Greater Hume Council

Water Supply Asset Management Plan 2017

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Document Control	Water Supply Asset Management Plan	

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1 EXECUTIVE SUMMARY

1.1 The Purpose of the Plan

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

This asset management plan details information about infrastructure assets including actions required to provide an agreed level of service in the most cost effective manner while outlining associated risks. The plan defines the services to be provided, how the services are provided and what funds are required to provide the services over a 20-year planning period.

This plan covers the infrastructure assets that provide Water Supply to Culcairn and Villages.

1.2 Asset Description

These assets include:

The Water Supply network comprises:

- Treatment works
- Ground Water supply
- Storage
- Bulk Water Supply
- Pump Stations
- Reticulation

These infrastructure assets have significant value estimated at $30,254,615

1.3 Levels of Service

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

The main services consequences are:

- Failure to supply volume required
- Failure to supply quality required
- Failure to maintain assets

1.4 Future Demand

The main demands for water are created by:

- Population Growth
- Industry expansion
- Climate variations (droughts)
- Water efficient devices

These 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.

- Running two bores at Culcairn water supply
- Building loop mains where practical
- Manage water consumption during droughts by employing Greater Hume's Drought Management & Emergency Response Plan

1.5 Lifecycle Management Plan

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 $14,915,830 or $1,491,583 on average per year.

1.6 Financial Summary

What we will do

Estimated available funding for this period is $15,714,330 or $1,571,433 on average per year as per the long term financial plan or budget forecast. This is 105.35% of the cost to sustain the current level of service at the lowest lifecycle cost.

The infrastructure reality is that only what is funded in the long term financial plan can be provided. The emphasis of the Asset Management Plan is to communicate the consequences that this will have on the service provided and risks, so that decision making is "informed".

The allocated funding leaves an excess of $79,850 on average per year of the projected expenditure required to provide services in the AM Plan compared with planned expenditure currently included in the Long Term Financial Plan. This is shown in the figure below.

Projected Operating and Capital Expenditure

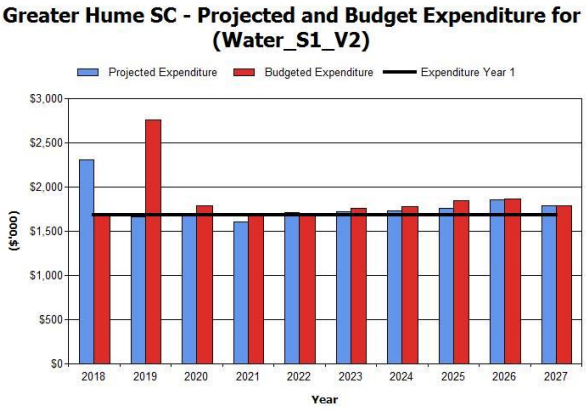


Figure Values are in current (real) dollars.

We plan to provide Water Supply services for the following:

Operation, maintenance, renewal and upgrade of Treatment works, Raw Water supply, Storage Pump Stations and Reticulation to meet service levels set by in annual budgets.

Within the 10-year planning period council will renew and upgrade water mains that have reached the end of their useful lives, Black Street reservoir, bore pumps, components of treatment plants, meters, Telemetry, pump station pumps and electric motors and extend mains to create loop mains.

What we cannot do

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

- Upgrade systems
- Increase the level of services

Managing the Risks

Our present funding levels are sufficient to continue to manage risks in the medium term.

The main risk consequences are:

- Failure to maintain existing water infrastructure to a safe and serviceable standard
- Failure to inspect existing infrastructure
- Major weather events that will destroy infrastructure and possibly effect water quality

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

- Document all inspections
- Investigate all complaints
- Prioritising all works required
- Ensure sufficient funding to maintain the essential infrastructure

1.7 Asset Management Practices

Our systems to manage assets include:

- Civica Authority
- BizeAssets

Assets requiring renewal/replacement are identified from one of three methods provided in the 'Expenditure Template'.

•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'.

Method 3 was used for this asset management plan.

1.8 Monitoring and Improvement Program

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

- Make provision for the completion of the capital works program attached as Appendix A.
- Carry out community consultation
- Continue to inspect the network to monitor condition and life expectancy
    - Complete the improvement table 8.2

2. INTRODUCTION

2.1 Background

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

The asset management plan is to be read with the Water Service planning documents. This should include the Asset Management Policy and Asset Management Strategy along with other key planning documents:

- 30 year WS Capital sheet _GHSC_Capex_2017 Rev1
- Greater Hume Shire 2017 – 2021 Delivery Program 2017-2018 Operational Plan
- Long Term Financial Plan 2017/2018 - 2026/2027

The infrastructure assets covered by this asset management plan are shown in Table 2.1. These assets are used to provide potable water supply services.

