

Carrathool Shire Council



Water & Sewerage

Asset Management Plan



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1. EXECUTIVE SUMMARY

Context

Council provides water and sewer services to Goolgowi, Hillston and Rankins Springs urban areas. Water is provided to Carrathool and Merriwagga villages. With the exception of Rankins Springs all urban water supplies are potable.

In addition stock and domestic water is supplied to rural areas surrounding Goolgowi, Merriwagga and Rankins Springs.

The Melbergen scheme bulk supplies Goldenfields Water at Mt Daylight for the rural sector in the shire with stock and domestic water.

The provision of water and sewerage services is vital for public health. The stock and domestic supplies have allowed stock production to continue during the dry seasons and periods of drought and provided a higher quality of life to farm residences.

The major issues are the failure of pre 1990 substandard UPVC pipe and increasing power costs.

The Water & Sewerage Service

The Water & Sewerage network comprises:

- Water Bores 9 N^o
- Water Mains 458 km
- Water Pump Stations 19 N^o
- Water Treatment Facilities 3 N^o
- Sewer Mains 21 km
- Sewer Pump Stations 12 N^o
- Sewer Treatment Plants 3 N^o
- Telemetry 39 sites

These assets have a \$22.9M replacement value depreciating at \$608,000 per year (2.7%) the depreciated replacement cost (written down value) is \$15.1M as at 30 June 2016.

The Aim

The aim of this plan is to forecast the timing and cost to replace existing assets over a 20 year planning period commencing in the 2016/17 financial year to an agreed service level. This is to ensure lifecycle costs are kept to a minimum and service levels are provided at an acceptable and sustainable level. In addition, it is important the provision of new infrastructure is duly considered in respect to impacts on service levels, resources, finances and risk.

It is these impacts that need to be assessed as part of this plan and where the residual risk is considered high, due processes and control measures are

employed to ensure exposure is accepted and/or minimised in consultation with the community.

The Approach

For Water & Sewerage assets, three modelling scenarios have been prepared to consider possible outcomes over the planning period.

Scenario 1 projects future renewal timing and costs using the acquisition year (or date of last renewal) and useful life from the asset register. This is an important aspect as it communicates what is being stated in Council's Financial Statements thereby reflecting the state of assets and remaining service potential. Instances can occur where remaining lives can be under and/or over stated which impacts the valuation of assets and the subsequent depreciation expense allocated to the Operating Statement.

Scenario 2 is aimed at sustaining existing assets over the planning period at current service levels. The needs are based on technical knowledge and expertise from officers and existing modelling systems. This is the best available measure of future needs at the present time based on best available information ensuring confidence is increased over time via an improvement plan.

Scenario 3 balances the operating, maintenance and capital renewal and upgrade/new expenditure projections identified in Scenario 2 with the available funds in the Long-term Financial Plan (LTFP) and discusses the likely service implications and risks should there be a shortfall.

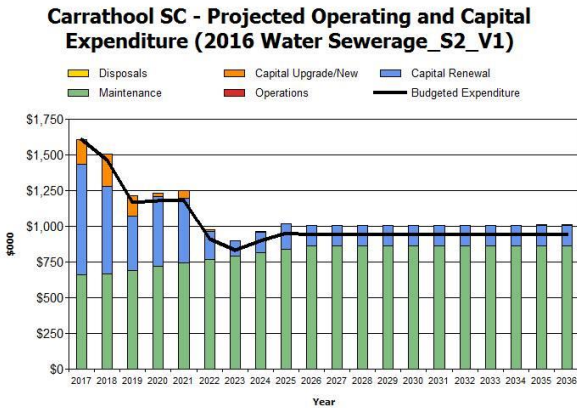
The difference between Scenario 2 and 3 represents "what we cannot do". This enables a discussion about the 'gap' in service delivery leading to a more informed discussion around the affordable and achievable service levels, while giving a focus on managing risk. In time, with increased knowledge of the assets and future service potential Council will be in a more effective (and informed) position to communicate these risks to the community.

What does it Cost?

The projected outlays necessary to provide the services covered by this Asset Management Plan (AM Plan) includes operations, maintenance, renewal and upgrade of existing assets over the 10 year planning period is \$11.7M or \$1.2M on average per year.

Estimated available funding for this period is \$11.1M or \$1.1M on average per year which is 95% of the cost

to provide the service. This is a funding shortfall of \$54,000 on average per year. Projected expenditure required to provide services in the AM Plan compared with planned expenditure currently included in the Long Term Financial Plan are shown in the graph below.



Projected expenditure to sustain current service levels against the budgeted LTFP

The Findings

Results from Scenario 1 indicate that approximately \$163,000 of assets has reached the end of their life according to the asset register. This has two consequences:

1. There is an understatement of useful lives for some assets. The asset register indicate assets to the value of approximately \$163,000 have passed their designated required renewal date. This is shown in figure 5.1.
2. Consequently, the forward projection of depreciation cannot be used as a reliable measure of asset consumption because it excludes the material amount of assets that have been fully depreciated.

Scenario 2 determined \$3.5M is required for asset renewal to sustain service levels at current levels for the next 10 years. These medium to long term renewal estimates exceed the LTFP over the 10 year planning period by \$384,000. Subsequently, ongoing if not improved monitoring of ageing and significant assets is crucial to ensure services can be sustained and risk of asset 'failure' is minimised. A further \$155,000 of operational and maintenance expenditure is required in the first 10 years to fund assets acquired during the planning period.

Scenario 3 balances the above needs with the 10 year Long-term Financial Plan. For council, this means the likely reduction of service levels in some areas. Given

the \$384,000 shortfall in renewals and \$155,000 in operational costs over the next 10 years it is possible some pump and/or main replacements may need to be deferred including a possible delay in maintenance response times to some defects in order to meet the revenue projections in the LTFP.

There is limited function and utilisation knowledge and reporting of assets combined with the likely demands in these areas due to growth (an estimated \$635,000 of additional assets is forecast in the next ten years) can pose unintended risks for Council. Increased investment in monitoring and reporting of asset performance will enable a more valued decision support mechanism ensuring risk is being duly managed.

What we will do

We plan to provide Water & Sewerage services for the following:

- Operation, maintenance, renewal and upgrade of all assets to meet service levels set by Council in annual budgets.
- Sustain a \$7.4M operational budget over the 10 year planning period.
- Sustain a \$3.1M average renewal program over the 10 year planning period.
- Sustain a \$635,000 upgrade program over the 10 year planning period.
- We will assess remaining life of our existing assets and align with up to date condition data of critical assets as a priority.
- Improve confidence in the forward renewal needs in the next revision of this plan.
- Develop and confirm current and desired customer/community and technical levels of service to understand and report on a sustainable service delivery model.

What we cannot do

We do **not** have enough funding to provide all services at the desired service levels or provide substantially upgraded/new services. Works and services that cannot be provided under present funding levels are:

- An estimated \$384,000 funding shortfall in priority renewals over the next 10 years, and
- An estimated \$155,000 funding shortfall in operational and maintenance activities over the next 10 years.

This can equate to deferred response times to defect repairs, scheduled maintenance and replacement of some assets when they fall due.

Managing the Risks

There are risks associated with providing the service and not being able to complete all identified activities and projects. We have identified major risks as:

- The failure of pre 1990 substandard uPVC pipe.
- Maintenance and servicing costs increasing beyond forecast revenue projections.
- Increasing power costs.

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

- Re-allocating finances to priority assets to sustain services.
- Ensure preventative maintenance schedules are maintained and enhanced.
- Investigate procurement strategies and alternative cost effective treatments to reduce replacement and lifecycle costs.
- Improve management and prioritisation of capital renewal and upgrade projects.
- Undertake targeted condition, function and capacity audits to better understand performance and report status to the community.

Confidence Levels

This AM Plan is based on medium level of confidence information. The expenditure and valuations projections are based on best available data and knowledge from systems and key staff.

The Next Steps

The actions resulting from this asset management plan are:

- Implement a continuous improvement strategy to assess and report on the condition, function and capacity of council controlled assets.
- Develop and confirm current and desired levels of service in consultation with the community to understand sustainable levels of service.
- Assess remaining life of our assets and align with up to date performance data and knowledge.
- Develop and adopt a prioritisation framework for renewal and upgrade/new projects.
- Assess Water & Sewerage infrastructure risks and report to the audit committee.
- Ensure the Asset Management Plan is updated on an annual basis incorporating an annual review and update of service level performance, financial projections and risk.

Questions you may have

What is this plan about?

This asset management plan covers the infrastructure assets that serve council's community Water & Sewerage needs. These assets include bores, storage, treatment, pumps, distribution and collection mains throughout the community area that enable people to be supplied with water and have their sewage collected and treated.

Managing services from ageing and long-lived infrastructure is a challenge for many Councils and this plan focuses on the needs, challenges and risks attributed to managing assets over the next 20 years.

What is an Asset Management Plan?

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

An asset management plan details information about infrastructure assets including actions required to provide an agreed level of service in the most cost effective manner. The plan defines the services to be provided, how the services are provided and what funds are required to provide the services.

Why is there a funding shortfall?

Most of the Council's Water & Sewerage network was financed from government grants, often provided and accepted without consideration of ongoing operations, maintenance and replacement needs.

The major issue is the replacement of large lengths of defective water mains which will not reach their intended useful life resulting in increasing maintenance costs. Some schemes require high power usage to transport water and tariff increases thereby increasing the pressure on revenue streams.

Our present funding levels are sufficient to continue to provide existing services at current levels in the short-medium term however it is important to keep a careful eye on critical and ageing assets.

What options do we have?

Resolving the funding shortfall involves several steps:

1. Improving asset knowledge so that data accurately records the asset inventory, how assets are performing and when assets are not able to provide the required service levels,
2. Improving our efficiency in operating, maintaining, renewing and replacing existing assets to optimise life cycle costs,

3. Identifying and managing risks associated with providing services from infrastructure,
4. Making trade-offs between service levels and costs to ensure that the community receives the best return from infrastructure,
5. Identifying assets surplus to needs for disposal to make saving in future operations and maintenance costs,
6. Consulting with the community to ensure that Water & Sewerage services and costs meet community needs and are affordable,
7. Developing partnership with other bodies, where available to provide services,
8. Seeking additional funding from governments and other bodies to better reflect a 'whole of government' funding approach to infrastructure services.

What happens if we don't manage the shortfall?

It is likely that we will have to reduce service levels in some areas, unless new sources of revenue are found. For the Water & Sewerage asset category, the service level reduction may include:

- Accelerated asset deterioration,
- Increasing pressure to effectively allocate available funds,
- Increasing operational and maintenance costs, and
- Higher risk.

What can we do?

We can develop options, costs and priorities for future Water & Sewerage services, consult with the community to plan future services to match the community service needs with ability to pay for services and maximise community benefits against costs.

2. INTRODUCTION

2.1 Background

This asset management plan is to demonstrate responsive management of assets (and services provided from assets), compliance with regulatory requirements, and to communicate funding needed to provide the required levels of service over a 20 year planning period.

The asset management plan follows the format for AM Plans recommended in Section 4.2.4 of the International Infrastructure Management Manual¹.

The asset management plan is to be read with the organisation's Asset Management Policy, Asset Management Strategy and the following associated planning documents:

- Carrathool Shire Council, 2012, 'Community Strategic Plan 2012-2022: Securing Our Future Together'
- Carrathool Shire Council, 2015, '2014/15 Annual Report'

The infrastructure assets covered by this asset management plan are shown in Table 2.1. These assets are used to provide Water & Sewerage services to the community.

Table 2.1: Assets covered by this Plan

Asset category	Nº of Assets	Replacement Value
Bores	9	\$458,200
Mains	493	\$17,271,064
Pump Stations	31	\$2,117,102
Reservoirs	33	\$2,248,452
Telemetry	39 sites	\$473,198
Treatment	6	\$359,200
TOTAL		\$22,927,216

Key stakeholders in the preparation and implementation of this asset management plan are: Shown in Table 2.1.1.

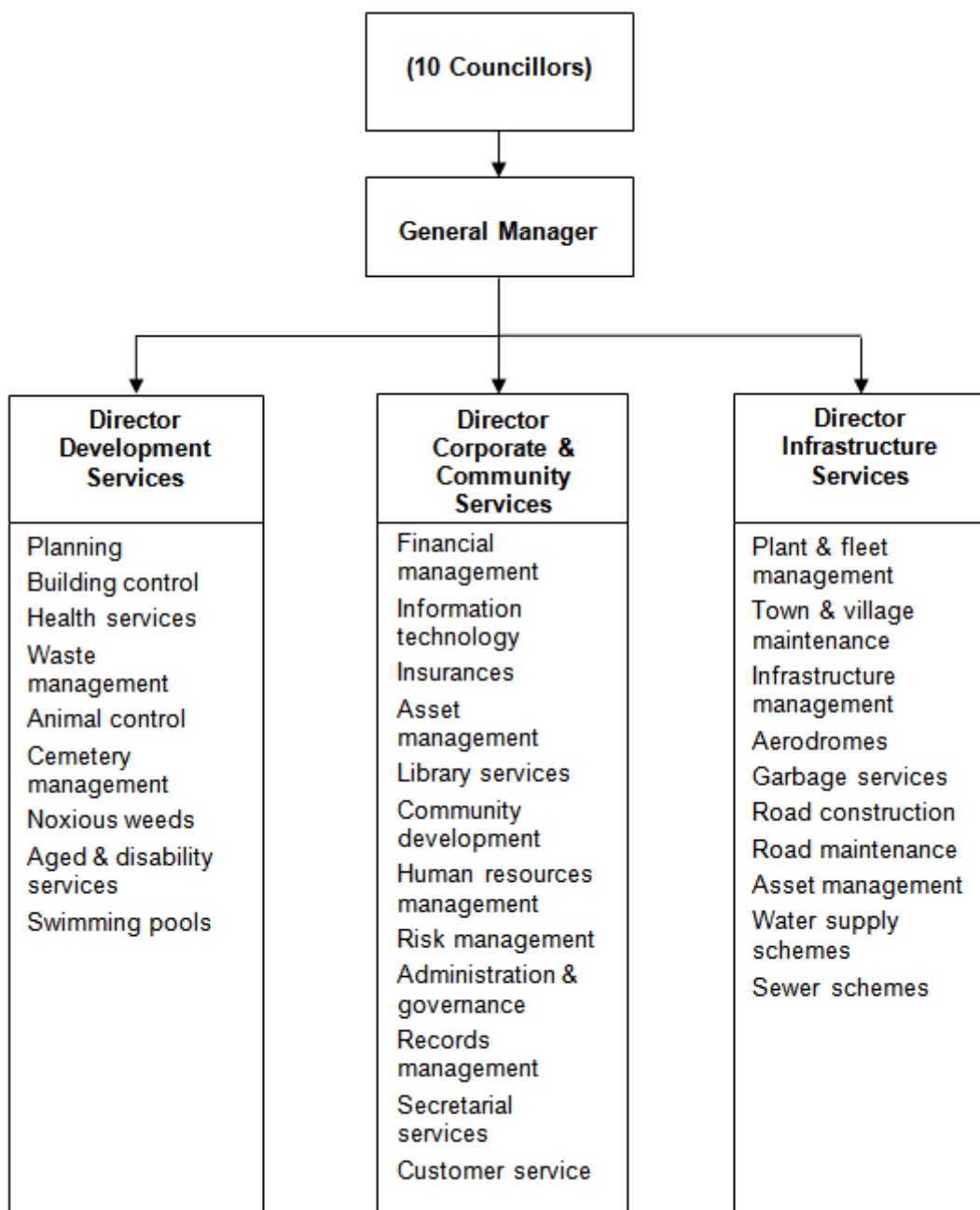
Table 2.1.1: Key Stakeholders in the AM Plan

Key Stakeholder	Role in Asset Management Plan
Councillors	<ul style="list-style-type: none"> • Represent needs of community/shareholders, • Allocate resources to meet the organisation's objectives in providing services while managing risks, • Ensure organisation is financially sustainable.
General Manager	Overall responsibility for developing the asset management strategy, plans and procedures and reporting on the status and effectiveness of asset management within the organisation.
Director of Infrastructure Services	<ul style="list-style-type: none"> • Managerial oversight of inspection regime, identification of and timely and effective response to risks. Ensure annual review and update of service levels. • Ensure forward expenditure projections are based on delivering at least two service level scenarios (i.e. aspirational and affordable). • Provide forward expenditure projections based on delivering various service level scenarios. • Annual review and update of service levels.

¹ IPWEA, 2015, Sec 4.2.4, *Example of an Asset Management Plan Structure*, p 4|33.

Key Stakeholder	Role in Asset Management Plan
Director of Corporate & Community Services	<ul style="list-style-type: none"> • Managerial oversight of asset funding model and Long Term Financial Plan. • Ensure capitalisation process is managed effectively.
Overseer and field service staff	<ul style="list-style-type: none"> • Provide local knowledge level detail on assets. Verify the size, location and performance of assets. • Describe the maintenance standards employed and Council's ability to meet technical and customer levels of service.
Specialist asset management consultants	<ul style="list-style-type: none"> • Provide capacity building and mentoring initiatives to achieve core maturity compliance with the national framework for financial and asset management planning and reporting. • Independently peer review plans and revaluation methodology.

