Technical Asset Management Plan Summary

Community Wastewater Management System (CWMS)

2020 - 2030

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Institute of Public Works Engineering Australia

Developed by Asset Engineering from resources available through the IPWEA NAMS+ program

asset engineering

1.0 Introduction & Summary

1.1 Background

This AM Plan (technical) has been prepared as an Annexure to the AM Plan summary. It covers the following CWMS asset types for 4 Schemes located at Freeling, Greenock, Kapunda & Roseworthy:

Asset Group	Asset Description
Nodes	Pumps, tanks, structures, inspection & flushing points.
Pipes	UPVC & earthenware pipes
Lagoons	Lined & unlined lagoons

1.2 Plan Development

The plan has been developed using the best available information to derive a sustainable renewal program based on defined service levels and exposure to risk.

The plan has been developed through developing the key areas of Levels of Service, Future Demand and Risk via workshops with Council Staff.

1.3 Lifecycle Costs

1.3.1 What does it Cost?

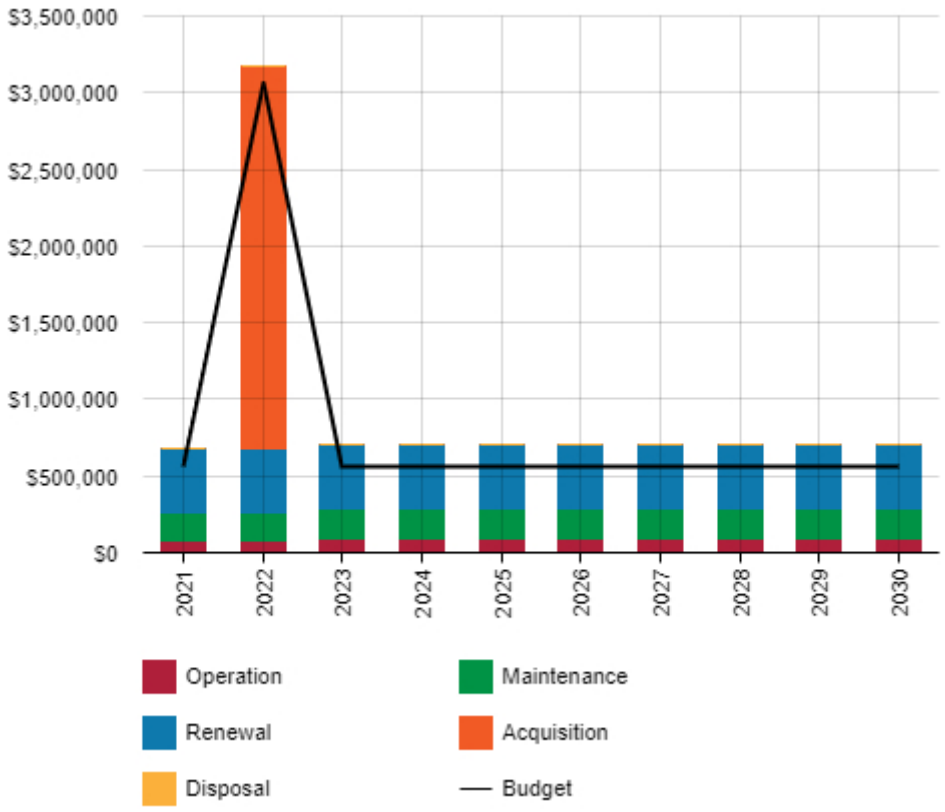
The forecast lifecycle costs necessary to provide the services covered by this AM Plan includes operation, maintenance, renewal, acquisition, and disposal of assets. The AM Plan informs a Long-Term Financial Planning period of 10 years. Therefore, a summary output from the AM Plan is the forecast of 10 year total outlays, which for the CWMS assets is estimated as $9,512,870 or $951,287 on average per year.