Table 2.1: Assets covered by this Plan

Asset Category	Dimension	Replacement Value
Reticulation	75km Trunk 76km retic	$25,810,100
Bulk Water Supply	9 Stand pipes	$135,675
Storage	7 Reservoirs	$3,079,089
Raw Water Supply	2 Bores	$320,637
Pump Stations	2 pump stations	$452,925
Treatment Plants	1 Treatment Plant	$456,189
TOTAL		**$30,254,615**

2.2 Goals and Objectives of Asset Ownership

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

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

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

- International Infrastructure Management Manual 2015 [1]
- ISO 55000[2]

[1] Based on IPWEA 2015 IIMM, Sec 2.1.3, p 2| 13
[2] ISO 55000 Overview, principles and terminology

2.3 Core and Advanced Asset Management

This asset management plan is prepared as an 'advanced' asset management plan over a 20 year planning period in accordance with the International Infrastructure Management Manual[3]. Core asset management is a 'top down' approach where analysis is applied at the system or network level. An 'advanced' asset management approach uses a 'bottom up' approach for gathering detailed asset information for individual assets.

3. LEVELS OF SERVICE

3.1 Customer Research and Expectations

This 'advanced' asset management plan is prepared to facilitate consultation prior to adoption by the Greater Hume Shire 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 Greater Hume Shire Council and stakeholders in matching the level of service required, service risks and consequences with the community's ability and willingness to pay for the service.

Community satisfaction information is used in developing the Strategic Plan and in the allocation of resources in the budget.

3.2 Strategic and Corporate Goals

This asset management plan is prepared under the direction of the Greater Hume Shire's vision and Guiding Principles.

Our vision for the future:

The vision we have for the future of Greater Hume Shire is designed to encourage commitment to our future and a sense of common purpose and responsibility. It reflects the kind of community we will be in 2030.

This vision will be achieved through the implementation of the strategies based on the four core themes of Live A Greater Life Community Strategic Plan 2017 – 2030.

Those themes are:

- *Leadership through communication*
- *Healthy Lifestyle*
- *Growth and Sustainability*
- *Good Infrastructure and Facilities*

These themes are clearly interwoven and impact upon each other. They are the cornerstone for our community's progress and success.

Overall, it is the people of our community that makes us unique. It is important our vision contains quality of life, prosperity and connectivity.

The community's vision for Greater Hume Shire is captured in the following statement:

"Partnering to advance our rural communities"

Our Guiding Principles are:

[3] IPWEA, 2015, IIMM.

Inclusive

We will

- *Recognise that people understand and express themselves in different ways*
- *Share information in a way that everyone can understand*
- *Provide services that are inclusive and accessible for everyone enabling people to live more independently and to participate in community life*
- *Welcome and embrace diversity*

Consultative

We will

- *Use digital methods and open collaborative approaches to consult in the policy-forming and decision making process, tailoring consultation to the needs and preferences of particular groups, such as older people, younger people or people with disabilities that may not respond to traditional methods*
- *Make it easier for the community to contribute their views, and use clear language and plain English in consultation documents*
- *Reduce the risk of "consultation fatigue" by making sure we consult efficiently and effectively*

Liveability

We will

- *Promote and preserve our history, heritage, culture and natural environment*
- *Provide and advocate for accessible and affordable housing and spaces, places and services that enhance the health and wellbeing of our community*
- *Revitalise our towns and villages and promote the benefits of a rural lifestyle to our neighbouring cities*
- *Welcome new residents and provide an enjoyable visitor experience*
- *Be environmentally responsible*

Growth

We will

- *Facilitate the growth of industry and business to achieve our vision*
- *Advocate for outcomes that benefit the interests of Greater Hume Shire*
- *Successfully apply for grants and funding to grow our communities*
- *Initiate and sustain strong partnerships and relationships with our neighbours and government departments*

Accountable

We will

- *Implement leading government strategies*
- *Be financially responsible*
- *Have the capacity and capability to achieve our vision*