Our organisational structure for service delivery from infrastructure assets is detailed below,



2.2 Goals and Objectives of Asset Management

The organisation exists to provide services to its community. Some of these services are provided by infrastructure assets. We have acquired infrastructure assets by 'purchase', by contract, construction by our staff and by donation of assets constructed by developers and others to meet increased levels of service.

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

- Providing a defined level of service and monitoring performance,
- Managing the impact of growth through demand management and infrastructure investment,
- Taking a lifecycle approach to developing cost-effective management strategies for the long-term that meet the defined level of service,
- Identifying, assessing and appropriately controlling risks, and
- Having a long-term financial plan which identifies required, affordable expenditure and how it will be financed.²

2.3 Plan Framework

Key elements of the plan are:

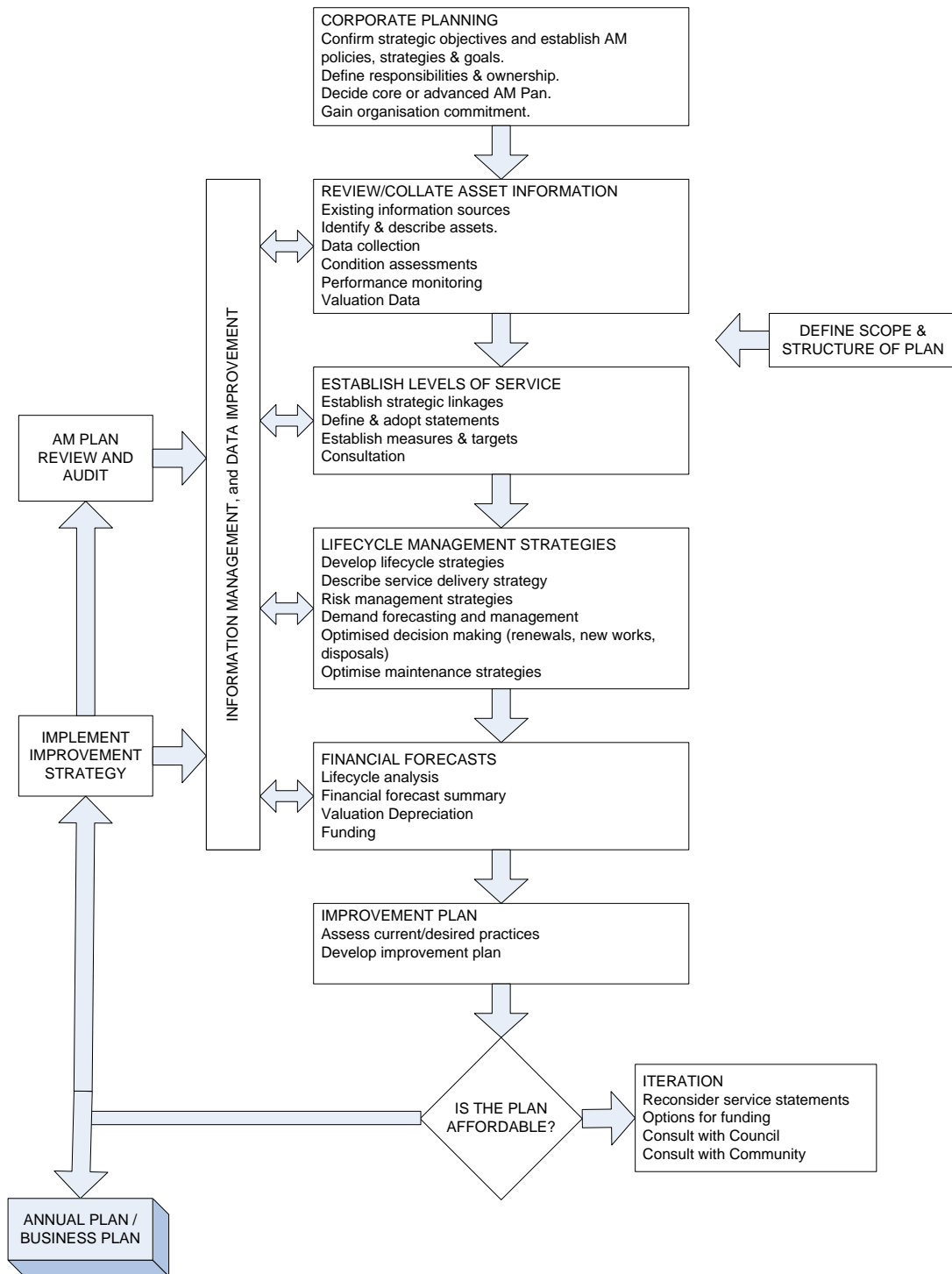
- Levels of service – specifies the services and levels of service to be provided by the organisation,
- Future demand – how this will impact on future service delivery and how this is to be met,
- Life cycle management – how Council will manage its existing and future assets to provide defined levels of service,
- Financial summary – what funds are required to provide the defined services,
- Asset management practices,
- Monitoring – how the plan will be monitored to ensure it is meeting organisation's objectives,
- Asset management improvement plan.

A road map for preparing an asset management plan is shown below.

² Based on IPWEA, 2015, IIMM, Sec 1.3 p 1|8.

Road Map for preparing an Asset Management Plan

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



2.4 Core and Advanced Asset Management

This asset management plan is prepared as a 'core' asset management plan over a 20 year planning period in accordance with the International Infrastructure Management Manual³. It is prepared to meet minimum legislative and organisational requirements for sustainable service delivery and long term financial planning and reporting. Core asset management is a 'top down' approach where analysis is applied at the 'system' or 'network' level.

Future revisions of this asset management plan will move towards 'advanced' asset management using a 'bottom up' approach for gathering asset information for individual assets to support the optimisation of activities and programs to meet agreed service levels in a financially sustainable manner.

2.5 Community Consultation

This 'core' asset management plan is prepared to facilitate community consultation initially through feedback on public display of draft asset management plans prior to adoption by the Council. Future revisions of the asset management plan will incorporate community consultation on service levels and costs of providing the service. This will assist the Council and the community in matching the level of service needed by the community, service risks and consequences with the community's ability and willingness to pay for the service.

3. LEVELS OF SERVICE

3.1 Customer Research and Expectations

In accordance with section 402 of the Local Government Act 1993, Council has developed its Community Strategic Plan (CSP) 2012-2022, after consulting with its communities through a survey, public meetings, focus group meetings and written submissions.

The plan identifies the main priorities and aspirations for the Carrathool Shire for the next 10 years and identifies the goals which will form the basis of Council decision making and resource allocation in the future.

The 2012 CSP is halfway through its life and is currently being reviewed and updated and it is expected this 'core' asset management plan will assist in the customer/community engagement process.

³ IPWEA, 2015, IIMM.

3.2 Strategic and Corporate Goals

This asset management plan is prepared under the direction of the organisation’s vision, mission, goals and objectives.

Our vision is:

‘Carrathool Shire Council and the Community will work together to protect and deliver quality of life in harmony with economic development and environmental Sustainability.’

Our mission is:

“Council’s MISSION is to provide the community of Carrathool Shire with cost effective works, services and planning”

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

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

Goal	Objective	How Goal and Objectives are addressed in AM Plan
2.2 Reduce our Ecological Footprint	Strategy 2.2.1 Support installation of rain water tanks in residential properties	Actions for Council <ul style="list-style-type: none"> • Investigate and promote subsidies • Provide community education about rain water collection and use.
Water Security	Strategy 6.7.2 Ensure secure and quality town water supplies (TWS) are maintained and rural water supply networks effectively managed.	Actions for Council <ul style="list-style-type: none"> • Manage and monitor Town Water Supply water quality to meet Australian Drinking Water Guidelines at all times • Develop and maintain effective asset management and maintenance of critical water assets • Manage a forward capital works and asset renewal program • Adopt water conservation strategies • Monitor consumptive use and implement demand management • Identify grant funding opportunities for needed capital works • Report annually to community and the NSW Office of Water on system-wide performance

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

3.3 Legislative Requirements

The organisation has to meet many legislative requirements including Australian and State legislation and regulations. These include:

Table 3.3: Legislative Requirements

Legislation	Requirement
Local Government Act, 1993	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.
Australian Accounting Standards	Set out the financial reporting standards relating to infrastructure assets. AASB116, AASB136, AASB1121, AAS1001, AASB1041, AAS1015 and AASB1051.

Legislation	Requirement
Work Health & Safety Act 2011	Sets out roles and responsibilities to secure the health, safety and welfare of persons at work and covering injury management, emphasising rehabilitation of workers particularly for return to work. Council is to provide a safe working environment and supply equipment to ensure safety.
Public Health Act 1991	Prevention of the spread of disease. Effluent disposal methods. Delivery of quality water.
Catchment Management Act 1989	Promotes the coordination of activities within catchment areas. Council believes this Act has implications for the management of river quality and quantity. Requirement for ongoing management plan.
Water Management Act 2000	The act provides for sustainable and integrated management of NSW's water sources. Water rights, licences, allocations.
Environmental Planning and Assessment Act 1979	An Act to institute a system of environmental planning and assessment for the State of New South Wales. Among other requirements the Act outlines the requirement for the preparation of Local Environmental Plans (LEP), Development Control Plans (DCP), Environmental Impact Assessments (EIA) and Environmental Impact Statements.
Protection of the Environment Operations Act 1997 Brings together: - Clean Air Act 1961 - Clean Waters Act 1970 - Pollution Control Act 1970 - Noise Control Act 1975 - Environmental Offences and Penalties (EOP) Act 1989	Regulating pollution activities and issue of licenses as well as the monitoring of and reporting on waste output. Council is required to be "duly diligent" in undertaking the scheme operations
Electrical Safety Act 2002	This act sets out the installation, reporting and safe use with electricity
Building Regulation 2003	This act sets out requirements in respect to Building Requirements
Plumbing and Drainage Act 2002	This act sets out requirements in respect to Plumbing Requirements
Dangerous Goods Safety Management Act 2001	This act sets out the safe use, storage and disposal of dangerous goods

The organisation will exercise its duty of care to ensure public safety in accordance with the infrastructure risk management plan linked to this AM Plan. Management of risks is discussed in Section 6.

3.4 Customer Levels of Service

Service levels are defined service levels in two terms, customer and technical levels of service.

Customer Levels of Service measure how the customer receives or experiences the service making sure the organisation is providing customer value.

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

Condition	How good is the service ... <i>what is the condition or quality of the service?</i>
Function	Is it fit for purpose <i>Is it the right service?</i>
Capacity/Utilisation	Is the service over or under used ... <i>do we need more or less of these assets?</i>

The organisation's current and expected customer service levels are detailed in Tables 3.4 showing the current and expected customer levels of service based on resource levels in the current long-term financial plan.

Table 3.4: Customer Levels of Service

Service Attribute	Service Objective	Performance Measure Process	Current Performance	Expected position in 10 years based on current LTFP
CUSTOMER LEVELS OF SERVICE				
Condition	Infrastructure is safe and well maintained.	State of the Assets: % good/very good % poor/very poor condition & confidence level	17% good/very good. 9% poor/very poor. Confidence level: Medium	Requires further assessment to identify and determine whether service level expectations would be met
Function	Infrastructure is 'fit for purpose'.	State of the Assets: % good/very good % poor/very poor function & confidence level	1% good/very good. 6% poor/very poor. Confidence level: Medium	
Capacity/ Utilisation	Infrastructure meets the capacity requirements.	State of the Assets: % good/very good % poor/very poor capacity/utilisation & confidence level	1% good/very good. 5% poor/very poor. Confidence level: Medium	

3.5 Technical Levels of Service

Technical Levels of Service - These measures support the customer service levels and are internal measures of what the organisation does to provide the service.

Technical measures relate to the allocation of resources to service activities that the organisation undertakes to best achieve the desired community outcomes and demonstrate effective organisational performance.

Technical service measures are linked to annual budgets covering:

- Operations – the regular activities to provide services such as monitoring Town Water Supply water quality to meet Australian Drinking Water Guidelines, consumption and demand management, etc.
- Maintenance – the activities necessary to retain an asset as near as practicable to an appropriate service condition (e.g. main break repairs, removal of sewer chokes, etc),
- Renewal – the activities that return the service capability of an asset up to that which it had originally (e.g. frequency and cost of main relining and/or replacement and significant component replacement),
- Upgrade – the activities to provide a higher level of service (e.g. increasing capacity) or a new service that did not exist previously (e.g. a new treatment plant).

Service and asset managers plan, implement and control technical service levels to influence the customer service levels.⁴

Table 3.5 shows the technical level of service expected to be provided under this AM Plan. The “Desired” position in the table documents the position being recommended and the agreed sustainable position is the position agreed by Council following community consultation and acceptance of the trade-off of service levels performance, costs and risk within resources available in the long-term financial plan.

Our service statements and current levels of service are yet to be determined and will be reviewed in the next revision of this plan.

Table 3.5: Technical Levels of Service

Service Attribute	Service Objective	Activity Measure Process	Current Performance *	Desired for Optimum Service Delivery **
TECHNICAL LEVELS OF SERVICE				
Operations				
Operational Cost				\$ TBA / yr
Maintenance				
Maintenance Cost			\$663,000 / yr	\$ TBA / yr
Renewal				
Renewal Cost			\$770,000 / yr	\$TBA / yr
Upgrade/New				
Upgrade/New Cost			\$178,000 / yr	\$ TBA / yr

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

** Desired activities and costs to sustain current service levels and achieve minimum life cycle costs.

⁴ IPWEA, 2015, IIMM, p 2 | 28

4. FUTURE DEMAND

4.1 Demand Drivers

The drivers affecting demand can include population change, regulations, changes in demographics, seasonal factors, technological changes, economic factors, agricultural practices, environmental awareness, etc.

4.2 Demand Forecast

Demand drivers that may be subject to change in the planning period and have an effect on the demand for new services or change existing services need to be identified and their impact(s) on services quantified. The present position and projections for demand drivers that may impact future service delivery and utilisation of assets were identified and are documented in Table 4.3.

4.3 Demand Impact on Assets

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

Table 4.3: Demand Drivers, Projections and Impact on Services

Demand drivers	Present position	Projection	Impact on services
Population	2,600 population	The population is forecast to decline by 3% to 2,500 by 2036.	The Shire's stable population forecast will likely result in minimal impacts on existing infrastructure service provision.
Construction Costs	Current costs	Costs anticipated to increase.	The shortage of skilled labour, high labour costs and increasing material costs, will impact on the future management of water infrastructure.
Increasing Costs	The cost to construct, maintain and replace water assets is increasing	Anticipated to continue	Increasingly difficult to maintaining the current level of service. Equipment will need to provide greater efficiencies
Climate change	Increasing frequency of extreme weather events.	Unknown at this stage however with changing rainfall patterns and intensity and higher summer day temperatures it is likely current trends may continue.	May lead to changes in the moisture content of subgrades leading to increased cracking of pipes on reactive soils. This may result in a shorter life for these assets.

4.4 Demand Management Plan

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

Non-asset solutions focus on providing the required service without the need for the organisation to own the assets and management actions including reducing demand for the service, reducing the level of service (allowing some assets to deteriorate beyond current service levels) or educating customers to accept appropriate asset failures⁵. Examples of non-asset solutions include providing services from existing infrastructure such as aquatic centres and libraries that may be in another community area or public toilets provided in commercial premises.

⁵ IPWEA, 2015, IIMM, Table 3.4.1, p 3 | 89.

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

Table 4.4: Demand Management Plan Summary

Demand Driver	Impact on Services	Demand Management Plan
Construction Costs	The shortage of skilled labour, high labour costs and increasing material costs, will impact on the future management of water infrastructure.	<p>Raise awareness of sustainable Water & Sewerage options.</p> <p>Continue to analyse the cost of providing service and the capacity to fund at the current level of service.</p>
Increasing Costs	Increasingly difficult to maintaining the current level of service. Equipment will need to provide greater efficiencies	Monitor community expectations and communicate service levels and financial capacity with the community to balance priorities for infrastructure with what the community is prepared to pay for.
Climate change	May lead to changes in the moisture content of subgrades leading to increased cracking of pipes on reactive soils. This may result in a shorter life for these assets.	

4.5 Asset Programs to meet Demand

The new assets required to meet growth will be acquired free of cost from land developments and constructed/acquired by council. These new assets constructed or acquired by the organisation are discussed in Section 5.4. The cumulative value of new contributed and constructed asset values are summarised in Figure 1.

