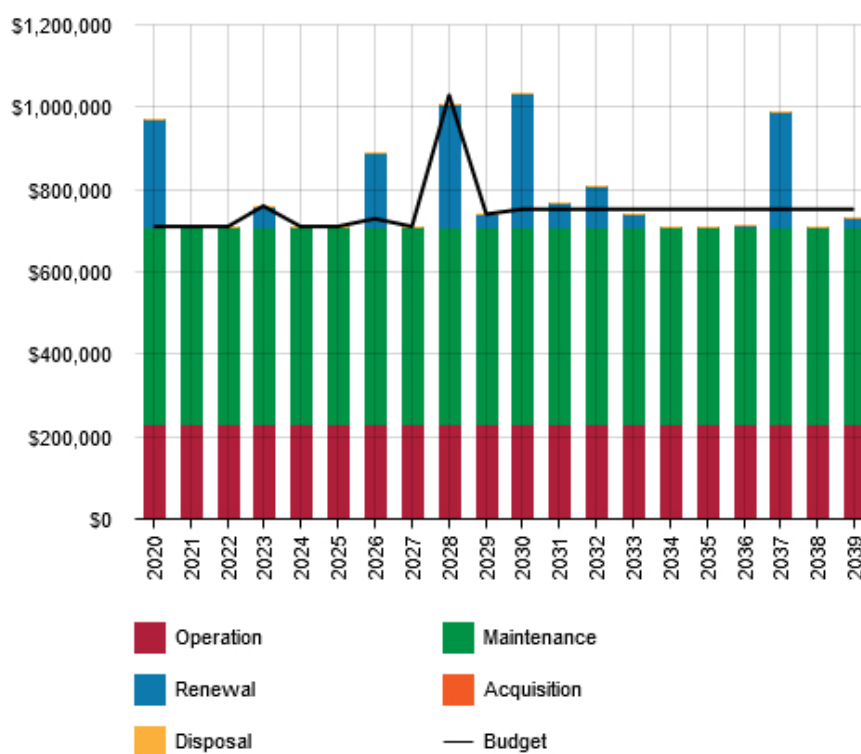
Nil.

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. There are no assets identified for possible decommissioning and 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’⁸.

An assessment of risks⁹ 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
CWMS Network	Failure due to condition of aging assets/blockage	Environment and loss of reputation risk
Pump Assets	Failure due to condition of asset and/or blockage	Potential flooding and environmental 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.

⁸ ISO 31000:2009, p 2

⁹ REPLACE with Reference to the Corporate or Infrastructure Risk Management Plan as the footnote

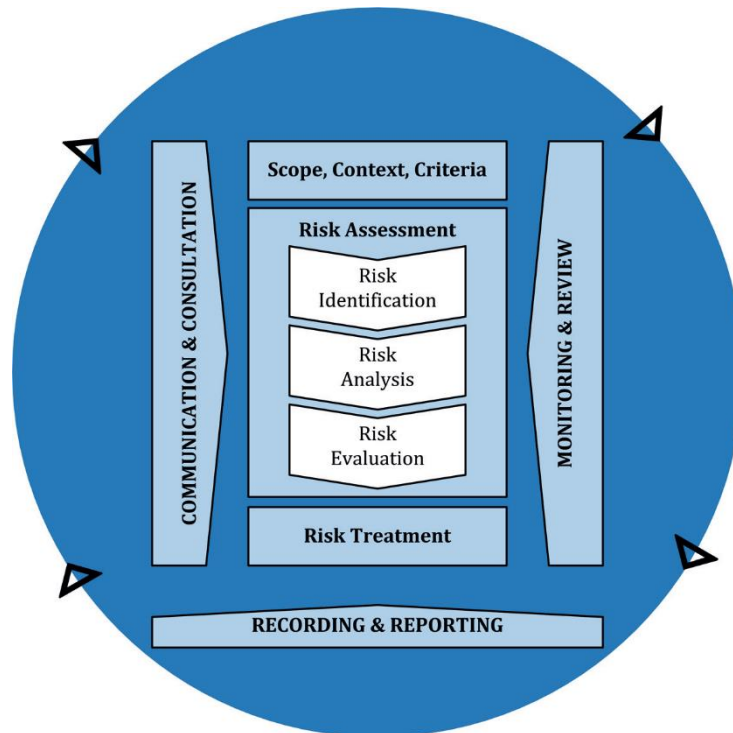


Fig 6.2 Risk Management Process – Abridged
Source: ISO 31000:2018, Figure 1, p9

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 risks¹⁰ 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 Council.