1.3.2 What we will do

Estimated available funding for the 10 year period is $8,129,070 or $812,907 on average per year as per the Long-Term Financial plan or Planned Budget. This is 85.45% 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 assets leaves a shortfall of $-138,380 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.



1.4 Levels of Service & Future Demand

It is expected that, given the funding shortfall, Council will be unable to meet its Levels of Service & Future Demand targets.

1.5 Risk Management

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

The main risk consequences are:

- Noncompliance of Freeling Plant
- Potential premature failure of earthenware pipe network
- Potential overflow of treatment plants and lagoons

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

- Investigate options and provide Council with budget for upgrade of Freeling facility
- Inspection of network via camera – 10 – 15km per year
- Undertake notification procedures and initiate the use of vac trucks in times of power failure

2.0 Levels of Service

2.1 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

Table 2.1.1: Customer Values

Customer Values	Customer Satisfaction Measure	Current Feedback	Expected Trend Based on Planned Budget
No blockage No overflows No leaks No environmental pollution	Customer complaints	27 total complaints by CRM (customer relationship management software) or phone calls	Expected to stay the same
Value for money	Amount paid per service which is levied as a separate rate	Engage with ESCOSA to determine if costs are comparable compared to those charged by other Councils. ESCOSA currently indicates that charges are appropriate, but it is unknown how these compare to other Councils	Council charges will increase as treatment plants are upgraded. If treatment plant is not funded, then costs may increase due to fines

2.2 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 2.2.1 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 2.2.1: Customer Level of Service Measures

Type of Measure	Level of Service	Performance Measure	Current Performance	Expected Trend Based on Planned Budget
Condition	Service provided is 'good' based on the number of requests that are received – 27 for 3,500 services	No of CRM's received	Only 27 CRM's received pa	If treatment plant is not funded, then costs may increase due to fines
	Confidence levels		Medium (Professional judgement supported by data sampling	Medium (Professional judgement supported by data sampling
Function	Continuity & reliability	Increase in blockages in mains due to sewer instead of septic tank	Freeling system is mixture of CWMS and Sewer that leads to problems with main blockages and the requirement for flushing	Expected to continue
	Confidence levels		Medium (Professional judgement supported by data sampling	Medium (Professional judgement supported by data sampling
Capacity	Capacity limited by storage and reuse Greenock system in particular could be considered at capacity	Storage being full (during winter)	Kapunda 98% capacity, (OK other than storage)- new lagoon is required. Greenock 100% pending 'Oscar Hotel' development which will push the system over the top Freeling (100% +)	Expected to get worse pending development of new lagoons & reuse
	Confidence levels		Medium (Professional judgement supported by data sampling	Medium (Professional judgement supported by data sampling

2.3 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. significant upgrade to a treatment plant).
- **Operation** – the regular activities to provide services (e.g., 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., clearing blockages, replacement of low value components),
- **Renewal** – the activities that return the service capability of an asset up to that which it had originally provided (e.g. pump & pipe replacement)

Service and asset managers plan, implement and control technical service levels to influence the service outcomes.[1]

Table 2.3.1 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.

Table 2.3.1: Technical Levels of Service

Lifecycle Activity	Purpose of Activity	Activity Measure	Current Performance*	Recommended Performance **
Acquisition	Freeling – plant upgrade of failing treatment system	Statutory regulations	Works are planned	Works are planned & regulatory approval is granted
		Budget	**$250,000**	**$250,000**
Operation	Administration of system & consumables	Alarms, overflows, callouts, breakdowns are attended to in a timely fashion	Satisfactory	Additional administration associated with new plant upgrades & systems
		Budget	**$84,356**	**$91,556**
Maintenance	Attending to blockages, proactive maintenance, water quality monitoring	Alarms, overflows, callouts, breakdowns are attended to in a timely fashion	Satisfactory	Additional maintenance associated with new plant upgrades & systems
		Budget	**$173,551**	**$188,351**
Renewal	Renew assets proactively avoiding service disruption	Regular asset condition assessments	Currently developing renewal program internally based on internal data collection	Fully develop proactive program based on regular asset inspections
		Budget	**$305,000**	**$421,380**

[1] IPWEA, 2015, IIMM, p 2|28.