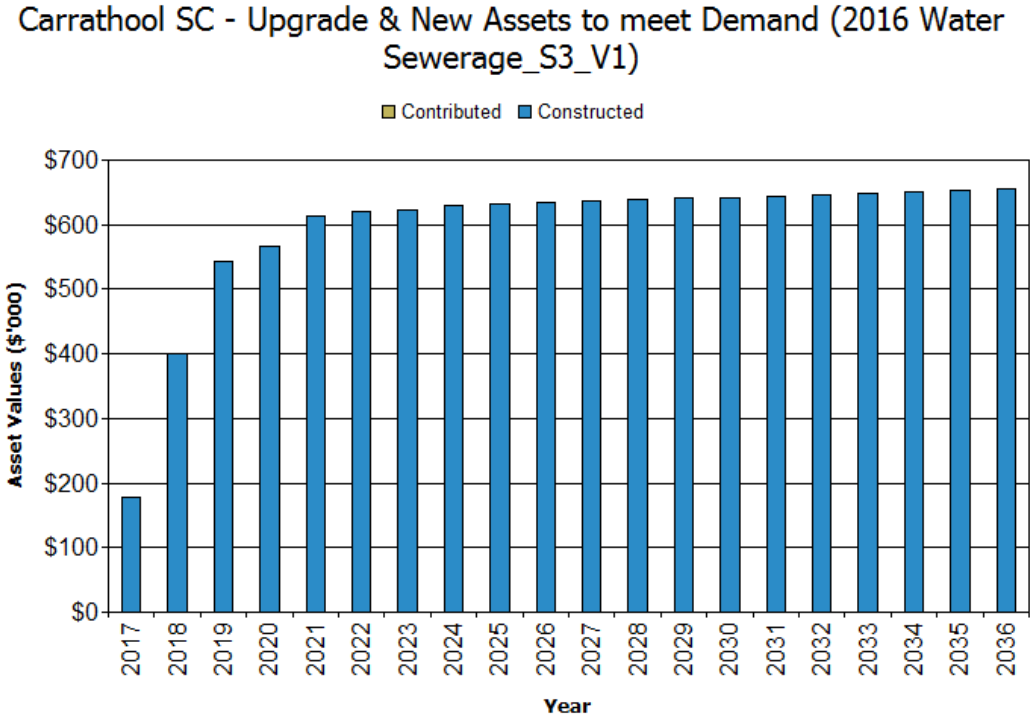


Figure 1: Upgrade and New Assets to meet Demand

Acquiring these new assets will commit the organisation to fund 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 in Section 5.

5. LIFECYCLE MANAGEMENT PLAN

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

5.1 Background Data

The data and forecasts are based on assets recorded in the asset register, known service deficiencies from routine inspections and customer requests. It is important careful monitoring of those assets with poor to very poor performance at a detailed component level is maintained to manage appropriate service provision and associated risk.

5.1.1 Physical parameters

The assets covered by this asset management plan are shown in Table 2.1.

The Water & Sewerage asset category comprises a complex mix of asset types, age, function and condition.

The age profile of the assets included in this AM Plan is shown in Figure 2 sourced from the asset register based on the date of construction/acquisition or date of last renewal plotted against the replacement cost.

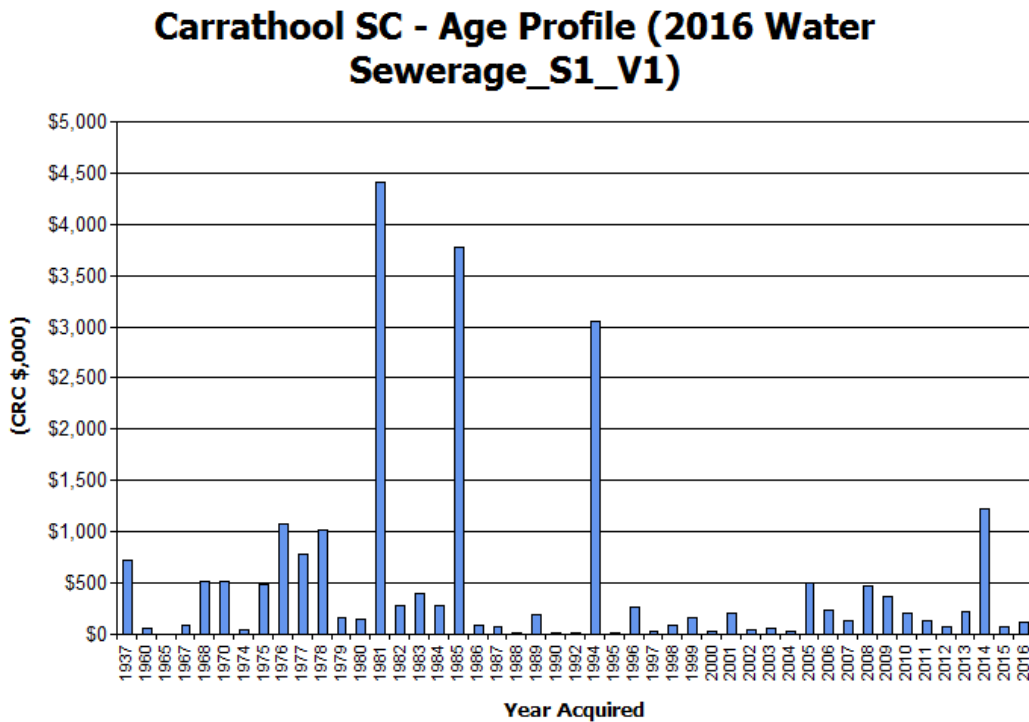


Figure 2: Asset Age Profile by Replacement Cost

According to the asset register the majority of the Water & Sewerage assets were constructed or last replaced in 1981 (\$4.4M), 1985 (\$3.8M) and 1994 (\$3.0M) accounting for 49% of the total asset value suggesting a review of the data in the register of assets.

The asset register provides essential information not only for asset management plans and the long-term financial plan for financial reporting, it is also used to calculate depreciation in the operating statement therefore it is important the supporting data is of high confidence ($\pm 10\%$) to report whether we have enough revenue to support our capital investment in infrastructure.

Given the high value of replacement costs in 1981, 1985 and 1994 suggests a review of costs and acquisition dates is required and is included in the Improvement Plan in Section 8.2.

5.1.2 Asset capacity and performance

The organisation’s services are generally provided to meet design standards where these are available.

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

Table 5.1.2: Known Service Performance Deficiencies

Location	Service Deficiency
Bunda, Yoolaroi, Melbergen and Rankins Springs UPVC mains	Poor quality of pre 1990 uPVC pipes may result in a reduced useful life.
Switchgear at R1, R3, M4, M7, Y3 and Carrathool	Reaching end of useful life not reliable.
Rankins Springs and Goolgowi reservoirs	Less than two days storage.

The above service deficiencies were identified from customer requests, programmed safety and existing asset inspection programs.

5.1.3 Asset condition

Condition is monitored and managed at an operational level in an ad-hoc as required bases, and the information used to prepare the condition profile is based on regular assessments every year dependant on known asset and service deficiencies of the Water & Sewerage network.

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

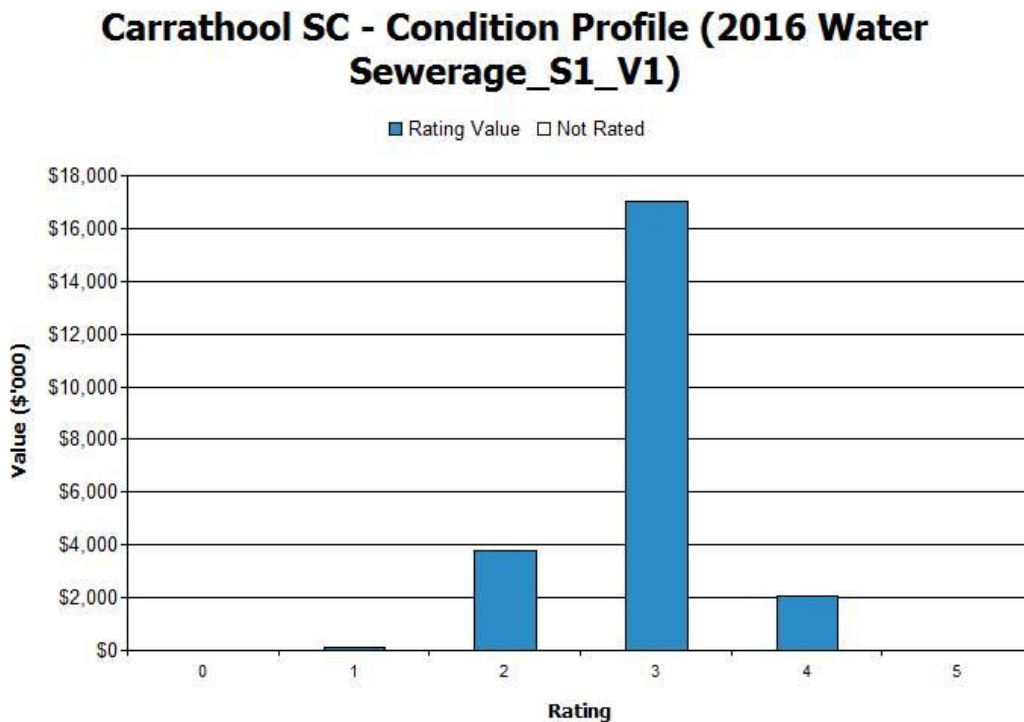


Fig 3.1: Asset Condition Profile

Condition is measured using a 1 – 5 grading system⁶ as detailed in Table 5.1.3.

Table 5.1.3: Simple Condition Grading Model

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

Condition monitoring of the water & sewerage assets increases knowledge and understanding of the state and renewal requirements of the network.

Of the known condition assessed assets 9% of replacement value (\$2.0M) is performing in a poor to very poor state of repair highlighting the importance of resourcing ongoing monitoring and reporting.

5.1.4 State of the Assets

The three indicators of infrastructure performance are:

1. Quality/Condition *...How good is the service?*
2. Function/fit for purpose *...Is it the right service?*
3. Capacity/Utilisation *...Do we need more or less of these assets?*

Reporting high level trends consistent with best practice guidance enables council to monitor trends over time and the relationship between calculated infrastructure backlogs and the actual physical state of the infrastructure. Shown below is the current of state of the assets.

Carrathool SC - State of The Assets (2016 Water Sewerage_S1_V1)

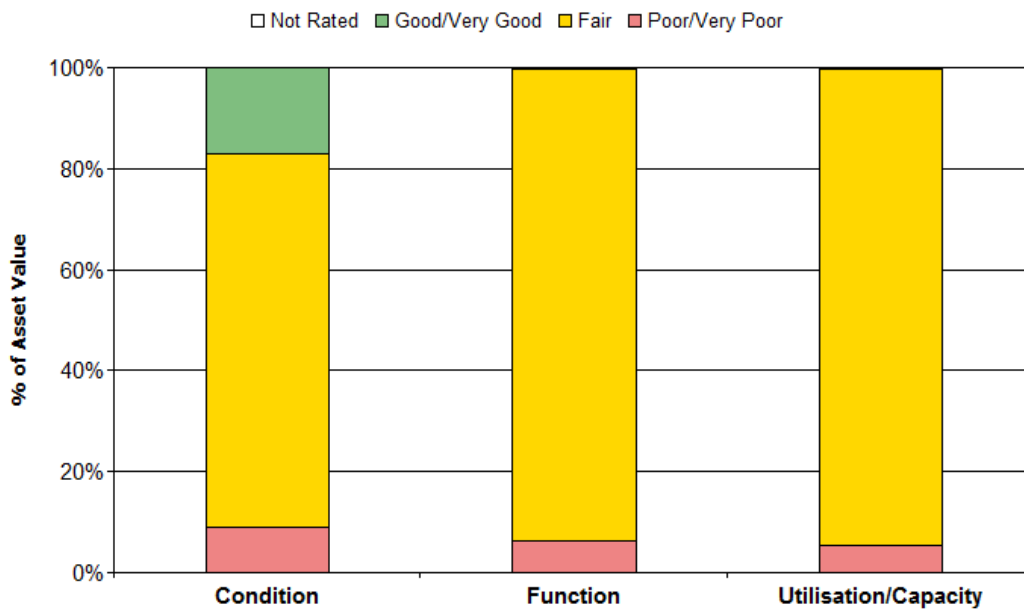


Fig 3.2: State of the Assets

⁶ IPWEA, 2015, IIMM, Sec 2.5.4, p 2 | 80.

5.1.5 Asset valuations

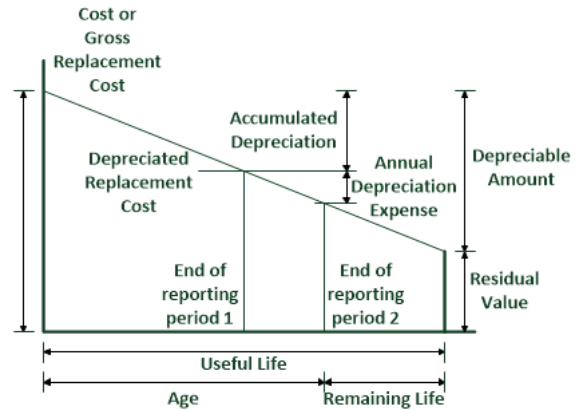
The value of assets recorded in the asset register as at 30 June 2016 covered by this asset management plan is shown below. Assets were last revalued at 30th June 2015. Assets are valued at greenfield rates for replacement cost as per NSW legislative requirements.

Replacement Cost	\$22,927,098
Depreciated Replacement Cost ⁷	\$15,141,000
Annual Depreciation Expense	\$608,000

Useful lives are based on broad industry averages.

Key assumptions made in preparing the valuations were:

- Dimensions of existing assets.
- Useful lives based on broad industry standards.
- Calculated unit rates for each infrastructure category.



Major changes from previous valuations are due to existing assets not previously recognised and existing records being reviewed and updated after verification

Various ratios of asset consumption and expenditure have been prepared to help guide and gauge asset management performance and trends over time.

Rate of Annual Asset Consumption (Depreciation/Depreciable Amount)	2.7%
Rate of Annual Asset Renewal (Capital renewal exp/Depreciable amount)	3.4% (Year 1)
Rate of Annual Asset Upgrade/New (Capital upgrade expenditure/Depreciable amount)	0.8% (Year 1)
Rate of Annual Asset Upgrade/New (Including contributed assets)	0.8% (Year 1)

In 2016 council plans to renew assets at 126.5% of the rate they are being consumed and will be increasing its asset stock by 0.8% in the year.

To provide services in a financially sustainable manner, Council will need to ensure that it is renewing assets at the rate they are being consumed over the medium-long term and funding the life cycle costs for all new assets and services in its long term financial plan.

⁷ Sometimes reported as Written Down Current Replacement Cost (WDCRC), Book, Carrying or Written Down Value.

5.2 Routine Operations and Maintenance Plan

Operations include regular activities to provide services such as public health, safety and amenity, e.g. Inspection, monitoring of quality and consumption.

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

5.2.1 Operations and Maintenance Plan

Operations affect service levels including quality and function. 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, e.g. defect repairs but excluding rehabilitation or renewal. Maintenance may be classified into reactive, planned and specific maintenance work activities.

Reactive maintenance is unplanned repair work carried out in response to service requests and management/supervisory directions.

Planned maintenance is repair work that is identified and managed through a maintenance management system (MMS). MMS activities include inspection, assessing the condition against failure/breakdown experience, prioritising, scheduling, actioning the work and reporting what was done to develop a maintenance history and improve maintenance and service delivery performance.

Specific maintenance is replacement of higher value components/sub-components of assets that is undertaken on a regular cycle including repainting, replacing air conditioning units, etc. This work falls below the capital/maintenance threshold but may require a specific budget allocation.

Actual past maintenance expenditure is shown in Table 5.3.1.

Table 5.3.1: Maintenance Expenditure Trends

Year	Maintenance Expenditure		
	Planned and Specific	Unplanned	Total
2012/13	Unavailable	Unavailable	Unavailable
2013/14	Unavailable	Unavailable	Unavailable
2014/15	Unavailable	Unavailable	Unavailable
2015/16	Unavailable	Unavailable	Unavailable

The percentage of planned and specific maintenance work as a percentage of the total maintenance expenditure is unavailable.

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

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

5.2.2 Operations and Maintenance Strategies

The organisation will operate and maintain assets to provide the defined level of service to approved budgets in the most cost-efficient manner. The operation and maintenance activities include:

- Scheduling operations activities to deliver the defined level of service in the most efficient manner,

- Undertaking maintenance activities through a planned maintenance system to reduce maintenance costs and improve maintenance outcomes. Undertake cost-benefit analysis to determine the most cost-effective split between planned and unplanned maintenance activities (50 – 70% planned desirable as measured by cost),
- Maintain a current infrastructure risk register for assets and present service risks associated with providing services from infrastructure assets and reporting Very High and High risks and residual risks after treatment to management and Council,
- Review current and required skills base and implement workforce training and development to meet required operations and maintenance needs,
- Review asset utilisation to identify underutilised assets and appropriate remedies, and over utilised assets and customer demand management options,
- Maintain a current hierarchy of critical assets and required operations and maintenance activities,
- Develop and regularly review appropriate emergency response capability,
- Review management of operations and maintenance activities to ensure Council is obtaining best value for resources used.

Asset service hierarchy

An asset service hierarchy provides a framework for structuring data in an information system to assist in collection of data, reporting information and making decisions. The hierarchy includes the asset class and component used for asset and service planning and delivery and financial reporting.

The organisation’s service hierarchy is shown in Table 5.3.2.

Table 5.3.2: Asset Service Hierarchy

Service Hierarchy	Service Level Objective
Bores	1. To be advised in a future revision of this plan
Mains	
Pump Stations	
Reservoirs	
Telemetry	
Treatment	

Standards and specifications

Maintenance work is carried out in accordance with the following Standards and Specifications.

- Relevant engineering standards and specifications for Water & Sewerage related works.

5.2.3 Summary of future operations and maintenance expenditures

Future operations and maintenance expenditure is forecast to trend in line with the acquisition of new assets as shown in Figure 4. Note that all costs are shown in current 2015/16 dollar values (i.e. real values net of inflation).