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

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

Goal	Objective	How Goal and Objectives are addressed in AM Plan
Customer service level	Provide quality service	An agreed level of service that satisfies the requirements of GHSC and its customers
Serve the community	Provide quality drinking water	Inspection and monitoring program to meet or exceed the Australian drinking water guidelines in terms of quality and community expectations.
Affordable water	Provide water at minimal cost	Investigate modern practises for efficient supply of water
Financial plan	Long term financial plan	Plan that identifies required affordable expenditure and how it will be financed

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

3.3 Legislative Requirements

There are many legislative requirements relating to the management of assets. These include:

Table 3.3: Legislative Requirements

Legislation	Requirement
Local Government Act and Regulations	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.	Sets out the financial reporting standards relating to infrastructure assets. Standards of particular relevance to Infrastructure Assets include: • AASB116 Property, Plant & Equipment — prescribes requirements for recognition and depreciation of property, plant and equipment assets • AASB136 Impairment of Assets — aims to ensure that assets are carried at amounts that are not in excess of their recoverable amounts • AASB1021 Depreciation of Non-Current Assets — specifies how depreciation is to be calculated • AAS1001 Accounting Policies — specifies the policies that Council is to have for recognition of assets and depreciation • AASB1041 Accounting for the reduction of Non-Current Assets —specifies the frequency and basis of calculating depreciation and revaluation basis used for assets • AAS1015 Accounting for acquisition of assets — method of allocating the value to new assets on acquisition

The Protection of the Environment Operations Act 1997 (POEO Act)	Is the key piece of environment protection legislation administered by Department of the Environment and Climate Change (DECC). The POEO Act enables the Government to set out explicit protection of the environment policies (PEPs) and adopt more innovative approaches to reducing pollution.
Work Health and Safety Act And regulations	Aims to secure the health, safety and welfare of people at work. It lays down general requirements which must be met at places of work in New South Wales. The provisions of the Act cover every place of work in New South Wales. The Act covers self-employed people as well as employees, employers, students, contractors and other visitors.
DLG Integrated Planning NSW	Key requirement is to integrated community plans with operational and delivery plans.

3.4 Customer Levels of Service

Service levels are defined in two terms, customer levels of service and technical levels of service. These are supplemented by organisational measures.

Customer Levels of Service measure how the customer receives the service and whether value to the customer is provided.

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

Quality How good is the service … *what is the condition or quality of the service?*

Function Is it suitable for its intended purpose …. *Is it the right service?*

Capacity/Use Is the service over or under used … *do we need more or less of these assets?*

Organisational measures are measures of fact related to the service delivery outcome e.g. number of occasions when service is not available, condition of Very Poor, Poor/Average/Good, Very good.

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

3.5 Technical Levels of Service

Technical Levels of Service - Supporting the customer service levels are operational or technical measures of performance. These technical measures relate to the allocation of resources to service activities to best achieve the desired customer outcomes and demonstrate effective performance.

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

- Operations – the regular activities to provide services (e.g. opening hours, cleansing, mowing grass, energy, inspections, etc.
- Maintenance – the activities necessary to retain an asset as near as practicable to an appropriate service condition. Maintenance activities enable an asset to provide service for its planned life (e.g. road patching, unsealed road grading, building and structure repairs),
- Renewal – the activities that return the service capability of an asset up to that which it had originally (e.g. road resurfacing and pavement reconstruction, pipeline replacement and building component replacement),
- Upgrade/New – the activities to provide a higher level of service (e.g. widening a road, sealing an unsealed road, replacing a pipeline with a larger size) or a new service that did not exist previously (e.g. a new library).

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

Table 3.5 shows the technical levels of service expected to be provided under this AM Plan.

Table 3.5: Technical Levels of Service

GHSC Levels of Service - Water Supply

Level of Service Description	Unit	LOS Targets	Performance (2016)
AVAILABILITY OF SUPPLY			
Normal Quantity Available:			
Domestic Peak Day	L/tenement/day	4000	Being met
Domestic Annual	kL/tenement/yr	275	Being met
Fire Fighting: Compliance with The Water Supply Investigation Manual fire flow requirement of 11L/s	% of area served	100	Being met
Pressure:			
Minimum pressure when conveying 0.15 L/s/tenement	meters head	12	Being met
Maximum Static pressure	meters head	100	Being met
CONSUMPTION RESTRICTIONS IN DROUGHTS			
Villages: As per Drought Management and Emergency Response Plan 2014			
Culcairn: As per Drought Management and Emergency Response Plan 2014			
SUPPLY INTERRUPTIONS TO CONSUMERS			
Planned:			
Notice given to customers	Days	2	Being met
Maximum duration of interruption	Hrs	8	Being met
Unplanned:			