Lifecycle Activity	Purpose of Activity	Activity Measure	Current Performance*	Recommended Performance **
Disposal	Rationalisation of underutilised facilities	Review of facility utilisation	Study not undertaken	Complete study and seek endorsement
		Budget	$0	$0

Note: * Current activities related to Planned Budget.

** Expected performance related to forecast lifecycle costs.

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.

3.0 Future Demand

3.1 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.

3.2 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.

3.3 Demand Impact & Demand Management Plan

The impact of demand drivers that may affect future service delivery and use of assets are shown in Table 3.3.

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 3.3. Further opportunities will be developed in future revisions of this AM Plan.

Table 3.3: Demand Management Plan

Demand driver	Current position	Projection	Impact on services	Demand Management Plan
Re use of water	**Kapunda** – water is being reused from storage lagoon for golf course 90%, Dutton Pk Oval & Kapunda Harness Club. Annual demand exhausted, quality OK. Other sites have requested use but volume low. Pipes to High Schools & new estate from header tank but not currently used. Rebate is provided to main users.	Not enough water – demand exceeds supply without other means of water harvesting	Council may need to purchase land elsewhere to create storage facilities	Allocation by volume instead of hierarchy of use now with Golf Course getting priority. Currently 30c/kl is paid by the user pay whereas $1.10 is the actual cost

Demand driver	Current position	Projection	Impact on services	Demand Management Plan
Re use of water	**Freeling** – noncompliant system, upgrade via complete upgrade is planned but not funded. Currently the lagoon has high saline water. Little reuse currently.	Reuse of water is planned with upgrade to filtration system for sewer-based system instead of CWMS where, supply exceeds demand	Need capital investment to satisfy demand. Capital investment required for $2.5m upgrade with $1.2m for treatment plant, $175k for land purchase and $1.1m lagoons & filtration to enable sale of water.	Changes in agriculture may drive additional use. Water can be used on roads (patrol grading)
Re use of water	**Greenock** – has no power, instead has 5 stepped lagoons. Increased inflow. Supply outstrips demand. Undersized system considering future development i.e., Oscar Hotel at Seppeltsfield. Not turning over volume per year therefore salinity increases. System regularly overflows. Currently irrigated on Council lot. Could be used for road construction (pending construction of loading facility)	Upgrade system to facilitate development – no services on site, no charge for water. Poor quality of water – highly saline	Need capital investment to facilitate reuse, demand and prevent overflowing	Additional users may pay for upgrade
Growth of townships	Some schemes are at capacity or may be at capacity following growth	Growth projected across the schemes	Upgrade of systems and harvesting of stormwater in addition to effluent	Undertake study to model growth against existing schemes.

3.4 Asset Programs to meet Demand

The new assets required to meet demand may be acquired, donated or constructed. Additional assets are discussed in Section 3.3.

Acquiring new assets will commit the 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 4).

4.0 Lifecycle Management Plan

The lifecycle management plan details how the Council plans to manage and operate the assets at the agreed levels of service (Refer to Section 2) while managing life cycle costs.