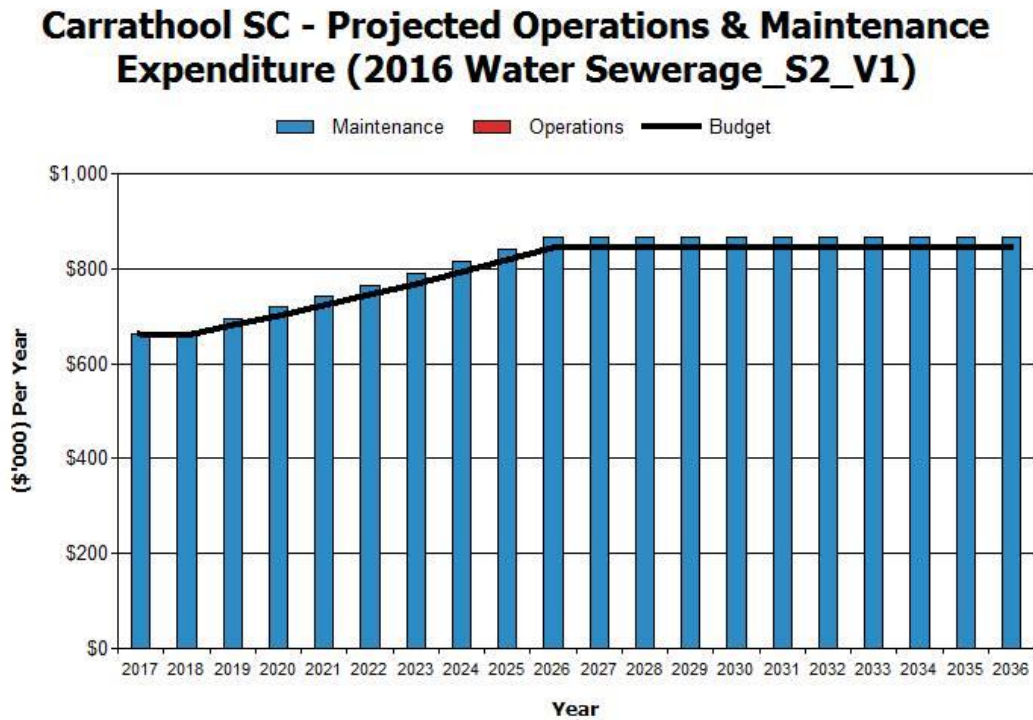


Figure 4: Projected Operations and Maintenance Expenditure

The current year operations and maintenance budget is \$663,000 and the projected requirements are expected to increase to \$865,000 by 2026 due to operating and maintenance needs of contributed assets from development and/or upgrade/new assets constructed by Council.

Operational and maintenance activities are funded from the operating budget. This is further discussed in Section 6.2.

5.3 Renewal/Replacement Plan

Renewal and replacement expenditure is major work which does not increase the asset’s design capacity but restores, rehabilitates, replaces or renews an existing asset to its original or lesser required service potential. Work over and above restoring an asset to original service potential is upgrade/expansion or new works expenditure.

5.3.1 Renewal plan

Assets requiring renewal/replacement are identified from one of three methods provided in the IPWEA NAMS.Plus ‘Expenditure Template’ used to forecast the forward projections.

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

A combination of all three methods was used for this asset management plan. It is common that the asset register used in Method 1 is not developed to a level of maturity where it is reliable for producing a realistic renewal forecast. Ideally when this asset register is sorted by remaining life from 1 to 10 years it should be consistent with the capital renewal program. This is not the case for council and the refinement of the asset register to achieve this situation should become an important part of the asset management improvement plan.

The useful lives of assets used to develop projected asset renewal expenditures are shown in Table 5.4.1. Asset useful lives were last reviewed in 2016.

Table 5.4.1: Useful Lives of Assets

Asset (Sub)Category	Useful life
Bores	25-100 years
Mains	70-80 years
Pump Stations	25-100 years
Reservoirs	50-100 years
Telemetry	6-25 years
Treatment	25-100 years

5.3.2 Renewal and Replacement Strategies

The organisation will plan capital renewal and replacement projects to meet level of service objectives and minimise infrastructure service risks by:

- Planning and scheduling renewal projects to deliver the defined level of service in the most efficient manner,
- Undertaking project scoping for all capital renewal and replacement projects to identify:
 - the service delivery ‘deficiency’, present risk and optimum time for renewal/replacement,
 - the project objectives to rectify the deficiency,
 - the range of options, estimated capital and life cycle costs for each options that could address the service deficiency,
 - and evaluate the options against evaluation criteria adopted by the organisation, and
 - select the best option to be included in capital renewal programs,
- Using ‘low cost’ renewal methods (cost of renewal is less than replacement) wherever possible,
- Maintain a current infrastructure risk register for assets and service risks associated with providing services from infrastructure assets and reporting Very High and High risks and residual risks after treatment to management and Council,
- Review current and required skills base and implement workforce training and development to meet required construction and renewal needs,
- Maintain a current hierarchy of critical assets and capital renewal treatments and timings required ,

- Review management of capital renewal and replacement activities to ensure Council is obtaining best value for resources used.

Renewal ranking criteria

Asset renewal and replacement is typically undertaken to either:

- Ensure the reliability of the existing infrastructure to deliver the service it was constructed to facilitate (e.g. replacing a bridge that has a 5 t load limit), or
- To ensure the infrastructure is of sufficient quality to meet the service requirements (e.g. roughness of a road).⁸

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

- Have a high consequence of failure,
- Have a high utilisation and subsequent impact on users would be greatest,
- The total value represents the greatest net value to the organisation,
- Have the highest average age relative to their expected lives,
- Are identified in the AM Plan as key cost factors,
- Have high operational or maintenance costs, and
- Where replacement with modern equivalent assets would yield material savings.⁹

The ranking criteria used to determine priority of identified renewal and replacement proposals is normally detailed in Table 5.4.2 however at this stage an agreed and adopted prioritisation framework is yet to be developed and is included in the improvement plan. Therefore the projected capital renewal and replacement projects are currently being prioritised in an ad-hoc informal manner using basic parameters such as condition and risk.

Table 5.4.2: Renewal and Replacement Priority Ranking Criteria

Criteria	Weighting
To be determined in the next revision of this AM Plan.	

Renewal and replacement standards

Renewal work is carried out in accordance with the following Standards and Specifications.

- Relevant engineering standards
- Relevant standards and specifications for Water & Sewerage related works.

5.3.3 Summary of future renewal and replacement expenditure

Projected future renewal and replacement expenditures are forecast to increase over time as the existing asset stock ages and increases from growth. The projected capital renewal and replacement program is shown in Appendix A & B for Scenario 2 & 3 respectively .

The projected 20 year capital renewal expenditures developed for each of the three Scenarios are shown below. All amounts are shown in real values (net of inflation).

⁸ IPWEA, 2015, IIMM, Sec 3.4.4, p 3|91.

⁹ Based on IPWEA, 2015, IIMM, Sec 3.4.5, p 3|97.

Carrathool SC - Projected Capital Renewal Expenditure (2016 Water Sewerage_S1_V1)

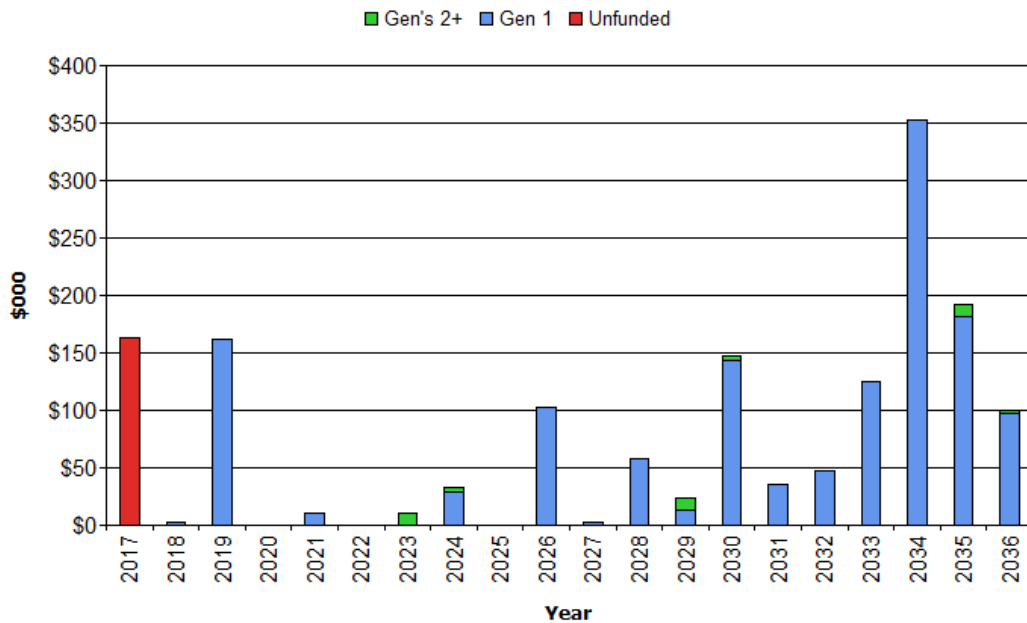


Fig 5.1: Projected Capital Renewal and Replacement Expenditure (Scenario1 from Asset Register)

The renewal projection (forecast) in Scenario 1 (using the asset register) shows a backlog of unfunded renewals of \$163,000 in the first year.

Whilst the long term averages and total values from this register may be useful, the shorter term renewal forecasts are inconsistent with the known (and funded) capital renewal plans and condition profiles. This indicates that further refinement of the asset register is required before it is regarded as a valuable tool for capital renewal planning and should be given a high priority in the asset management improvement plan. The review is particularly important with respect to the useful lives in the asset register including function and utilisation data and knowledge and aligning this with the required expenditure pattern for renewals and partial renewals.

Deferred unfunded renewal and replacement, i.e. those assets identified for renewal and/or replacement and not scheduled in capital works programs are to be included in the risk analysis process in the risk management plan.

Renewals and replacement expenditure in the organisation’s capital works program will be accommodated in the long term financial plan. This is further discussed in Section 6.2.

Carrathool SC - Projected Capital Renewal Expenditure (2016 Water Sewerage_S2_V1)

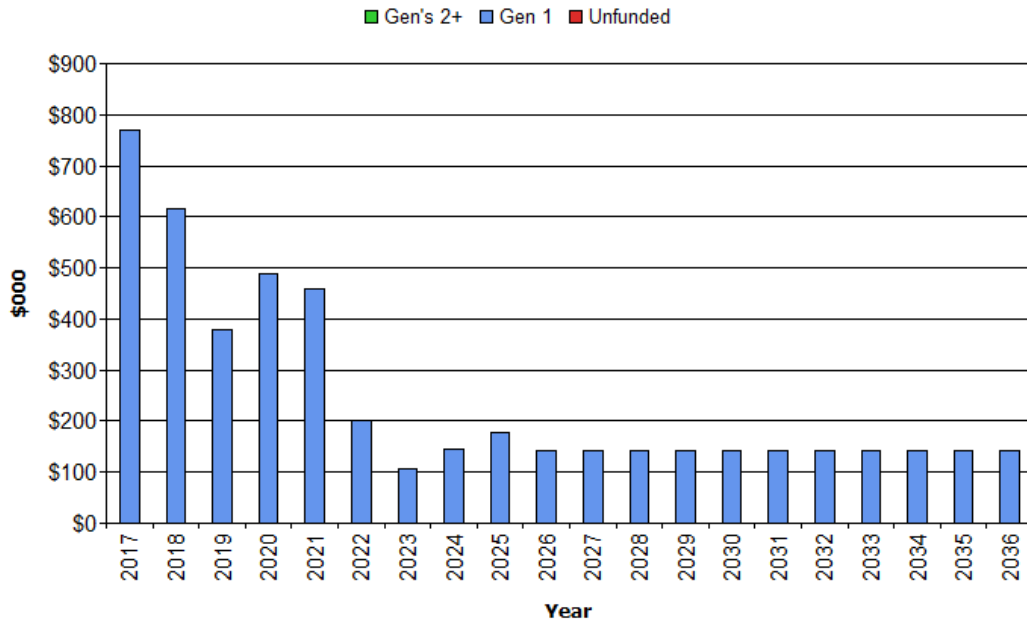


Fig 5.2: Projected Capital Renewal and Replacement Expenditure (Scenario 2 – Sustaining current assets and services over the planning period)

The above Scenario 2 chart shows the 20-year capital renewal expenditure projections based on sustaining current service levels.

At present, the short to medium 10-year outlook suggests \$3.5M is required to sustain current service levels. This is the best available measure of renewal need at the present time. The LTFP suggests \$3.1M will be made available.

Given an ageing asset stock and the 2.7% annual growth (by value of additional assets) projections combined with medium confidence performance data (i.e. condition, function and capacity) and knowledge the risks that may arise during the planning period could be significant and will need to be carefully monitored. With increased investment in monitoring, auditing and reporting of the infrastructure supporting the services a more reliable estimate of renewal will assist with evaluating future risks.

Given the current knowledge the projections present a position to determine what cannot be done when projections are balanced to the long-term financial plan (LTFP) in Scenario 3.

Carrathool SC - Projected Capital Renewal Expenditure (2016 Water Sewerage_S3_V1)

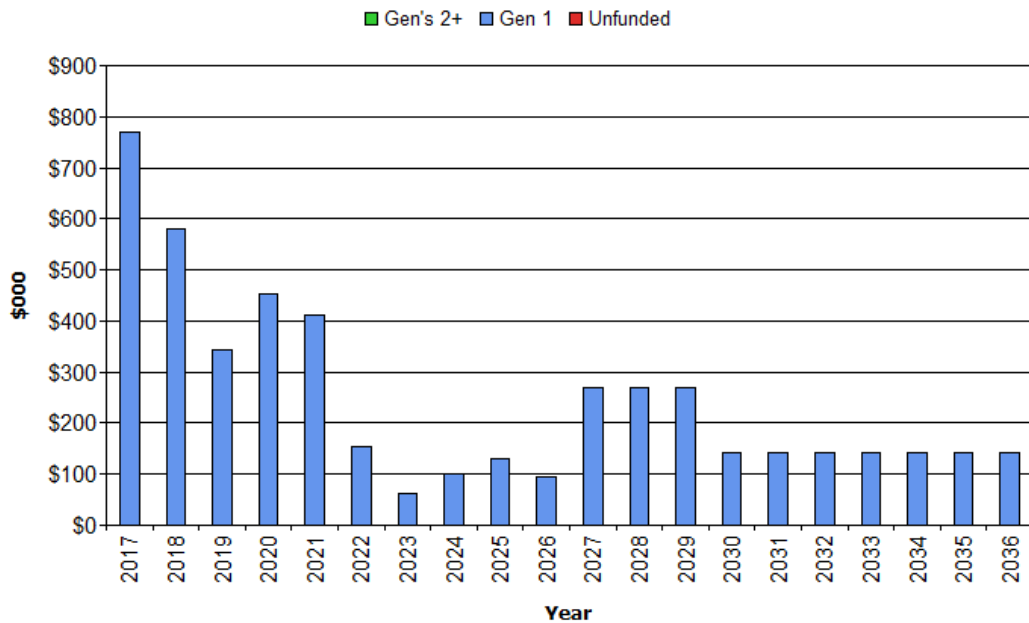


Fig 5.3: Projected Capital Renewal and Replacement Expenditure (Scenario 3 - Balanced with LTFP)

Scenario 3 balances the projections identified in Scenario 2 to the current 10 year LTFP budget figures. The result suggests a \$384,000 deferral of capital renewal works is required over the first 10 years however, caution should be applied and due assessment made of the risk this may create before proceeding with any significant measures to 'reel' in the shortfall. By doing so, Council will be in a more effective position to communicate these risks to the community.

5.4 Creation/Acquisition/Upgrade Plan

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

5.4.1 Selection criteria

New assets and upgrade/expansion of existing assets are identified from various sources such as councillor or community requests, proposals identified by strategic plans or partnerships with other organisations. Candidate proposals are inspected to verify need and to develop a preliminary renewal estimate. Verified proposals are ranked by priority and available funds and scheduled in future works programmes. The priority ranking criteria is normally detailed in Table 5.5.1 below however at this stage an agreed and adopted prioritisation framework is yet to be developed and is included in the improvement plan for action. Consequently the projected new and capital upgrade/expansion projects are currently being prioritised in an ad-hoc informal manner using basic parameters such as demand, function and those identified by Council.

Table 5.5.1: New Assets Priority Ranking Criteria

Criteria	Weighting
To be determined in the next revision of this AM Plan.	

5.4.2 Capital Investment Strategies

The organisation will plan capital upgrade and new projects to meet level of service objectives by:

- Planning and scheduling capital upgrade and new projects to deliver the defined level of service in the most efficient manner,
- Undertake project scoping for all capital upgrade/new projects to identify:
 - the service delivery ‘deficiency’, present risk and required timeline for delivery of the upgrade/new asset,
 - the project objectives to rectify the deficiency including value management for major projects,
 - the range of options, estimated capital and life cycle costs for each options that could address the service deficiency,
 - management of risks associated with alternative options,
 - and evaluate the options against evaluation criteria adopted by Council, and
 - select the best option to be included in capital upgrade/new programs,
- Review current and required skills base and implement training and development to meet required construction and project management needs,
- Review management of capital project management activities to ensure Council is obtaining best value for resources used.