Level of Service Description	Unit	LOS Targets	Performance (2016)
Total number of interruptions	No. of interruptions/yr/ 1000 connection	30	Being met
Maximum duration of interruption	Hrs	8	Being met

RESPONSE TIMES (time to have staff on-site to rectify problem)			
Supply Failure:			
Response time to incidents	Hrs	2	Being met
Minor Problems & General Inquiries:			
Oral inquiry	Working days	1	Being met
Written inquiry	Working days	5	Being met
SERVICE PROVIDED			
Time to provide an individual connection to water supply in serviced area	Working days	10	Being met
WATER QUALITY			
Comply with ADWG guidelines requirements	%	100%	Being met

It is important to monitor the service levels provided regularly as these will change. The current performance is influenced by work efficiencies and technology. Customer priorities will change over time. Review and establishment of the agreed position which achieves the best balance between service, risk and cost is essential.

4. FUTURE DEMAND

4.1 Demand Drivers

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

4.2 Demand Forecasts

The present position and projections for demand drivers that may impact future service delivery and use of assets 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 use 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 Change	Supply meets demand	Minor increase	Minimal
Drought	Drought management and emergency response plan	Potential rise in demand	Restrictions may be required

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 can include non-asset solutions, insuring against risks and managing failures.

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 of new subdivisions	Extension of supply mains	Check that supply and treatment plants are able to keep up with the increase in demand.
Water loss through inaccuracy of meters	Meter replacement program	Replacement of meters to balance the systems input volume to the volume consumed by customers

4.5 Asset Programs to meet Demand

The new assets required to meet demand can be acquired, donated or constructed. Additional assets are discussed in Section 5.5. The summary of the cumulative value of additional asset is shown in Figure 1.

Figure 1: Upgrade and New Assets to meet Demand – (Cumulative)

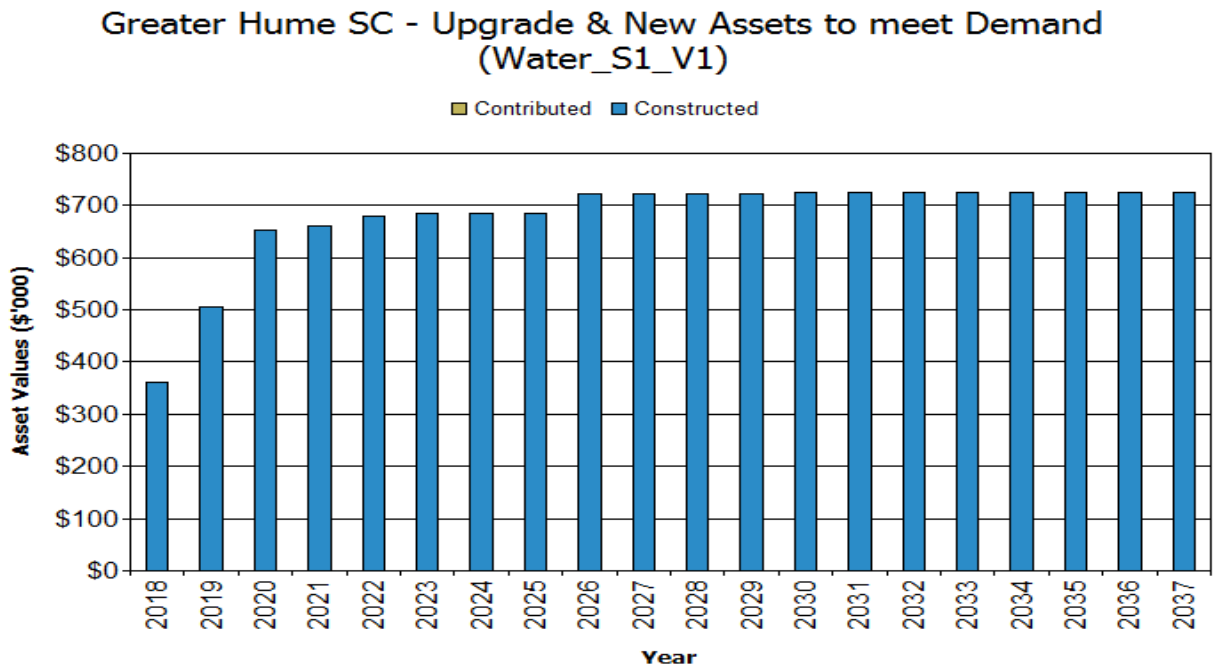


Figure Values are in current (real) dollars.