Risks and treatments plans are currently being identified.

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’, and to respond to possible disruptions to ensure continuity of service.

Resilience recovery planning, financial capacity, climate change risk assessment and crisis leadership will be included in future iterations of the AM Plan.

¹⁰ REPLACE with Reference to the Corporate or Infrastructure Risk Management Plan as the footnote

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 adequate renewal in line with AM Plan projections

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 may result in less reliable services and potential financial and environmental risks.

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 actions and expenditures are considered and included in the forecast costs, and will be incorporated into the Risk Management Plan in future review of this document.

7.0 FINANCIAL SUMMARY

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

7.1 Financial Sustainability and Projections

7.1.1 Sustainability of service delivery

There are two key indicators of sustainable service delivery that are considered in the AM 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 Ratio¹¹ 51.54%

The Asset Renewal Funding Ratio is an important indicator and illustrates that over the next 10 years we expect to have 51.54% 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 \$791,206 average per year.

The proposed (budget) operations, maintenance and renewal funding is \$751,910 on average per year giving a 10 year funding shortfall of \$-39,296 per year. This indicates that 95.03% 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.

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.

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

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

Providing services in a financially sustainable manner requires a balance between the forecast outlays required to deliver the agreed service levels with the planned budget allocations in the long-term financial plan.

A gap between the forecast outlays and the amounts allocated in the financial plan indicates further work is required on reviewing service levels in the AM Plan (including possibly revising the long-term financial plan).

¹¹ AIFMM, 2015, Version 1.0, Financial Sustainability Indicator 3, Sec 2.6, p 9.

We will manage the 'gap' by developing this AM Plan to provide guidance on future service levels and resources required to provide these services in consultation with the community.

Forecast costs are shown in 2020/21 dollar values.

Table 7.1.2: Forecast Costs (Outlays) for the Long-Term Financial Plan

Year	Acquisition	Operation	Maintenance	Renewal	Disposal
2020	0	231430	478680	259753	0
2021	0	231430	478680	0	0
2022	0	231430	478680	0	0
2023	0	231430	478680	47137	0
2024	0	231430	478680	0	0
2025	0	231430	478680	0	0
2026	0	231430	478680	177901	0
2027	0	231430	478680	0	0
2028	0	231430	478680	297779	0
2029	0	231430	478680	28388	0
2030	0	231430	478680	321595	0
2031	0	231430	478680	56834	0
2032	0	231430	478680	98111	0
2033	0	231430	478680	31392	0
2034	0	231430	478680	0	0
2035	0	231430	478680	0	0
2036	0	231430	478680	1590	0
2037	0	231430	478680	278786	0
2038	0	231430	478680	0	0
2039	0	231430	478680	21276	0

7.2 Funding Strategy

The proposed funding for assets is outlined in the Entity's budget and Long-Term financial plan.

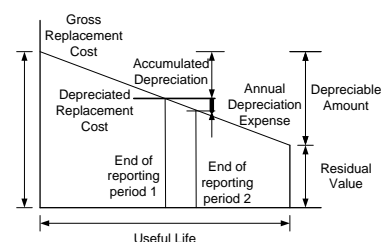
The financial strategy of the entity determines how funding will be provided, whereas the AM Plan communicates how and when this will be spent, along with the service and risk consequences of various service alternatives.

7.3 Valuation Forecasts

7.3.1 Asset valuations

The best available estimate of the value of assets included in this AM Plan are shown below. The assets are valued at fair value at cost to replace service capacity:

Replacement Cost (Current/Gross)	\$11930401
Depreciable Amount	\$11930401
Depreciated Replacement Cost ¹²	\$5746222.0



¹² Also reported as Written Down Value, Carrying or Net Book Value.

Depreciation \$211600.0

7.3.2 Valuation forecast

Asset values are forecast to remain steady as additional assets are not expected to be added to the service.

Additional assets will generally add to the operations and maintenance needs in the longer term. Additional assets will also require additional costs due to future renewals. Any additional assets will also add to future depreciation forecasts.