Standards and specifications for new assets and for upgrade/expansion of existing assets are the same as those for renewal shown in Section 5.4.2.

5.4.3 Summary of future upgrade/new assets expenditure

The projected 20 year capital upgrade/new expenditures have been developed and are shown below. All amounts are shown in real values (i.e. today’s dollars), net of inflation.

Figure 6.1 below shows the prioritised delivery of projects and programs over the 20-year planning period estimated to be \$655,000. The first ten years to 2026 includes in excess of \$635,000 worth of upgrade and new projects.

Carrathool SC - Projected Capital Upgrade/New Expenditure (2016 Water Sewerage_S3_V1)

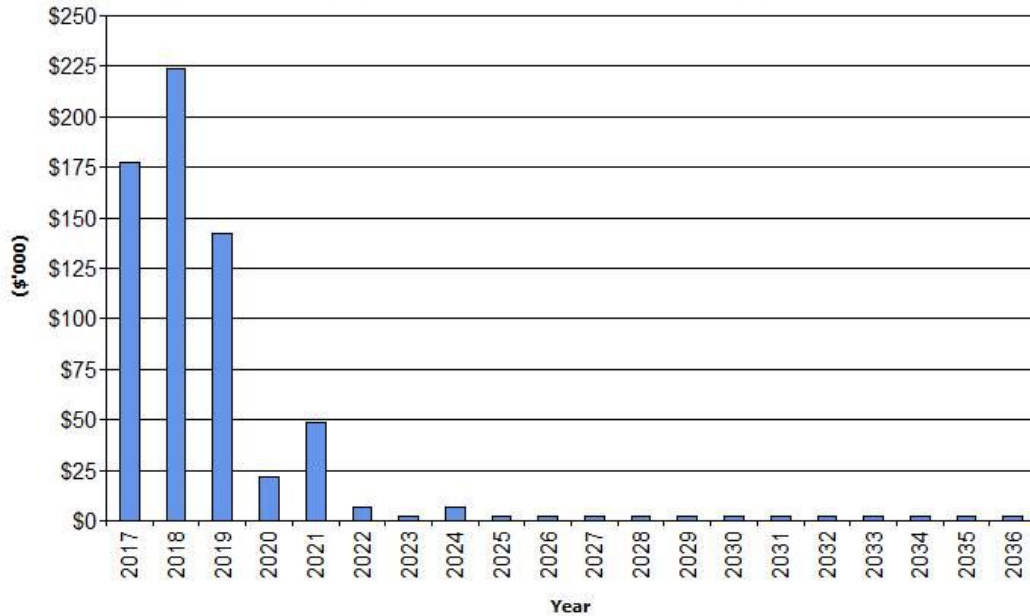


Fig 6.1: Scenario 2 - Projected Capital Upgrade/New Asset Expenditure
(Sustaining assets and services over the planning period whilst delivering priority upgrade and new projects)

Expenditure on upgrade and new assets and services in the organisation’s forecast capital works program will be accommodated in the long term financial plan. This is further discussed in Section 7.2.

5.5 Disposal Plan

Disposal includes any activity associated with disposal of a decommissioned asset including sale, demolition or relocation. Assets identified for possible decommissioning and disposal are shown in Table 5.6, together with estimated annual savings from not having to fund operations and maintenance of the assets. These assets will be further reinvestigated to determine the required levels of service and see what options are available for alternate service delivery, if any. Any revenue gained from asset disposals is accommodated in Council’s long term financial plan.

Where cash flow projections from asset disposals are not available, these will be developed in future revisions of this asset management plan.

Table 5.6: Assets Identified for Disposal

Asset	Reason for Disposal	Timing	Disposal Expenditure	Operations & Maintenance Annual Savings
No assets have been identified for disposal in this AM Plan.				

6. RISK MANAGEMENT PLAN

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

Risk Management is defined in ISO 31000:2009 as: “coordinated activities to direct and control an organisation with regard to risk”¹⁰.

6.1 Critical Assets

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

The organisation has identified its critical assets, their typical failure mode and the impact on service delivery as follows:

Table 6.1 Critical Assets

Critical Assets	Critical Failure Mode	Impact
Bunda, Yoolaroj, Melbergen and Rankins Springs uPVC mains	Cracking, splitting.	Poor quality of pre 1990 uPVC pipes may result in a reduced useful life.

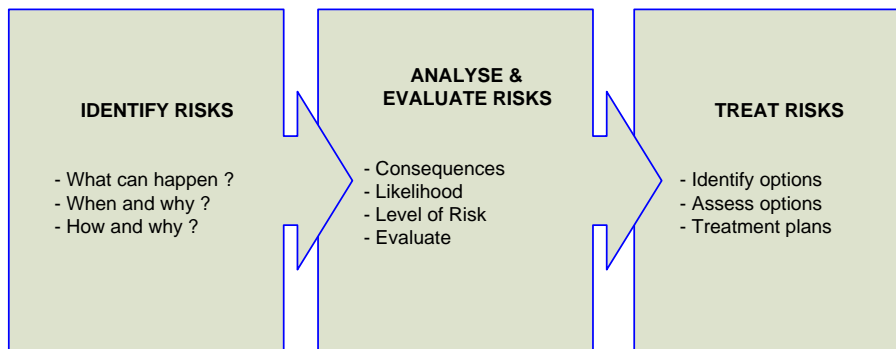
By identifying critical assets and failure modes the organisation can target and refine investigative activities, prioritise condition inspection programs, maintenance and capital expenditure plans at the appropriate time.

6.2 Risk Assessment

The risk management process used in this plan is shown in Figure 6.2 below. This is a structured approach to identifying, evaluating and managing risks and establishes the ‘Risk Management System’.

Fig 6.2 Risk Management Process – Abridged

Source: Adapted from ISO 31000:2009, Figure 1, p vii



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

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

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

¹⁰ ISO 31000:2009, p 2.

Table 6.2: Critical Risks and Treatment Plans

Service or Asset at Risk	What can Happen	Risk Rating (VH, H)	Risk Treatment Plan	Residual Risk *	Treatment Costs
All water & sewerage assets	Damage to assets as a consequence of a significant natural event.	Very High	Cannot be managed within councils resourcing strategy. Reliant on external assistance such as NDRRA. Ensure resources are redirected to manage the NDRRA process when an event is declared.	Medium	Within existing budget. Staff time
	Access to safe, reliable and secure water source(s).	High		Low to Medium	Within existing budget. Staff time
	Defects causing injury or property damage	High	Schedule inspections based on affordable and prioritised inspection schedule within agreed service level targets.	Medium	Within existing budget. Staff time
	Increasing financial pressure to adequately sustain current service levels. Some assets deteriorating to a lower service standard resulting in a higher risk situation. Premature failure of some assets.	High	Continue to improve data and knowledge by carrying our targeted inspections. Required renewal of components may be achieved in the short to medium term Future planning improvements can be made by documenting service level risks and utilisation of these in establishing future renewal priorities.	Medium	Within existing budget. Staff time

6.3 Infrastructure Resilience Approach

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

To enhance our capacity to manage unforeseen or unexpected risk to the continuity of operations we take an organisational approach to infrastructure resilience using an ‘all hazards’ approach.

The ‘all-hazards’ approach involves:

- An initial assessment of critical assets;
- A resilience assessment for these assets; and
- Identification of related improvements or interventions

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

Our current measure of resilience is summarised in Table 6.3. Table 6.3 shows the type of threats and hazards, resilience assessment and identified improvements and/or interventions.

Table 6.2: Critical Risks and Treatment Plans

Threat / Hazard	Resilience	Improvements / Interventions
Flooding	Medium	<p>Short term response: Ensure effective communication to users and stakeholders. Prompt response to closure/access notifications and response to service requests.</p> <p>Long term response: Identify hazard areas and map. Inform alternatives. Prioritise mitigation works. Consider education strategy on risks. Training for staff members directly involved.</p>

6.4 Service Consequences and Risks

The organisation has prioritised decisions made in adopting this AM Plan to obtain the optimum benefits from its available resources. Decisions were made based on the development of 3 scenarios of AM Plans.

Scenario 1 - What we would like to do based on asset register data

Scenario 2 – What we should do with existing budgets and identifying level of service and risk consequences (i.e. what are the operations and maintenance and capital projects we are unable to do, what is the service and risk consequences associated with this position). This may require several versions of the AM Plan.

Scenario 3 – What we can do and be financially sustainable with AM Plans matching long-term financial plans.

The development of scenario 1 and scenario 2 AM Plans provides the tools for discussion with Council and the community on trade-offs between what we would like to do (scenario 1) and what we should be doing with existing budgets (scenario 2) by balancing changes in services and service levels with affordability and acceptance of the service and risk consequences of the trade-off position (scenario 3).

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:

- An estimated \$384,000 funding shortfall in priority renewals over the next 10 years,
- An estimated \$155,000 funding shortfall in operational and maintenance activities over the next 10 years, and
- Anticipated gradual reduction in maintenance response times for some assets.

6.4.2 Service trade-off

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

- Increased number of defects for some assets, and
- Extended response time to service requests.

6.4.3 Risk trade-off

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

- Increased maintenance and servicing costs.
- Accelerated ageing and general deterioration of assets.

These actions and expenditures are included in the projected expenditures.

7. FINANCIAL SUMMARY

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

Projections are based on best available information and are aimed at providing a likely forecast for the future and indicate priority asset and financial management and planning tasks. Confidence levels around the reliability and accuracy of the data used to prepare the financial projections exist, however, it is important that the projections be based on best available information and improved over time as information becomes available on current and desired levels of service and current and projected future asset performance.

7.1 Financial Statements and Projections

The combined 20 year financial projections for projected operating (operations and maintenance) and capital expenditure (renewal and upgrade/expansion/new assets) for Scenario 2 & 3 are shown below. All amounts are shown in real values (i.e. 2015/16 dollars and net of inflation).

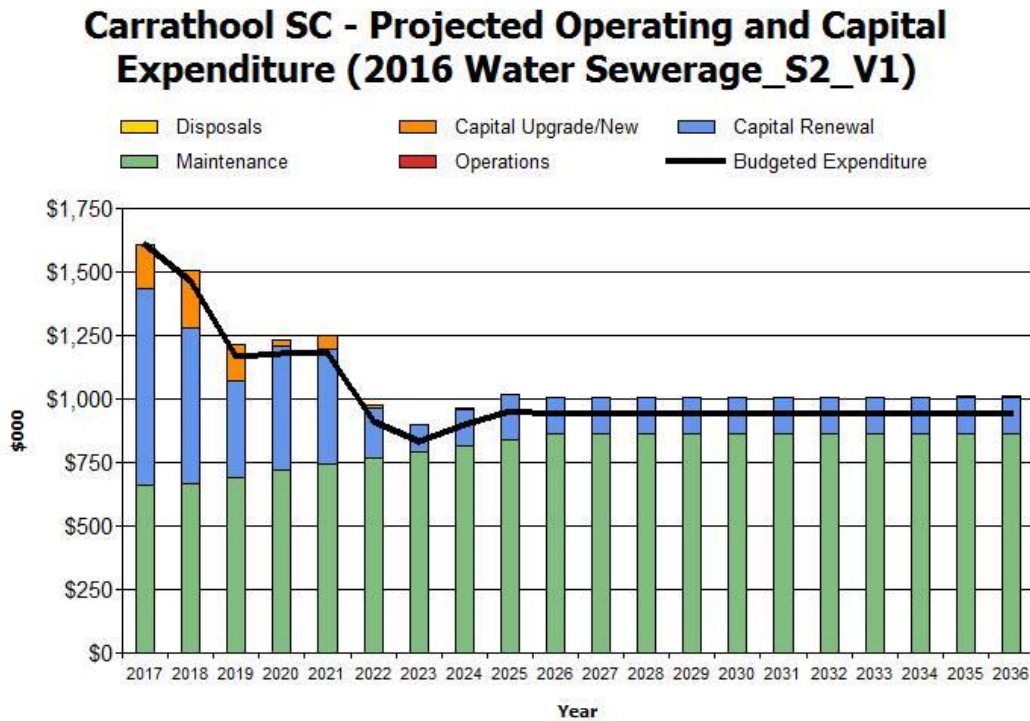


Fig 7.1: Scenario 2 - Projected Operating and Capital Expenditure (Sustaining assets and services over the planning period at current levels)

Scenario 2 requirements are based on an amount sustaining existing assets over the long term at current service levels. The expenditure outlays required over the next 10 years is estimated at \$11.7M and is not fully funded in the Long Term Financial Plan (current projections indicate \$11.1M is allocated). This means the deferral of \$539,000 priority operational, replacement and upgrade/new works and activities past the 10 year LTFP timeframe which is represented in Figure 7.2 below.

Carrathool SC - Projected Operating and Capital Expenditure (2016 Water Sewerage_S3_V1)

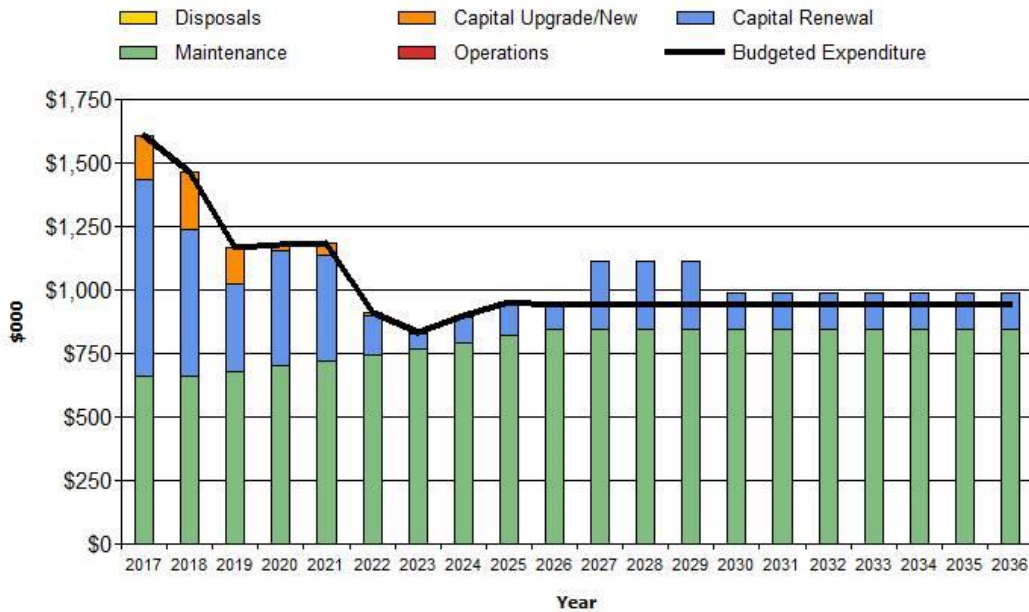


Fig 7.2: Scenario 3 - Projected Operating and Capital Expenditure (Balanced with the LTFP)

The mix of operational and capital activities and projects in the \$539,000 deferral past the first 10 years of the plan is a question for the Executive and Council to determine. Clearly there will be implications and the service and risk consequences of this should form the basis of reviewing priorities in subsequent updates of the asset management program as part of the ongoing improvement plan.

7.1.1 Sustainability of service delivery

There are four key indicators for service delivery sustainability that have been considered in the analysis of the services provided by this asset category, these being the asset renewal funding ratio, long term life cycle costs/expenditures and medium term projected/budgeted expenditures over 5 and 10 years of the planning period.

Asset Renewal Funding Ratio

Asset Renewal Funding Ratio¹¹ 90%

The Asset Renewal Funding Ratio is the most important indicator and reveals that over the next 10 years, Council is forecasting that it will have 41% of the funds required for the renewal and replacement of its assets to sustain current services.

Long term - Life Cycle Cost

Life cycle costs (or whole of life costs) are the average costs that are required to sustain the service levels over the asset life cycle. Life cycle costs include operations and maintenance expenditure and asset consumption (depreciation expense). The life cycle cost for the services covered in this asset management plan is \$1.4M per year (average operations and maintenance expenditure plus depreciation expense projected over 10 years).

Life cycle costs can be compared to life cycle expenditure to give an initial indicator of affordability of projected service levels when considered with age profiles. Life cycle expenditure includes operations, maintenance and capital renewal expenditure. Life cycle expenditure will vary depending on the timing of asset renewals. The life cycle

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

expenditure over the 10 year planning period is \$1.1M per year (average operations and maintenance plus capital renewal budgeted expenditure in LTFP over 10 years).

A shortfall between life cycle cost and life cycle expenditure is the life cycle gap. The life cycle gap for services covered by this asset management plan is \$314,000 per year (-ve = gap, +ve = surplus).

Life cycle expenditure is 77% of life cycle costs.

The life cycle costs and life cycle expenditure comparison highlights any difference between present outlays and the average cost of providing the service over the long term. If the life cycle expenditure is less than that life cycle cost, it is most likely that outlays will need to be increased or cuts in services made in the future.

Knowing the extent and timing of any required increase in outlays and the service consequences if funding is not available will assist council in providing services to their communities in a financially sustainable manner. This is the purpose of asset management plans and long term financial plan.

Medium term – 10 year financial planning period

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

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

The projected operations, maintenance and capital renewal expenditure required over the 10 year planning period is \$1.1M on average per year.