Acquiring these new assets will commit ongoing operations, maintenance and renewal costs for the period that the service provided from the assets is required. These future costs are identified and considered in developing forecasts of future operations, maintenance and renewal costs for inclusion in the long term financial plan further in Section 5.

5. LIFECYCLE MANAGEMENT PLAN

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

5.1 Background Data

5.1.1 Physical parameters

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

Culcairn Water Supply – Consists of 2 bores south of the town, a water treatment plant, a pump station, 2 reservoirs and reticulation mains. Water extracted from the bores is cooled, aerated, chlorinated and pumped to an elevated steel tank and a reinforced concrete reservoir located in the urban area.

Villages Water Supply – Treated water is purchased from Albury City Council and is supplied to the villages of Jindera, Burrumbuttock, Brocklesby, Gerogery and Gerogery West through one pumping station at the Jindera Gap, 5 reservoirs and reticulation mains. The trunk pipeline is AC pipe. The village reticulation systems are generally AC and uPVC pipe.

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

Figure 2: Asset Age Profile

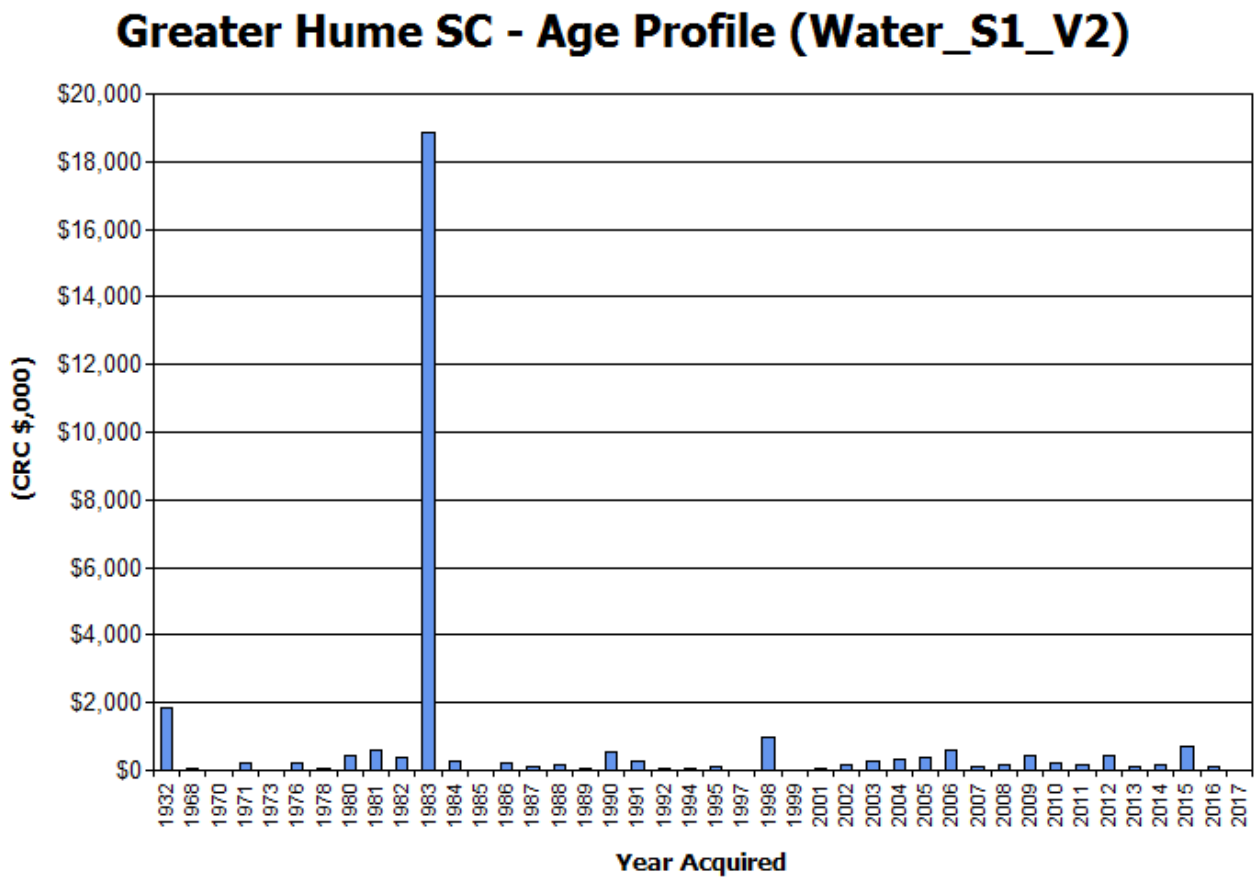


Figure Values are in current (real) dollars.