7.4 Key Assumptions Made in Financial Forecasts

In compiling this AM 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 AM Plan are:

- All financial information for the whole of the 20 year plan is presented in present day values
- Information is based on available asset data
- Asset useful life assumptions are correct
- Unexpected changes in asset condition may result in unplanned and unbudgeted maintenance and renewal requirements.

7.5 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 scale¹³ in accordance with Table 7.5.1.

Table 7.5.1: Data Confidence Grading System

Confidence Grade	Description
A. Very High	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. High	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. Medium	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. Low	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. Very Low	None or very little data held.

¹³ IPWEA, 2015, IIMM, Table 2.4.6, p 2|71.

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	Demand drivers are based on historic trends
Growth projections	N/a	All figures are based on present day values
Acquisition forecast	B	Current growth trends would suggest negligible impact
Operation forecast	B	Based on historic data
Maintenance forecast	B	Based on historic data
Renewal forecast		Renewal forecast values are informed from the current valuation data
- Asset values	B	Renewal forecast values are informed from the current valuation data
- Asset useful lives	B	Renewal forecast values are informed from the current valuation data
- Condition modelling	B	Condition data has been recently collected and will be included within the future review of the document.
Disposal forecast	B	Useful lives impact accumulated depreciation and therefore may be under or overstated if useful lives are not reflective of actual asset performance.

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

8.0 PLAN IMPROVEMENT AND MONITORING

8.1 Status of Asset Management Practices¹⁴

8.1.1 Accounting and financial data sources

This AM Plan utilises accounting and financial data. Financial records are maintained within Authority Finance System.

8.1.2 Asset management data sources

This AM Plan also utilises asset management data. The source of the data is held within a combination of the Council's GIS system and spreadsheet documents. It is planned to migrate asset data into Council's Asset Management System, Conquest.Improvement Plan

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

Table 8.2: Improvement Plan

Task	Task	Responsibility	Resources Required	Timeline
	Development of Asset Improvement plan timeline to address 12 tasks below	AMO	Internal	Dec 20
1	Undertaken capacity investigation to determine potential for expansion	MI/MO	Internal/Consultant	
2	Update of Asset Registers and upload into Conquest	AMO	Internal/Consultant	
3	Community Satisfaction Survey and desired level of service identification	MI/AMO	Internal/Consultant	
4	Enhance the existing Renewal/Replacement Plans and annual review of 10 year capital programs	AMO	Internal	
5	Asset maturity Assessment	AMO	Internal	
6	Operational Plan and development of Asset Hierarchy	AMO/MO	Internal	
7	Collate risk assessment for critical assets and treatment plans	AMO	Internal	

8.2 Monitoring and Review Procedures

This AM 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, acquisition and asset disposal costs and planned 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.

¹⁴ ISO 55000 Refers to this as the Asset Management System

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.

8.3 Performance Measures

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

- The degree to which the required forecast costs identified in this AM 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 consider the 'global' works program trends provided by the AM Plan,
- The degree to which the existing and projected service levels and service consequences, risks and residual risks are incorporated into the Strategic Planning documents and associated plans,
- The Asset Renewal Funding Ratio achieving the Organisational target (this target is often 90 – 100%).

9.0 REFERENCES

- IPWEA, 2006, 'International Infrastructure Management Manual', Institute of Public Works Engineering Australasia, Sydney, www.ipwea.org/IIMM
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- IPWEA, 2020 'International Infrastructure Financial Management Manual', Institute of Public Works Engineering Australasia, Sydney
- IPWEA, 2018, Practice Note 12.1, 'Climate Change Impacts on the Useful Life of Assets', Institute of Public Works Engineering Australasia, Sydney
- IPWEA, 2012, Practice Note 6 Long-Term Financial Planning, Institute of Public Works Engineering Australasia, Sydney, <https://www.ipwea.org/publications/ipweabookshop/practicenotes/pn6>
- IPWEA, 2014, Practice Note 8 – Levels of Service & Community Engagement, Institute of Public Works Engineering Australasia, Sydney, <https://www.ipwea.org/publications/ipweabookshop/practicenotes/pn8>
- ISO, 2014, ISO 55000:2014, Overview, principles and terminology
- ISO, 2018, ISO 31000:2018, Risk management – Guidelines
- Strategic Directions 2019 - 2029,
- Four Year Priority Action Plan
- 'Annual Plan and Budget'.
- Infrastructure Asset Management Plan, Transport, Stormwater, CWMS and Bridge & Marine Structures, Port Augusta City Council, October 2016 Ref No. 201060472DR2A – Tonkin Consulting, Adelaide