4.1 Operations and Maintenance Plan

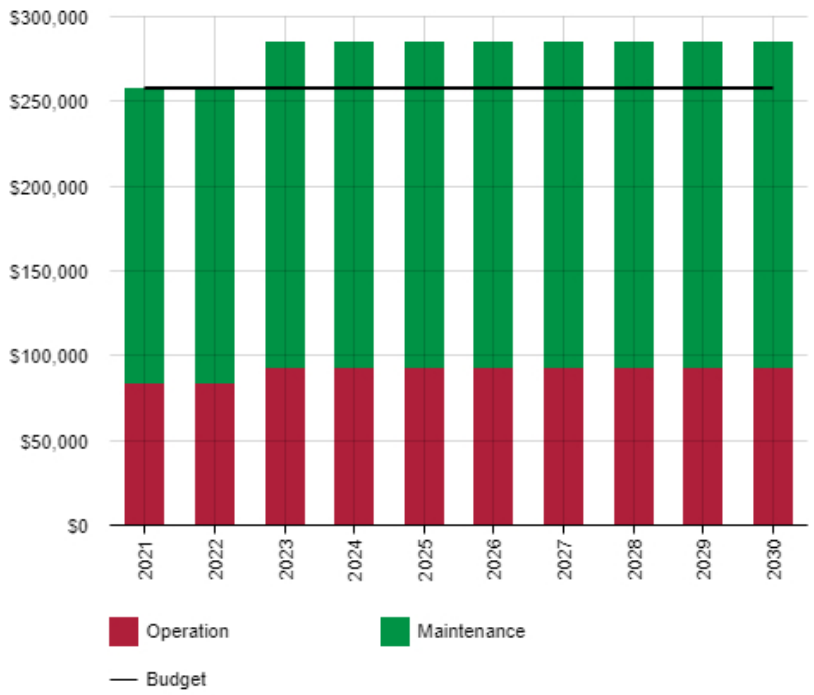
Operations include regular activities to provide services. Examples of typical operational activities include pump checks, filter checks, water sampling, manhole and chamber inspections.

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, pump repairs, water disposal and equipment repairs.

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 4.1.1 shows the forecast operations and maintenance costs relative to the proposed operations and maintenance Planned Budget.

Figure 4.1.1: Operations and Maintenance Summary



All figure values are shown in current day dollars.

Councils existing maintenance & operations costs as a percentage of the asset base is currently very low. It will be important for Council to review its operations and maintenance budget moving forward as the current infrastructure network grows.

4.2 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.

The development of this plan has predominantly focussed on developing a sustainable capital renewal profile for infrastructure assets. Councils' asset register in many cases has been developed for valuation purposes only with useful lives and componentisation in some cases preventing the use of data (directly) for renewal planning.

For the significant asset groups estimates for renewals in this AM Plan were calculated as follows:

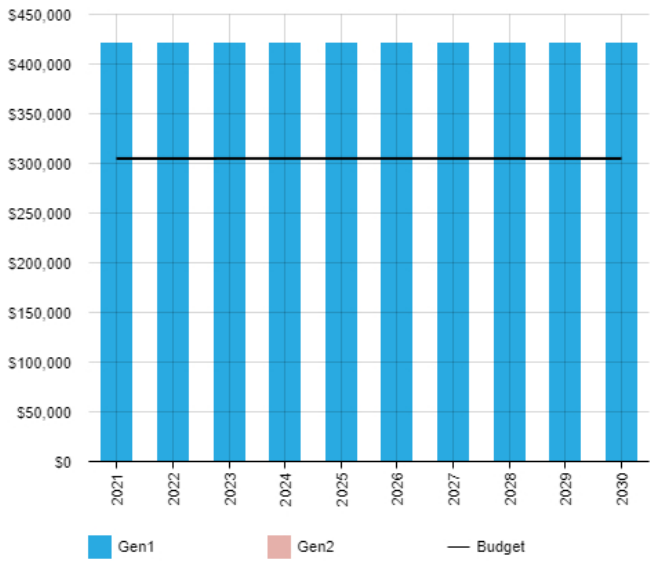
CWMS:

Councils' CWMS data was found to be unreliable for the purpose of capital renewal planning. Accordingly, a renewal allocation of $422k pa has been allocated pa which is the equivalent of depreciation.

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 4.2.1. A detailed summary of the forecast renewal costs is shown in Appendix D.

Figure 4.2.1: Forecast Renewal Costs



All figure values are shown in current day dollars.