Estimated (budget) operations, maintenance and capital renewal funding is \$1.0M on average per year giving a 10 year funding shortfall of \$54,000 per year. This indicates that Council expects to have 95% of the projected expenditures needed to provide the services documented in the asset management plan.

Short Term – 5 year financial planning period

The projected operations, maintenance and capital renewal expenditure required over the first 5 years of the planning period is \$1.2M on average per year.

Estimated (budget) operations, maintenance and capital renewal funding is \$1.2M on average per year giving a 5 year funding shortfall of \$42,000. This indicates that Council expects to have 97% of projected expenditures required to provide the services shown in this asset management plan.

Asset management financial indicators

Figure 7A shows the long term life cycle costs/expenditures and medium term projected/budgeted expenditures over 5 and 10 years of the planning period expressed as a percentage.

Providing services from infrastructure in a sustainable manner requires the matching and managing of service levels, risks, projected expenditures and financing to achieve a financial indicator of approximately 100% for the first few years of the asset management plan and ideally over the 10 year life of the Long Term Financial Plan. Anything less than this in the 5-10 year period would suggest funding levels below that required to sustain existing service levels.

The following chart summarises the ratios for Scenario 2 - Sustaining assets and services at current levels over the planning period.

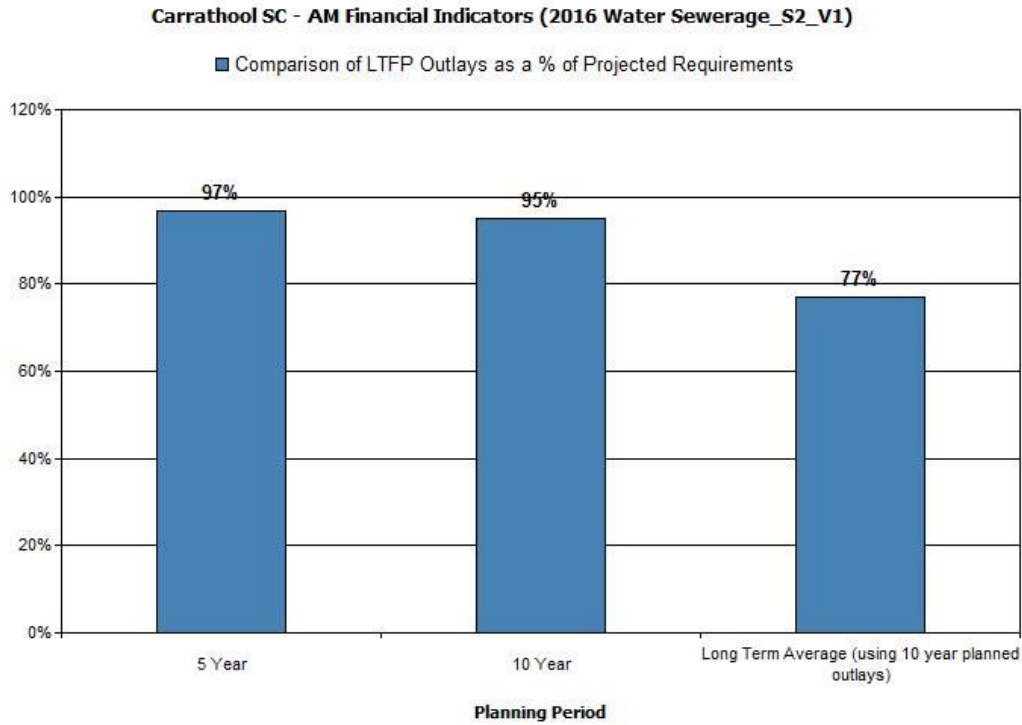


Figure 7A: Asset Management Financial Indicators

The chart illustrates that funding remains below what is required to sustain existing service levels for the short to medium term (5 to 10 years). It shows council have 97% of the funds required to operate, maintain and replace assets in the next 5 years, 95% for the next 10 years and 77% over the assets life cycle.

For the 5 year planning period, the projected and planned expenditures should be almost the same to demonstrate sustainability, the gap should be close to zero and the sustainability indicator should be nearing 1.0 or 100% as this is the period most under the control of Council.

At 97% this is not cause for immediate concern and improvements in data quality plus a review of services and service levels and financing options will lead to a more sustainable position over time.

Figure 8 shows the projected asset renewal and replacement expenditure over the 20 years of the AM Plan. The projected asset renewal and replacement expenditure is compared to renewal and replacement expenditure in the capital works program, which is accommodated in the long term financial plan

Carrathool SC - Projected and Budget Expenditure for (2016 Water Sewerage_S2_V1)

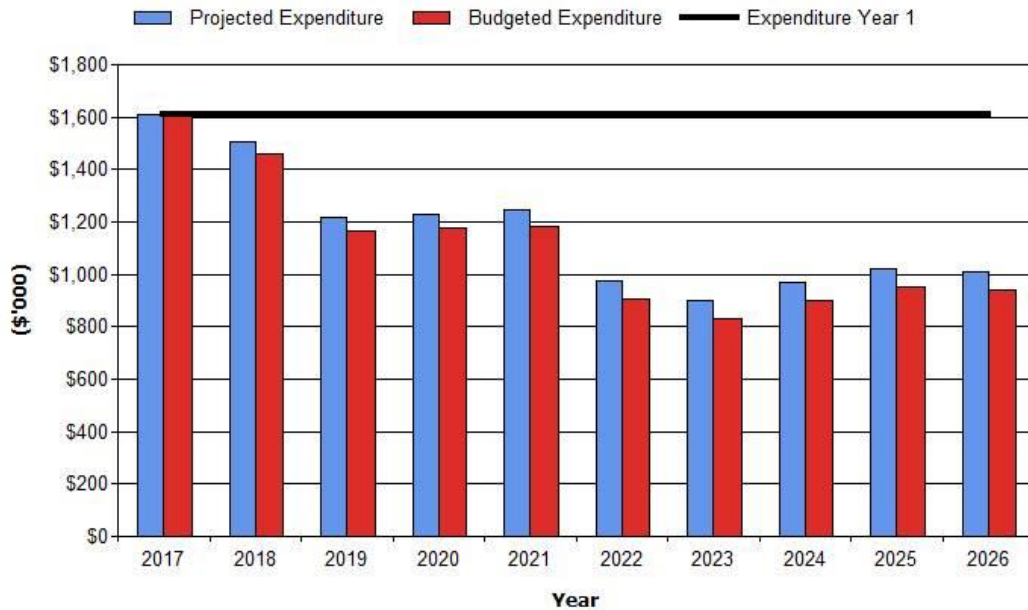


Figure 8: Projected and LTFP Budgeted Renewal Expenditure

Table 7.1.1 shows the shortfall between projected renewal and replacement expenditures and expenditure accommodated in long term financial plan. Budget expenditures accommodated in the long term financial plan or extrapolated from current budgets are shown in Appendix C.

Table 7.1.1: Projected and LTFP Budgeted Renewals and Financing Shortfall

Year	Projected Renewals (\$000)	LTFP Renewal Budget (\$000)	Renewal Financing Shortfall (\$000) (-ve Gap, +ve Surplus)	Cumulative Shortfall (\$000) (-ve Gap, +ve Surplus)
2017	\$770	\$770	\$0	\$0
2018	\$615	\$579	\$-36	\$-36
2019	\$380	\$344	\$-36	\$-72
2020	\$489	\$453	\$-36	\$-108
2021	\$458	\$412	\$-46	\$-154
2022	\$201	\$155	\$-46	\$-200
2023	\$107	\$61	\$-46	\$-246
2024	\$146	\$100	\$-46	\$-292
2025	\$177	\$131	\$-46	\$-338
2026	\$141	\$95	\$-46	\$-384
2027	\$141	\$95	\$-46	\$-430
2028	\$141	\$95	\$-46	\$-476
2029	\$141	\$95	\$-46	\$-522
2030	\$141	\$95	\$-46	\$-568
2031	\$141	\$95	\$-46	\$-614
2032	\$141	\$95	\$-46	\$-660
2033	\$141	\$95	\$-46	\$-706
2034	\$141	\$95	\$-46	\$-752
2035	\$141	\$95	\$-46	\$-798

Year	Projected Renewals (\$000)	LTFP Renewal Budget (\$000)	Renewal Financing Shortfall (\$000) (-ve Gap, +ve Surplus)	Cumulative Shortfall (\$000) (-ve Gap, +ve Surplus)
2036	\$141	\$95	\$-46	\$-844

Note: A negative shortfall indicates a financing gap, a positive shortfall indicates a surplus for that year.

Providing services in a sustainable manner will require matching of projected asset renewal and replacement expenditure to meet agreed service levels with **the corresponding** capital works program accommodated in the long term financial plan.

A gap between **projected asset renewal/replacement expenditure and amounts accommodated in the LTFP** indicates that **further work is required on reviewing service levels in the AM Plan (including possibly revising the LTFP)** before finalising the asset management plan to manage required service levels and funding **to eliminate any funding gap**.

We will manage the 'gap' by developing this asset management plan to provide guidance on future service levels and resources required to provide these services, and review future services, service levels and costs with the community.

7.1.2 Projected expenditures for long term financial plan

Table 7.1.2.1 & 7.1.2.2 shows the projected expenditures for the 10 year long term financial plan for Scenario 2 & 3.

Expenditure projections are in 2015/16 real values.

Table 7.1.2.1: Scenario 2- Projected Expenditures for Long Term Financial Plan (\$000)

Year	Operations (\$000)	Maintenance (\$000)	Projected Capital Renewal (\$000)	Capital Upgrade/ New (\$000)	Disposals (\$000)
2017	\$0	\$663	\$770	\$178	\$0
2018	\$0	\$665	\$615	\$224	\$0
2019	\$0	\$693	\$380	\$142	\$0
2020	\$0	\$719	\$489	\$22	\$0
2021	\$0	\$741	\$458	\$49	\$0
2022	\$0	\$766	\$201	\$7	\$0
2023	\$0	\$789	\$107	\$2	\$0
2024	\$0	\$814	\$146	\$7	\$0
2025	\$0	\$839	\$177	\$2	\$0
2026	\$0	\$865	\$141	\$2	\$0

Table 7.1.2.2: Scenario 3- Projected Expenditures for Long Term Financial Plan (\$000)

Year	Operations (\$000)	Maintenance (\$000)	Projected Capital Renewal (\$000)	Capital Upgrade/ New (\$000)	Disposals (\$000)
2017	\$0	\$663	\$770	\$178	\$0
2018	\$0	\$659	\$579	\$224	\$0
2019	\$0	\$680	\$344	\$142	\$0
2020	\$0	\$701	\$453	\$22	\$0
2021	\$0	\$723	\$412	\$49	\$0
2022	\$0	\$746	\$155	\$7	\$0
2023	\$0	\$769	\$61	\$2	\$0
2024	\$0	\$794	\$100	\$7	\$0
2025	\$0	\$819	\$131	\$2	\$0
2026	\$0	\$845	\$95	\$2	\$0

7.2 Funding Strategy

After reviewing service levels, as appropriate to ensure ongoing financial sustainability projected expenditures identified in Section 7.1.2 will be accommodated in the Council's 10 year long term financial plan.

7.3 Valuation Forecasts

Asset values are forecast to increase as additional assets are added to the asset stock from construction and acquisition by Council and from assets constructed by land developers and others and donated to Council. Figure 9 shows the projected replacement cost asset values over the planning period in real values. Values are based on the 2015/16 Financial Statements.

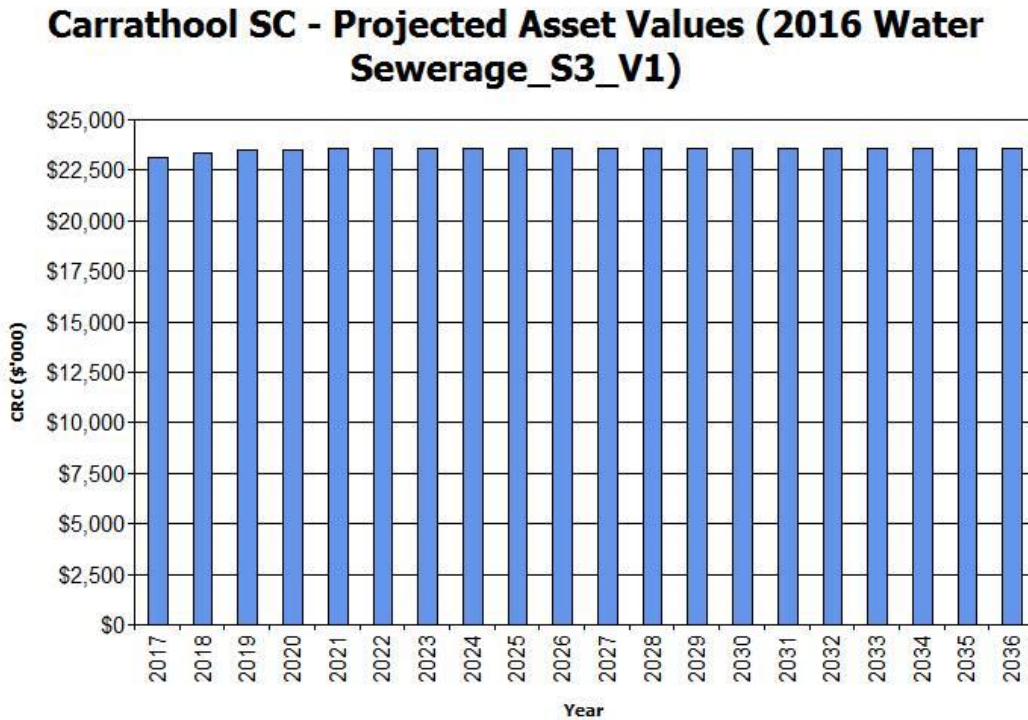


Figure 9: Projected Asset Values

The projected asset values are forecast to increase from \$23.1M in 2017 to \$23.6M by 2036.

Depreciation expense values are forecast to increase in line with asset values as shown in Figure 10 from \$608,000 in 2017 to \$625,000 in 2036.

Carrathool SC - Projected Depreciation Expense (2016 Water Sewerage_S3_V1)

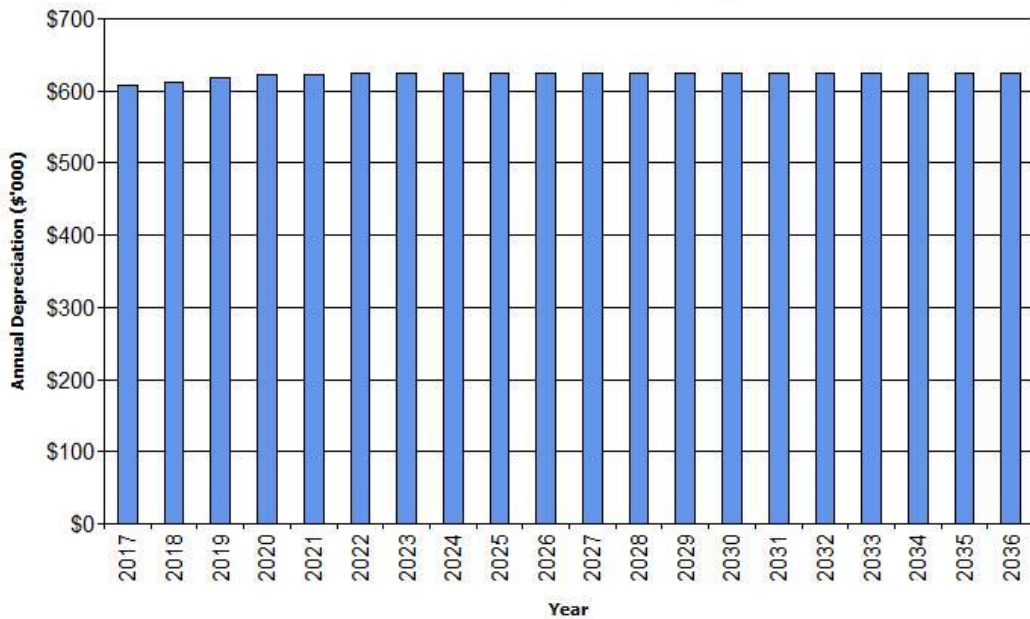


Figure 10: Projected Depreciation Expense

The depreciated replacement cost (DRC) will vary over the forecast period depending on the rates of addition of new assets, disposal of old assets and consumption and renewal of existing assets. Forecast of the assets’ depreciated replacement cost is shown in Figure 11. The depreciated replacement cost of contributed and new assets is shown in the darker colour and in the lighter colour for existing assets.