10.0 APPENDICES

Appendix A Acquisition Forecast

Nil

Table A3 - Acquisition Forecast Summary

Year	Constructed	Donated	Growth
2020	0	0	0
2021	0	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

Appendix B Operation Forecast

Table B2 - Operation Forecast Summary

Year	Operation Forecast	Additional Operation Forecast	Total Operation Forecast
2020	231430	0	231430
2021	231430	0	231430
2022	231430	0	231430
2023	231430	0	231430
2024	231430	0	231430
2025	231430	0	231430
2026	231430	0	231430
2027	231430	0	231430
2028	231430	0	231430
2029	231430	0	231430
2030	231430	0	231430
2031	231430	0	231430
2032	231430	0	231430
2033	231430	0	231430
2034	231430	0	231430
2035	231430	0	231430
2036	231430	0	231430
2037	231430	0	231430
2038	231430	0	231430
2039	231430	0	231430

Appendix C Maintenance Forecast

Table C2 - Maintenance Forecast Summary

Year	Maintenance Forecast	Additional Maintenance Forecast	Total Maintenance Forecast
2020	478680	0	478680
2021	478680	0	478680
2022	478680	0	478680
2023	478680	0	478680
2024	478680	0	478680
2025	478680	0	478680
2026	478680	0	478680
2027	478680	0	478680
2028	478680	0	478680
2029	478680	0	478680
2030	478680	0	478680
2031	478680	0	478680
2032	478680	0	478680
2033	478680	0	478680
2034	478680	0	478680
2035	478680	0	478680
2036	478680	0	478680
2037	478680	0	478680
2038	478680	0	478680
2039	478680	0	478680

Appendix D Renewal Forecast Summary

Table D3 - Renewal Forecast Summary

Year	Renewal Forecast	Renewal Budget
2020	259753	0
2021	0	0
2022	0	0
2023	47137	50000
2024	0	0
2025	0	0
2026	177901	19000
2027	0	0
2028	297779	319000
2029	28388	30000
2030	321595	42000
2031	56834	42000
2032	98111	42000
2033	31392	42000
2034	0	42000
2035	0	42000
2036	1590	42000
2037	278786	42000
2038	0	42000
2039	21276	42000

Appendix E Disposal Summary

Nil.

Table E3 – Disposal Activity Summary

Year	Disposal Forecast	Disposal Budget
2020	0	0
2021	0	0
2022	0	0
2023	0	0
2024	0	0
2025	0	0
2026	0	0
2027	0	0
2028	0	0
2029	0	0
2030	0	0
2031	0	0
2032	0	0
2033	0	0
2034	0	0
2035	0	0
2036	0	0
2037	0	0
2038	0	0
2039	0	0

Appendix F Budget Summary by Lifecycle Activity

Table F1 – Budget Summary by Lifecycle Activity

Year	Acquisition	Operation	Maintenance	Renewal	Disposal	Total
2020	0	231430	478680	0	0	710110
2021	0	231430	478680	0	0	710110
2022	0	231430	478680	0	0	710110
2023	0	231430	478680	50000	0	760110
2024	0	231430	478680	0	0	710110
2025	0	231430	478680	0	0	710110
2026	0	231430	478680	19000	0	729110
2027	0	231430	478680	0	0	710110
2028	0	231430	478680	319000	0	1029110
2029	0	231430	478680	30000	0	740110
2030	0	231430	478680	42000	0	752110
2031	0	231430	478680	42000	0	752110
2032	0	231430	478680	42000	0	752110
2033	0	231430	478680	42000	0	752110
2034	0	231430	478680	42000	0	752110
2035	0	231430	478680	42000	0	752110
2036	0	231430	478680	42000	0	752110
2037	0	231430	478680	42000	0	752110
2038	0	231430	478680	42000	0	752110
2039	0	231430	478680	42000	0	752110