In consideration of the above graphs and in particular the difference between the budget and the forecast renewals the below points should be noted:

- Council has recently undertaken a review of its LTFP budget provisions for infrastructure capital expenditure which has included a substantial increase in expenditure.
- The additional expenditure has not yet been prioritised between the asset groups identified in this plan.

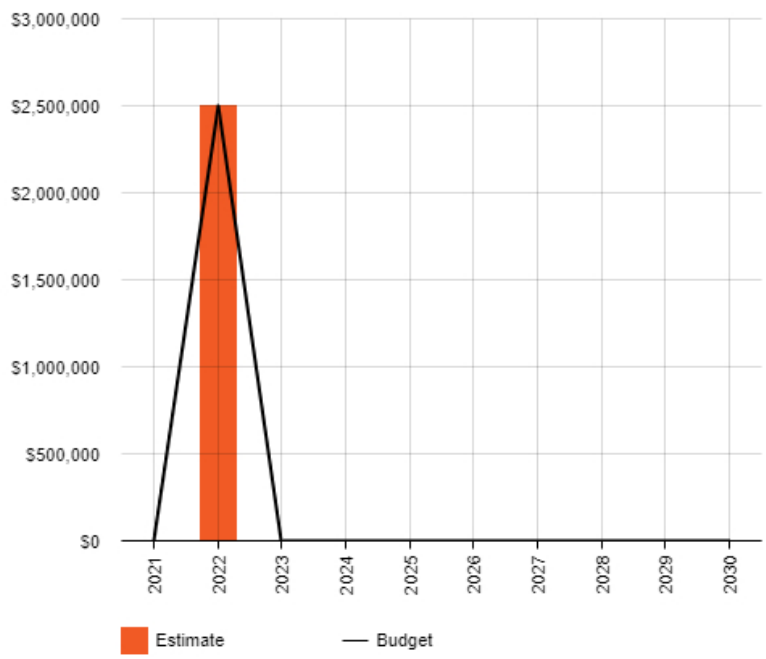
4.3 Acquisition Plan

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 Council.

Summary of future asset acquisition costs

Forecast acquisition asset costs are summarised / summarized in Figure 4.3.1 and shown relative to the proposed acquisition budget.

Figure 4.3.1: Acquisition (Constructed) Summary



The major acquisition shown in the graph above is for the upgrade of the Freeling Treatment Plant at a cost of $2,500,000. This upgrade will be funded through reserve funds set aside for CWMS operation as levied by fees.

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.

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.

The impact of new and upgraded assets either donated or constructed will require a significant adjustment to Council's operations and maintenance resources moving forward which should be the subject of further review.

4.4 Disposal Plan

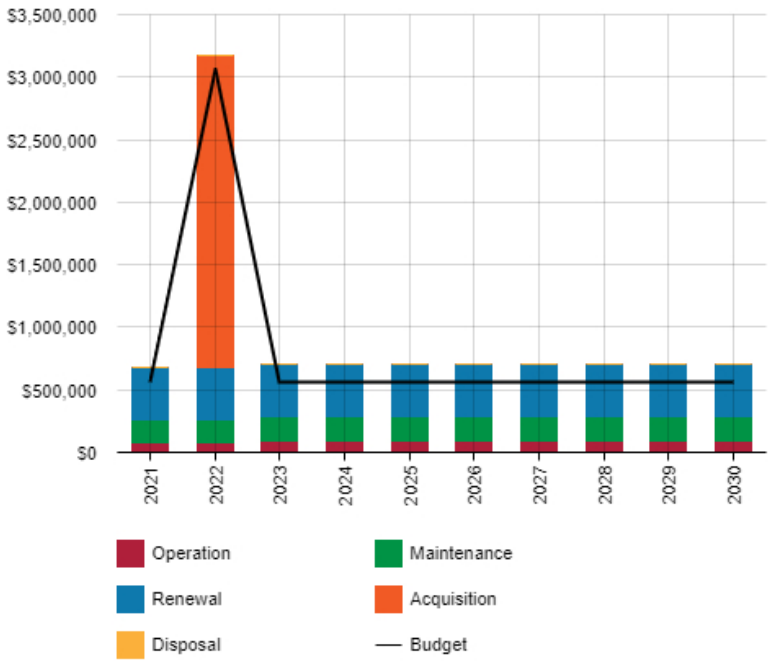
Disposal includes any activity associated with the disposal of a decommissioned asset including sale, demolition or relocation. Assets identified for possible decommissioning and disposal are shown in Table 5.6. A summary of the disposal costs and estimated reductions in annual operations and maintenance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