Carrathool SC - Projected Depreciated Replacement Cost (2016 Water Sewerage_S3_V1)

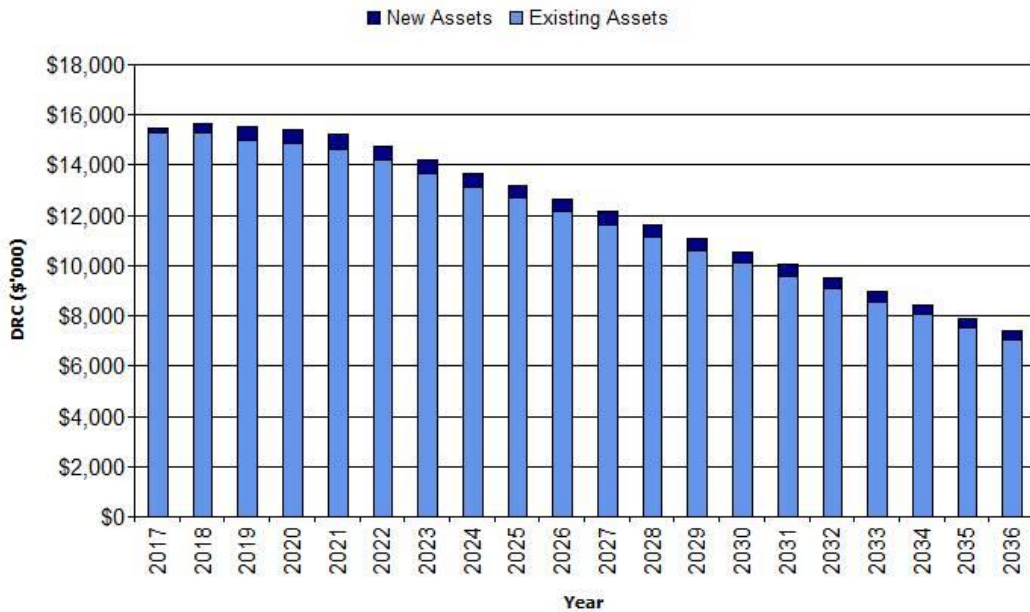


Figure 11: Projected Depreciated Replacement Cost

From the data supplied, the current renewal rate of existing assets will need to be monitored and increased to sustain the increasing depreciation costs. This is demonstrated by the steadily declining depreciated replacement cost of

existing assets as shown by the light coloured bars. A constant value for the DRC illustrates that Council is maintaining capital in its infrastructure.

7.4 Key Assumptions made in Financial Forecasts

This section details the key assumptions made in presenting the information contained in this asset management plan and in preparing forecasts of required operating and capital expenditure and asset values, depreciation expense and carrying amount estimates. It is presented to enable readers to gain an understanding of the levels of confidence in the data behind the financial forecasts.

Key assumptions made in this asset management plan and risks that these may change are shown in Table 6.4.

Table 7.4: Key Assumptions made in AM Plan and Risks of Change

Key Assumptions	Risks of Change to Assumptions
The assets will remain in the organisations ownership and control throughout the planning period.	Low
Planned and reactive maintenance is to take place in accordance with relevant guidelines/standards.	Low
All expenditure is stated in 2015/16 dollar values.	Low
Financial projections are based on historical expenditure and revenue trends and assume there will no significant change.	Medium
Regulations/standards relating to operations will remain the same over the planning period.	Medium

7.5 Forecast Reliability and Confidence

The expenditure and valuations projections in this AM Plan are based on best available data. Currency and accuracy of data is critical to effective asset and financial management. Data confidence is classified on a 5 level scale¹² in accordance with Table 6.5.

Table 7.5: Data Confidence Grading System

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

The estimated confidence level for and reliability of data used in this AM Plan is shown in Table 6.5.1.

¹² IPWEA, 2015, IIMM, Table 2.4.6, p 2|71.

Table 7.5.1: Data Confidence Assessment for Data used in AM Plan

Data	Confidence Assessment	Comment
Demand drivers	B Reliable	Based on local corporate knowledge and State government projections.
Growth projections	B Reliable	Estimated, however further substantiation required for next revision of the AM Plan
Operations expenditures	A Highly reliable	Direct from 2015/16 budget, expenses split into operations and maintenance.
Maintenance expenditures	A Highly reliable	Direct from 2015/16 budget, expenses split into operations and maintenance
Projected Renewal exps. - Asset values	A Highly reliable	Sourced from database and 2016 data health check report.
- Asset useful lives	B Reliable	Based on last revaluation.
- Network renewals	B Reliable	Based on asset register as at 30 June 2016 and network level modelling from expert judgement.
Upgrade/New expenditures	B Reliable	Projected proposals based on current program allocations
Disposal expenditures	B Reliable	No disposals proposed.

Over all data sources the data confidence is assessed as medium to high confidence level for data used in the preparation of this AM Plan.

8. PLAN IMPROVEMENT AND MONITORING

8.1 Status of Asset Management Practices

8.1.1 Accounting and financial systems

This section describes the accounting and financial systems and any changes required as a result of this AM Plan.

Council uses Civica's Practical Financial Management system for its financial and asset accounting processes.

Accountabilities for financial systems

The Responsible Accounting Officer is the Director of Corporate & Community Services.

Accounting standards and regulations

Council works under Australian Accounting Standards and NSW State Legislation/Regulations and Directives issued by the Office of Local Government

- NSW Local Government Act 1993
- Local Government Amendment (Planning and Reporting) Act 2009
- NSW Local Government Code of Accounting Practice and Financial Reporting
- Australian Accounting Standards Board

Capital/maintenance threshold

Items of infrastructure, property, plant and equipment are not capitalised unless their cost of acquisition exceeds the following:

- Reticulation extensions: > \$5,000
- Other: > \$5,000

Required changes to accounting financial systems arising from this AM Plan

Changes to accounting and financial systems identified as a result of preparation of this asset management plan are:

- Develop reporting on expenditures, to identify separation of costs for operations as opposed to maintenance and separate maintenance costs into reactive, planned and specific work activities.
- Continued input and development of a single corporate asset register, in which financial calculations including calculation of depreciation can be undertaken by council.
- Linking of the customer service system/work orders to the corporate asset register to ensure effective service level reporting,
- Improved project cost accounting to record costs against the asset component and develop a unit rates table.

8.1.2 Asset management system

This section describes the resources, processes and technology that the organisation uses to manage its assets and reports any required changes arising from this AM Plan.

Asset registers

Asset data is stored in spreadsheet format recording core asset attribute data at component level in respect to:

- Location
- Inventory
- Valuation, and
- Performance

Linkage from asset management to financial system

There is limited integration between the Financial and Asset Management System. Capitalisation and updates are managed via a manual process.

Accountabilities for asset management system and data maintenance

The Director of Infrastructure Services is responsible for

- Data maintenance and audit
- Developing targets and frequency for asset condition inspections
- Developing and administrating asset hierarchy within the Asset Management System including any variations adopted by council
- Determining, recommending and implementing system improvements

Operational officers complete asset condition inspections and input data in accordance with established business protocols.

Required changes to asset management system arising from this AM Plan

Changes to asset management systems identified as a result of preparation of this asset management plan are:

- Review the accuracy and currency of asset related data and action updates,
- Continued development of a single technical asset register as the corporate asset register, in which financial valuation calculations including depreciation can be undertaken at an individual asset component level.
- Modify asset categories and sub-categories to assist in maintenance management processes.
- Development of a works costing and maintenance management system to improve works planning and cost recording, in particular to identify expenditure type (operations, maintenance, capital renewal and capital new/upgrade)
- Improved project cost accounting to record costs against the asset component and develop valuation unit rates.

8.2 Improvement Plan

The asset management improvement plan generated from this asset management plan is shown in Table 7.2.

Table 7.2: Improvement Plan

Task No	Task	Responsibility	Resources Required	Timeline
1	Asset Register Assess the Remaining Life of assets on a priority basis and align with up to date performance data and knowledge.	Corporate (Technical & Financial)	Existing budget Staff time	Dec 2017
2	Review and update data for the year of acquisition or date of last renewal and replacement cost in the asset register for the 1981, 1985 and 1994 year as a priority.	Corporate (Technical & Financial)	Existing budget Staff time	Dec 2017
3	Adopt and implement an Infrastructure Asset Hierarchy as a basis for consistent reporting across the organisation	Corporate (Technical & Financial)	Existing budget Staff time	Dec 2017
4	Infrastructure Risk Management Assess infrastructure risks and report high residual risks to the audit committee.	Corporate (Technical & Financial)	Existing budget Staff time	Dec 2017
5	Forward Projections Ensure funding models reflect the resources required meeting the timely renewal of existing assets and those identified and implemented under the Strategic Plan.	Corporate (Technical & Financial)	Existing budget Staff time	Dec 2017
6	Develop and adopt a prioritisation framework for renewal and upgrade/new projects.	Corporate (Technical & Financial)	Existing budget Staff time	Dec 2017
7	Increase confidence and prioritise renewal and upgrade/new estimates based on risk.	Corporate (Technical & Financial)	Existing budget Staff time	Dec 2017
8	Levels of Service Develop and confirm current and desired customer/community and technical levels of service to understand and report on a sustainable service delivery model.	Corporate (Technical & Financial)	Existing budget Staff time	Dec 2017
9	State of the assets reporting to show current and 10 year target and affordable service levels for condition, function and capacity indicators.	Corporate (Technical & Financial)	Existing budget Staff time	Dec 2017
10	AM Plan Maintain an annual review of the plan incorporating an update of service level performance, financial and expenditure projections and risk.	Corporate (Technical & Financial)	Existing budget Staff time	Dec 2017
11	Implement a continuous improvement strategy to assess and report on the performance of controlled assets.	Corporate (Technical & Financial)	Existing budget Staff time	Dec 2017

8.3 Monitoring and Review Procedures

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

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

The AM Plan has a life of 4 years (Council election cycle) and is due for complete revision and updating within 1 year of each Council election.

8.4 Performance Measures

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

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

9. REFERENCES

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10. APPENDICES

Appendix A Aspirational 10 year Capital Renewal Program (Scenario 2 – Maintain existing services)

Appendix B Affordable 10 year Capital Renewal Program (Scenario 3 – Balanced with the LTFP)

Appendix C Budgeted Expenditures Accommodated in the LTFP

Appendix D Abbreviations

Appendix E Glossary

Appendix A Aspirational 10 year Renewal Program (Scenario 2 – Maintain existing services)

Scenario 2 - Capital Works Forecast (i.e. what we should do to sustain current service levels - x% in poor/very poor condition, and meet growth and demand projections)

Capex Progr	Project/Sub-Program	Work Type	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	
			Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	
W&S	Sewer Mains	Renewal	\$50	\$69	\$5	\$55	\$91	\$55	\$5	\$55	\$5	\$5	\$395
W&S	Sewer Pumps	Renewal	\$10	\$10	\$20	\$10	\$10	\$20	\$10	\$10	\$10	\$10	\$120
W&S	Sewer Treatment	Renewal	\$20	\$20	\$20	\$20	\$10	\$10	\$10	\$10	\$10	\$10	\$140
W&S	Sewer Mains	Upgrade/Ne	\$44	\$2	\$2	\$2	\$2	\$2	\$2	\$2	\$2	\$2	\$62
W&S	Sewer Pumps	Upgrade/Ne	\$10	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$10
W&S	Sewer Treatment	Upgrade/Ne	\$24	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$24
W&S	Water Mains	Renewal	\$500	\$346	\$195	\$336	\$277	\$26	\$32	\$26	\$92	\$86	\$1,916
W&S	Water Mains	Upgrade/Ne	\$0	\$0	\$90	\$0	\$47	\$0	\$0	\$0	\$0	\$0	\$137
W&S	Water Pump	Renewal	\$19	\$20	\$20	\$20	\$20	\$20	\$20	\$20	\$20	\$20	\$199
W&S	Water Pump	Upgrade/Ne	\$44	\$15	\$50	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$109
W&S	Water Storage	Renewal	\$45	\$140	\$95	\$0	\$40	\$60	\$20	\$0	\$30	\$0	\$430
W&S	Water Storage	Upgrade/Ne	\$40	\$72	\$0	\$5	\$0	\$5	\$0	\$5	\$0	\$0	\$127
W&S	Water Treatment	Renewal	\$126	\$10	\$10	\$10	\$10	\$10	\$10	\$10	\$10	\$10	\$216
W&S	Water Treatment	Upgrade/Ne	\$16	\$35	\$0	\$15	\$0	\$0	\$0	\$0	\$0	\$0	\$66
W&S	Water Collect	Renewal	\$0	\$0	\$15	\$38	\$0	\$0	\$0	\$15	\$0	\$0	\$68
W&S	Water Collect	Upgrade/Ne	\$0	\$100	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$100
			\$947	\$839	\$522	\$511	\$507	\$208	\$109	\$153	\$179	\$143	\$4,118

Appendix B Affordable 10 year Renewal Program (Scenario 3 – Balanced with the LTFP)

Scenario 3 - Capital Works Forecast (i.e. LTFP)

Capex Progr	Project/Sub-Program	Work Type	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	
			Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	
W&S	Sewer Mains	Renewal	\$50	\$64	\$0	\$50	\$86	\$50	\$0	\$50	\$0	\$0	\$350
W&S	Sewer Pumps	Renewal	\$10	\$10	\$20	\$10	\$10	\$20	\$10	\$10	\$10	\$10	\$120
W&S	Sewer Treatment	Renewal	\$20	\$20	\$20	\$20	\$0	\$0	\$0	\$0	\$0	\$0	\$80
W&S	Sewer Mains	Upgrade/Ne	\$44	\$2	\$2	\$2	\$2	\$2	\$2	\$2	\$2	\$2	\$62
W&S	Sewer Pumps	Upgrade/Ne	\$10	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$10
W&S	Sewer Treatment	Upgrade/Ne	\$24	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$24
W&S	Water Mains	Renewal	\$500	\$326	\$175	\$316	\$257	\$6	\$12	\$6	\$72	\$66	\$1,736
W&S	Water Mains	Upgrade/Ne	\$0	\$0	\$90	\$0	\$47	\$0	\$0	\$0	\$0	\$0	\$137
W&S	Water Pump	Renewal	\$19	\$19	\$19	\$19	\$19	\$19	\$19	\$19	\$19	\$19	\$190
W&S	Water Pump	Upgrade/Ne	\$44	\$15	\$50	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$109
W&S	Water Storage	Renewal	\$45	\$140	\$95	\$0	\$40	\$60	\$20	\$0	\$30	\$0	\$430
W&S	Water Storage	Upgrade/Ne	\$40	\$72	\$0	\$5	\$0	\$5	\$0	\$5	\$0	\$0	\$127
W&S	Water Treatment	Renewal	\$126	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$126
W&S	Water Treatment	Upgrade/Ne	\$16	\$35	\$0	\$15	\$0	\$0	\$0	\$0	\$0	\$0	\$66
W&S	Water Collect	Renewal	\$0	\$0	\$15	\$38	\$0	\$0	\$0	\$15	\$0	\$0	\$68
W&S	Water Collect	Upgrade/Ne	\$0	\$100	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$100
TOTAL			\$947	\$803	\$486	\$475	\$461	\$162	\$63	\$107	\$133	\$97	\$3,734

Appendix C Budgeted Expenditures Accommodated in the LTFP

NAMS.PLUS3 Asset Management		Carrathool SC									
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2016 Water Sewerage_S2_V1		Asset Management Plan									
First year of expenditure projections		2017 (financial yr ending)									
2016 Water Sewerage		Operations and Maintenance Costs for New Assets									
Asset values at start of planning period		Calc CRC from Asset Register									
Current replacement cost	\$22,927 (000)	0 (000)									
Depreciable amount	\$22,927 (000)	This is a check for you.									
Depreciated replacement cost	\$15,141 (000)										
Annual depreciation expense	\$608 (000)										
Planned Expenditures from LTFP		% of asset value									
20 Year Expenditure Projections		Additional operations costs 0.00%									
Note: Enter all values in current 2017 values		Additional maintenance 3.23%									
		Additional depreciation 2.65%									
		Planned renewal budget (information only)									
		You may use these values calculated from your data or overwrite the links.									
Financial year ending	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	
	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	
Expenditure Outlays included in Long Term Financial Plan (in current \$ values)											
Operations											
Operations budget	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Management budget	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
AM systems budget	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Total operations	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Maintenance											
Reactive maintenance budget	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Planned maintenance budget	\$663	\$659	\$680	\$701	\$723	\$746	\$769	\$794	\$819	\$845	
Specific maintenance items budget	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Total maintenance	\$663	\$659	\$680	\$701	\$723	\$746	\$769	\$794	\$819	\$845	
Capital											
Planned renewal budget	\$770	\$579	\$344	\$453	\$412	\$155	\$61	\$100	\$131	\$95	
Planned upgrade/new budget	\$178	\$224	\$142	\$22	\$49	\$7	\$2	\$7	\$2	\$2	
Non-growth contributed asset value	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Asset Disposals											
Est Cost to dispose of assets	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Carrying value (DRC) of disposed assets	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Additional Expenditure Outlays Requirements (e.g from Infrastructure Risk Management Plan)											
Additional Expenditure Outlays required and not included above	2017 \$000	2018 \$000	2019 \$000	2020 \$000	2021 \$000	2022 \$000	2023 \$000	2024 \$000	2025 \$000	2026 \$000	
Operations	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Maintenance	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Capital Renewal	to be incorporated into Forms 2 & 2.1 (where Method 1 is used) OR Form 2B Defect Repairs (where Method 2 or 3 is used)										
Capital Upgrade	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
User Comments #2											
Forecasts for Capital Renewal using Methods 2 & 3 (Form 2A & 2B) & Capital Upgrade (Form 2C)											
Forecast Capital Renewal from Forms 2A & 2B	2017 \$000	2018 \$615	2019 \$380	2020 \$489	2021 \$458	2022 \$201	2023 \$107	2024 \$146	2025 \$177	2026 \$141	
Forecast Capital Upgrade from Form 2C	\$178	\$224	\$142	\$22	\$49	\$7	\$2	\$7	\$2	\$2	

Appendix D Abbreviations

AAAC	Average annual asset consumption
AM	Asset management
AM Plan	Asset management plan
ASC	Annual service cost
CRC	Current replacement cost
DA	Depreciable amount
DRC	Depreciated replacement cost
IRMP	Infrastructure risk management plan
LCC	Life Cycle cost
LCE	Life cycle expenditure
LTFP	Long term financial plan
MMS	Maintenance management system
PCI	Pavement condition index
RV	Residual value
SoA	State of the Assets
WDV	Written down value

Appendix E Glossary

Annual service cost (ASC)

- 1) Reporting actual cost
The annual (accrual) cost of providing a service including operations, maintenance, depreciation, finance/opportunity and disposal costs less revenue.
- 2) For investment analysis and budgeting
An estimate of the cost that would be tendered, per annum, if tenders were called for the supply of a service to a performance specification for a fixed term. The Annual Service Cost includes operations, maintenance, depreciation, finance/opportunity and disposal costs, less revenue.

Asset

A resource controlled by an entity as a result of past events and from which future economic benefits are expected to flow to the entity. Infrastructure assets are a sub-class of property, plant and equipment which are non-current assets with a life greater than 12 months and enable services to be provided.

Asset category

Sub-group of assets within a class hierarchy for financial reporting and management purposes.

Asset class

A group of assets having a similar nature or function in the operations of an entity, and which, for purposes of disclosure, is shown as a single item without supplementary disclosure.

Asset condition assessment

The process of continuous or periodic inspection, assessment, measurement and interpretation of the resultant data to indicate the condition of a specific asset so as to determine the need for some preventative or remedial action.

Asset hierarchy

A framework for segmenting an asset base into appropriate classifications. The asset hierarchy can be based on asset function or asset type or a combination of the two.

Asset management (AM)

The combination of management, financial, economic, engineering and other practices applied to physical assets with the objective of providing the required level of service in the most cost effective manner.

Asset renewal funding ratio

The ratio of the net present value of asset renewal funding accommodated over a 10 year period in a long term financial plan relative to the net present value of projected capital renewal expenditures identified in an asset management plan for the same period [AIFMG Financial Sustainability Indicator No 8].

Average annual asset consumption (AAAC)*

The amount of an organisation's asset base consumed during a reporting period (generally a year). This may be calculated by dividing the depreciable amount by the useful life (or total future economic benefits/service potential) and totalled for each and every asset OR by dividing the carrying amount (depreciated replacement cost) by the remaining useful life (or remaining future economic benefits/service potential) and totalled for each and every asset in an asset category or class.

Borrowings

A borrowing or loan is a contractual obligation of the borrowing entity to deliver cash or another financial asset to the lending entity over a specified period of time or at a specified point in time, to cover both the initial capital provided and the cost of the interest incurred for providing this capital. A borrowing or loan provides the means for the borrowing entity to finance outlays (typically physical assets) when it has insufficient funds of its own to do so, and for the lending entity to make a financial return, normally in the form of interest revenue, on the funding provided.

Capital expenditure

Relatively large (material) expenditure, which has benefits, expected to last for more than 12 months. Capital expenditure includes renewal, expansion and upgrade. Where capital projects involve a combination of renewal, expansion and/or upgrade expenditures, the total project cost needs to be allocated accordingly.

Capital expenditure - expansion

Expenditure that extends the capacity of an existing asset to provide benefits, at the same standard as is currently enjoyed by existing beneficiaries, to a new group of users. It is discretionary expenditure, which increases future operations and maintenance costs, because it increases the organisation's asset base, but may be associated with additional revenue from the new user group, eg. extending a drainage or road network, the provision of an oval or park in a new suburb for new residents.

Capital expenditure - new

Expenditure which creates a new asset providing a new service/output that did not exist beforehand. As it increases service potential it may impact revenue and will increase future operations and maintenance expenditure.

Capital expenditure - renewal

Expenditure on an existing asset or on replacing an existing asset, which returns the service capability of the asset up to that which it had originally. It is periodically required expenditure, relatively large (material) in value compared with the value of the components or sub-components of the asset being renewed. As it reinstates existing service potential, it generally has no impact on revenue, but may reduce future operations and maintenance expenditure if completed at the optimum time, eg. resurfacing or resheeting a material part of a road network, replacing a material section of a drainage network with pipes of the same capacity, resurfacing an oval.

Capital expenditure - upgrade

Expenditure, which enhances an existing asset to provide a higher level of service or expenditure that will increase the life of the asset beyond that which it had originally. Upgrade expenditure is discretionary and often does not result in additional revenue unless direct user charges apply. It will increase operations and maintenance expenditure in the future because of the increase in the organisation's asset base, eg. widening the sealed area of an existing road, replacing drainage pipes with pipes of a greater capacity, enlarging a grandstand at a sporting facility.

Capital funding

Funding to pay for capital expenditure.

Capital grants

Monies received generally tied to the specific projects for which they are granted, which are often upgrade and/or expansion or new investment proposals.

Capital investment expenditure

See capital expenditure definition

Capitalisation threshold

The value of expenditure on non-current assets above which the expenditure is recognised as capital expenditure and below which the expenditure is charged as an expense in the year of acquisition.

Carrying amount

The amount at which an asset is recognised after deducting any accumulated depreciation / amortisation and accumulated impairment losses thereon.

Class of assets

See asset class definition

Component

Specific parts of an asset having independent physical or functional identity and having specific attributes such as different life expectancy, maintenance regimes, risk or criticality.

Core asset management

Asset management which relies primarily on the use of an asset register, maintenance management systems, job resource management, inventory control, condition assessment, simple risk assessment and defined levels of service, in order to establish alternative treatment options and long-term cashflow predictions. Priorities are usually established on the basis of financial return gained by carrying out the work (rather than detailed risk analysis and optimised decision-making).

Cost of an asset

The amount of cash or cash equivalents paid or the fair value of the consideration given to acquire an asset at the time of its acquisition or construction, including any costs necessary to place the asset into service. This includes one-off design and project management costs.

Critical assets

Assets for which the financial, business or service level consequences of failure are sufficiently severe to justify proactive inspection and rehabilitation. Critical assets have a lower threshold for action than non-critical assets.

Current replacement cost (CRC)

The cost the entity would incur to acquire the asset on the reporting date. The cost is measured by reference to the lowest cost at which the gross future economic benefits could be obtained in the normal course of business or the minimum it would cost, to replace the existing asset with a technologically modern equivalent new asset (not a second hand one) with the same economic benefits (gross service potential) allowing for any differences in the quantity and quality of output and in operating costs.

Deferred maintenance

The shortfall in rehabilitation work undertaken relative to that required to maintain the service potential of an asset.

Depreciable amount

The cost of an asset, or other amount substituted for its cost, less its residual value.

Depreciated replacement cost (DRC)

The current replacement cost (CRC) of an asset less, where applicable, accumulated depreciation calculated on the basis of such cost to reflect the already consumed or expired future economic benefits of the asset.

Depreciation / amortisation

The systematic allocation of the depreciable amount (service potential) of an asset over its useful life.

Economic life

See useful life definition.

Expenditure

The spending of money on goods and services. Expenditure includes recurrent and capital outlays.

Expenses

Decreases in economic benefits during the accounting period in the form of outflows or depletions of assets or increases in liabilities that result in decreases in equity, other than those relating to distributions to equity participants.

Fair value

The amount for which an asset could be exchanged, or a liability settled, between knowledgeable, willing parties, in an arms length transaction.

Financing gap

A financing gap exists whenever an entity has insufficient capacity to finance asset renewal and other expenditure necessary to be able to appropriately maintain the range and level of services its existing asset stock was originally designed and intended to deliver. The service capability of the existing asset stock should be determined assuming no additional operating revenue, productivity improvements, or net financial liabilities above levels currently planned or projected. A current financing gap means service levels have already or are currently falling. A projected financing gap if not addressed will result in a future diminution of existing service levels.

Heritage asset

An asset with historic, artistic, scientific, technological, geographical or environmental qualities that is held and maintained principally for its contribution to knowledge and culture and this purpose is central to the objectives of the entity holding it.

Impairment Loss

The amount by which the carrying amount of an asset exceeds its recoverable amount.

Infrastructure assets

Physical assets that contribute to meeting the needs of organisations or the need for access to major economic and social facilities and services, eg. roads, drainage, footpaths and cycleways. These are typically large, interconnected networks or portfolios of composite assets. The components of these assets may be separately maintained, renewed or replaced individually so that the required level and standard of service from the network of assets is continuously sustained. Generally the components and hence the assets have long lives. They are fixed in place and are often have no separate market value.

Investment property

Property held to earn rentals or for capital appreciation or both, rather than for:

- (a) use in the production or supply of goods or services or for administrative purposes; or
- (b) sale in the ordinary course of business.

Key performance indicator

A qualitative or quantitative measure of a service or activity used to compare actual performance against a standard or other target. Performance indicators commonly relate to statutory limits, safety, responsiveness, cost, comfort, asset performance, reliability, efficiency, environmental protection and customer satisfaction.

Level of service

The defined service quality for a particular service/activity against which service performance may be measured. Service levels usually relate to quality, quantity, reliability, responsiveness, environmental impact, acceptability and cost.

Life Cycle Cost *

1. **Total LCC** The total cost of an asset throughout its life including planning, design, construction, acquisition, operation, maintenance, rehabilitation and disposal costs.
2. **Average LCC** The life cycle cost (LCC) is average cost to provide the service over the longest asset life cycle. It comprises average operations, maintenance expenditure plus asset consumption expense, represented by depreciation expense projected over 10 years. The Life Cycle Cost does not indicate the funds required to provide the service in a particular year.

Life Cycle Expenditure

The Life Cycle Expenditure (LCE) is the average operations, maintenance and capital renewal expenditure accommodated in the long term financial plan over 10 years. Life Cycle Expenditure may be compared to average Life Cycle Cost to give an initial indicator of affordability of projected service levels when considered with asset age profiles.

Loans / borrowings

See borrowings.

Maintenance

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, eg road patching but excluding rehabilitation or renewal. It is operating expenditure required to ensure that the asset reaches its expected useful life.

- **Planned maintenance**

Repair work that is identified and managed through a maintenance management system (MMS). MMS activities include inspection, assessing the condition against failure/breakdown criteria/experience, prioritising scheduling, actioning the work and reporting what was done to develop a maintenance history and improve maintenance and service delivery performance.

- **Reactive maintenance**

Unplanned repair work that is carried out in response to service requests and management/supervisory directions.

- **Specific maintenance**

Maintenance work to repair components or replace sub-components that needs to be identified as a specific maintenance item in the maintenance budget.

- **Unplanned maintenance**

Corrective work required in the short-term to restore an asset to working condition so it can continue to deliver the required service or to maintain its level of security and integrity.

Maintenance expenditure *

Recurrent expenditure, which is periodically or regularly required as part of the anticipated schedule of works required to ensure that the asset achieves its useful life and provides the required level of service. It is expenditure, which was anticipated in determining the asset's useful life.

Materiality

The notion of materiality guides the margin of error acceptable, the degree of precision required and the extent of the disclosure required when preparing general purpose financial reports. Information is material if its omission, misstatement or non-disclosure has the potential, individually or collectively, to influence the economic decisions of users taken on the basis of the financial report or affect the discharge of accountability by the management or governing body of the entity.

Modern equivalent asset

Assets that replicate what is in existence with the most cost-effective asset performing the same level of service. It is the most cost efficient, currently available asset which will provide the same stream of services as the existing asset is capable of producing. It allows for technology changes and, improvements and efficiencies in production and installation techniques

Net present value (NPV)

The value to the organisation of the cash flows associated with an asset, liability, activity or event calculated using a discount rate to reflect the time value of money. It is the net amount of discounted total cash inflows after deducting the value of the discounted total cash outflows arising from eg the continued use and subsequent disposal of the asset after deducting the value of the discounted total cash outflows.

Non-revenue generating investments

Investments for the provision of goods and services to sustain or improve services to the community that are not expected to generate any savings or revenue to the Council, eg. parks and playgrounds, footpaths, roads and bridges, libraries, etc.

Operations

Regular activities to provide services such as public health, safety and amenity, eg street sweeping, grass mowing and street lighting.

Operating expenditure

Recurrent expenditure, which is continuously required to provide a service. In common use the term typically includes, eg power, fuel, staff, plant equipment, on-costs and overheads but excludes maintenance and depreciation. Maintenance and depreciation is on the other hand included in operating expenses.

Operating expense

The gross outflow of economic benefits, being cash and non cash items, during the period arising in the course of ordinary activities of an entity when those outflows result in decreases in equity, other than decreases relating to distributions to equity participants.

Operating expenses

Recurrent expenses continuously required to provide a service, including power, fuel, staff, plant equipment, maintenance, depreciation, on-costs and overheads.

Operations, maintenance and renewal financing ratio

Ratio of estimated budget to projected expenditure for operations, maintenance and renewal of assets over a defined time (eg 5, 10 and 15 years).

Operations, maintenance and renewal gap

Difference between budgeted expenditures in a long term financial plan (or estimated future budgets in absence of a long term financial plan) and projected expenditures for operations, maintenance and renewal of assets to achieve/maintain specified service levels, totalled over a defined time (e.g. 5, 10 and 15 years).

Pavement management system (PMS)

A systematic process for measuring and predicting the condition of road pavements and wearing surfaces over time and recommending corrective actions.

PMS Score

A measure of condition of a road segment determined from a Pavement Management System.

Rate of annual asset consumption *

The ratio of annual asset consumption relative to the depreciable amount of the assets. It measures the amount of the consumable parts of assets that are consumed in a period (depreciation) expressed as a percentage of the depreciable amount.

Rate of annual asset renewal *

The ratio of asset renewal and replacement expenditure relative to depreciable amount for a period. It measures whether assets are being replaced at the rate they are wearing out with capital renewal expenditure expressed as a percentage of depreciable amount (capital renewal expenditure/DA).

Rate of annual asset upgrade/new *

A measure of the rate at which assets are being upgraded and expanded per annum with capital upgrade/new expenditure expressed as a percentage of depreciable amount (capital upgrade/expansion expenditure/DA).

Recoverable amount

The higher of an asset's fair value, less costs to sell and its value in use.

Recurrent expenditure

Relatively small (immaterial) expenditure or that which has benefits expected to last less than 12 months. Recurrent expenditure includes operations and maintenance expenditure.

Recurrent funding

Funding to pay for recurrent expenditure.

Rehabilitation

See capital renewal expenditure definition above.

Remaining useful life

The time remaining until an asset ceases to provide the required service level or economic usefulness. Age plus remaining useful life is useful life.

Renewal

See capital renewal expenditure definition above.

Residual value

The estimated amount that an entity would currently obtain from disposal of the asset, after deducting the estimated costs of disposal, if the asset were already of the age and in the condition expected at the end of its useful life.

Revenue generating investments

Investments for the provision of goods and services to sustain or improve services to the community that are expected to generate some savings or revenue to offset operating costs, eg public halls and theatres, childcare centres, sporting and recreation facilities, tourist information centres, etc.

Risk management

The application of a formal process to the range of possible values relating to key factors associated with a risk in order to determine the resultant ranges of outcomes and their probability of occurrence.

Section or segment

A self-contained part or piece of an infrastructure asset.

Service potential

The total future service capacity of an asset. It is normally determined by reference to the operating capacity and economic life of an asset. A measure of service potential is used in the not-for-profit sector/public sector to value assets, particularly those not producing a cash flow.

Service potential remaining

A measure of the future economic benefits remaining in assets. It may be expressed in dollar values (Fair Value) or as a percentage of total anticipated future economic benefits. It is also a measure of the percentage of the asset's potential to provide services that is still available for use in providing services (Depreciated Replacement Cost/Depreciable Amount).

Specific Maintenance

Replacement of higher value components/sub-components of assets that is undertaken on a regular cycle including repainting, replacement of air conditioning equipment, etc. This work generally falls below the capital/ maintenance threshold and needs to be identified in a specific maintenance budget allocation.

Strategic Longer-Term Plan

A plan covering the term of office of councillors (4 years minimum) reflecting the needs of the community for the foreseeable future. It brings together the detailed requirements in the Council's longer-term plans such as the asset management plan and the long-term financial plan. The plan is prepared in consultation with the community and details where the Council is at that point in time, where it wants to go, how it is going to get there, mechanisms for monitoring the achievement of the outcomes and how the plan will be resourced.

Sub-component

Smaller individual parts that make up a component part.

Useful life

Either:

- (a) the period over which an asset is expected to be available for use by an entity, or
- (b) the number of production or similar units expected to be obtained from the asset by the entity.

It is estimated or expected time between placing the asset into service and removing it from service, or the estimated period of time over which the future economic benefits embodied in a depreciable asset, are expected to be consumed by the Council.

Value in Use

The present value of future cash flows expected to be derived from an asset or cash generating unit. It is deemed to be depreciated replacement cost (DRC) for those assets whose future economic benefits are not primarily dependent on the asset's ability to generate net cash inflows, where the entity would, if deprived of the asset, replace its remaining future economic benefits.

Source: IPWEA, 2009, Glossary

Additional and modified glossary items shown *