4.5 Summary of Asset Forecast Costs

The financial projections from this asset plan are shown in Figures 4.5.1. These projections include forecast costs for acquisition, operation, maintenance, renewal, and disposal. These forecast costs are shown relative to the proposed budget. The projections do not include acquisitions through 'donated' assets.

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 4.5.1: Lifecycle Summary



All figure values are shown in current day dollars.

5.0 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'[2].

An assessment of risks[3] 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.

5.1 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 5.1 Critical Assets

Critical Asset(s)	Failure Mode	Impact
Underground collection network	Environmental damage through high reactive soils, trees etc	Premature failure, disruption to service
Underground collection network	Aging of asset	Unexpected failure due to inaccurate age data and aging network
Treatment plant Kapunda	Buried tanks & ground movement Age of asset Equipment failure Power failure	Environmental damage, disruption to service
Treatment plant Freeling	Equipment failure, power failure, age of asset	Environmental damage, disruption to service
Lagoons	Overflowing in winter Asset failure	Environmental damage
Pump stations & pump chambers	Age of asset Equipment failure Power failure	Disruption to service

[2] ISO 31000:2009, p 2

[3] REPLACE with Reference to the Corporate or Infrastructure Risk Management Plan as the footnote

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.

5.2 Risk Assessment

The risk management process used is shown in Figure 5.2 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.

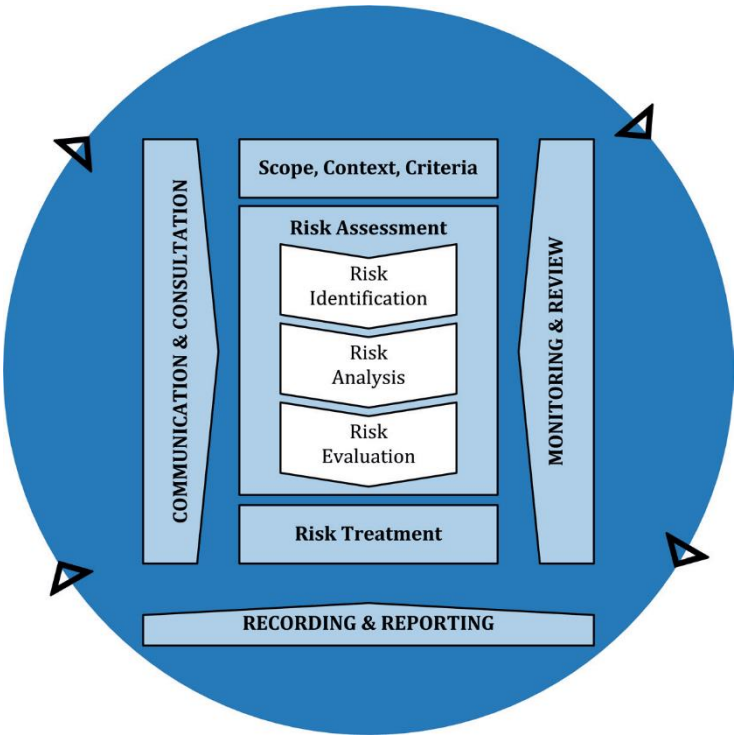


Fig 6.2 Risk Management Process – Abridged
Source: ISO 31000:2018, Figure 1, p9

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[4] 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.

[4] REPLACE with Reference to the Corporate or Infrastructure Risk Management Plan as the footnote

Table 5.2: Risks and Treatment Plans

Service or Asset at Risk	What can Happen	Risk Rating (VH, H)	Risk Treatment Plan	Residual Risk *	Treatment Costs
Meeting regulatory standards	Freeling plant is non-compliant currently & hence does not meet regulatory reqts	H	Investigate options and provide Council with budget for upgrade of facility	High if budget is not funded	$2.5m
Underground collection network, pump stations and chambers	Premature unplanned failure thru old earthenware pipe network	H	Inspection of network via camera – 10 – 15km per year	High if inspections are not done	Currently undertaken internally on adhoc basis. Administer planned inspection program
Non compliance with reuse of water	Testing of reuse water by user not carried out Water used during the day instead of at night	H	Monitor administrative procedures surrounding water reuse	L	Internal controls put in place
Non compliance with storage of water	Overflow of treatment plants and lagoons thru power loss or insufficient capacity	H	Notify authorities on estimated volumes of overflow from ponds and take appropriate action to mitigate Vac trucks brought in times of power failure	L	Internal controls put in place

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

5.3 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.

5.3.1 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:

- Replace all earthenware pipes
- Inspect & upgrade pump chambers
- Upgrade to Kapunda Treatment Plant
- Upgrade to Greenock Treatment Plant

5.3.2 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:

- Kapunda & Greenock Treatment Plants: Unable to provide environmentally sustainable service to users
- Pipes & Chambers: Potential for disrupted service to users

5.3.3 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:

- Unable to meet statutory requirements
- Potential fines
- Potential environmental harm
- Reputation risk

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

6.0 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.

6.1 Financial Sustainability and Projections

6.1.1 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 Ratio[5] 72.38%

The Asset Renewal Funding Ratio is an important indicator and illustrates that over the next 10 years we expect to have 72.38 % of the funds required for the optimal renewal of assets.

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 $701,287 on average per year.

The proposed (budget) operations, maintenance and renewal funding is $562,907 on average per year giving a 10 year funding shortfall or funding excess of $--138,380 per year. This indicates that 80.27% of the forecast costs needed to provide the services documented in this Asset Management Plan are accommodated in the proposed budget. This excludes 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.

6.1.2 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.

[5] AIFMM, 2015, Version 1.0, Financial Sustainability Indicator 3, Sec 2.6, p 9.

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).

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

Year	Acquisition	Operation	Maintenance	Renewal	Disposal
2021	0	84,356	173,551	421,380	0
2022	2,500,000	84,356	173,551	421,380	0
2023	0	93,356	192,051	421,380	0
2024	0	93,356	192,051	421,380	0
2025	0	93,356	192,051	421,380	0
2026	0	93,356	192,051	421,380	0
2027	0	93,356	192,051	421,380	0
2028	0	93,356	192,051	421,380	0
2029	0	93,356	192,051	421,380	0
2030	0	93,356	192,051	421,380	0

6.2 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.

6.3 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 scale[6] in accordance with Table 7.5.1.

Table 6.3.1: 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 ± 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 ± 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 ± 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 ± 40%
E. Very Low	None or very little data held.

The estimated confidence level for and reliability of data used in this AM Plan is shown in Table 6.3.2.

[6] IPWEA, 2015, IIMM, Table 2.4.6, p 2|71.

Table 6.3.2: Data Confidence Assessment for Data used in AM Plan

Data	Confidence Assessment	Comment
Demand drivers	C	The improvement plan proposes additional research in developing forecasts for required scheme extension.
Growth projections	D	No growth modelling has been considered.
Acquisition forecast	B	The upgrade of the Freeling treatment plant has been estimated and budgeted. More work is required on gap analysis involved with the remaining treatment schemes.
Operation forecast	C	Existing expenditure has been used as the basis to forecast costs without any further modelling associated with whether existing resources are adequate.
Maintenance forecast	C	Existing expenditure has been used as the basis for forecast expenditure without any further modelling associated with whether existing resources are adequate.
Renewal forecast - Asset values	C	Existing valuation figures (depreciation) has been used for renewal forecasts.
- Asset useful lives	C	Existing useful lives have been used.
- Condition modelling	C	Further work required to develop actual project level program of works
Disposal forecast	B	No disposals are forecast

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

7.0 Plan Improvement & Monitoring

7.1 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 7.1

Table 7.1: Improvement Plan

Task	Task	Responsibility	Resources Required	Timeline
1	Inspection of network via camera – 10 – 15km per year. Program being developed with the team and as required will be engaging contractor to undertake the work	General Mgr., Infrastructure & Environment	Internal	Ongoing
2	Noncompliance with reuse of water. Monitor administrative procedures surrounding water reuse. Project underway as part of the treatment plan upgrade.	General Mgr., Infrastructure & Environment	Internal	Ongoing
3	Notify authorities on estimated volumes of overflow from ponds and take appropriate action to mitigate. Vac trucks brought in times of power failure	General Mgr., Infrastructure & Environment	Internal	Ongoing
4	Undertake study to model growth against existing schemes.	General Mgr., Infrastructure & Environment	$15,000	2022/23
5	Upgrade of Lagoons (Kapunda & Grenock) to be investigated and costed	General Mgr., Infrastructure & Environment	$10,000	2022/23

7.2 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.

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

8.0 APPENDICES

Appendix A Acquisition Forecast

Table A1 - Acquisition Forecast Summary

Year	Constructed	Donated	Growth
2021	0	0	0
2022	2,500,000	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

Appendix B Operation Forecast

Table B1 - Operation Forecast Summary

Year	Operation Forecast	Additional Operation Forecast	Total Operation Forecast
2021	84,356	0	84,356
2022	84,356	9,000	84,356
2023	84,356	0	93,356
2024	84,356	0	93,356
2025	84,356	0	93,356
2026	84,356	0	93,356
2027	84,356	0	93,356
2028	84,356	0	93,356
2029	84,356	0	93,356
2030	84,356	0	93,356

Appendix C Maintenance Forecast

Table C1 - Maintenance Forecast Summary

Year	Maintenance Forecast	Additional Maintenance Forecast	Total Maintenance Forecast
2021	173,551	0	173,551
2022	173,551	18,500	173,551
2023	173,551	0	192,051
2024	173,551	0	192,051
2025	173,551	0	192,051
2026	173,551	0	192,051
2027	173,551	0	192,051
2028	173,551	0	192,051
2029	173,551	0	192,051
2030	173,551	0	192,051

Appendix D Renewal Forecast Summary

Table D1 - Renewal Forecast Summary

Year	Renewal Forecast	Renewal Budget
2021	421,380	305,000
2022	421,380	305,000
2023	421,380	305,000
2024	421,380	305,000
2025	421,380	305,000
2026	421,380	305,000
2027	421,380	305,000
2028	421,380	305,000
2029	421,380	305,000
2030	421,380	305,000

Appendix E Disposal Summary

No disposal are planned for assets included in this plan

Appendix F Budget Summary by Lifecycle Activity

Table F1 – Budget Summary by Lifecycle Activity

Year	Acquisition	Operation	Maintenance	Renewal	Disposal	Total
2021	0	84,356	173,551	305,000	0	562,907
2022	2,500,000	84,356	173,551	305,000	0	3,062,907
2023	0	84,356	173,551	305,000	0	562,907
2024	0	84,356	173,551	305,000	0	562,907
2025	0	84,356	173,551	305,000	0	562,907
2026	0	84,356	173,551	305,000	0	562,907
2027	0	84,356	173,551	305,000	0	562,907
2028	0	84,356	173,551	305,000	0	562,907
2029	0	84,356	173,551	305,000	0	562,907
2030	0	84,356	173,551	305,000	0	562,907