5.1.2 Asset capacity and performance

Assets are generally provided to meet design standards where these are available.

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

Table 5.1.2: Known Service Performance Deficiencies

Location	Service Deficiency
Culcairn	Low Pressure (to prevent mains bursting)
All service areas	Dirty water complaints
Service interruptions	Failure of mains or connections

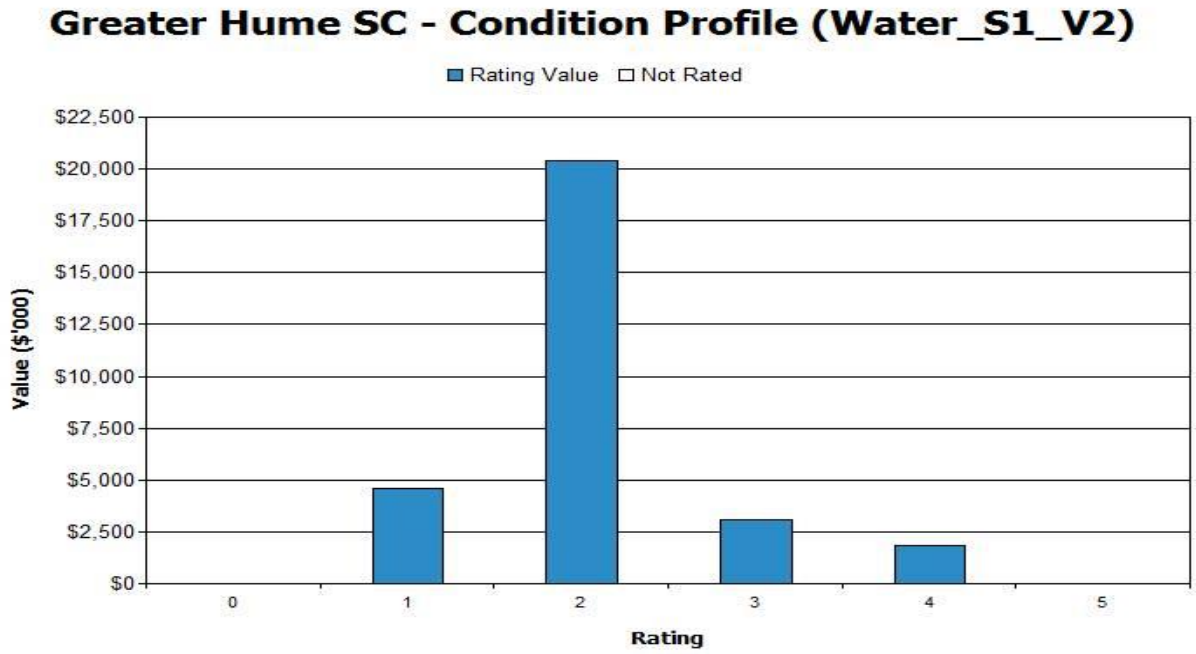
The above service deficiencies were identified from Water quality (DWMS) and mains repair records.

5.1.3 Asset condition

Condition is monitored consistently with a thorough condition check done every five years when the assets are valued

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

Fig 3: Asset Condition Profile



The condition of the assets is as expected with relation to the long life of the assets and the regular maintenance and renewal programs

Figure Values are in current (real) dollars.

Condition is measured using a 1 – 5 grading system[4] 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**: regular maintenance required plus planned maintenance
4	**Poor**: significant maintenance required to delay them becoming a condition 5 prematurely
5	**Very Poor**: physically unsound, renewal/rehabilitation required

5.2 Operations and Maintenance Plan

Operations include regular activities to provide services such as public health, safety and amenity, e.g. Water testing, cleaning, utilities costs and lighting.

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

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.

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

Maintenance expenditure is shown in Table 5.2.1.

Table 5.2.1: Maintenance Expenditure Trends

Year	Maintenance Budget $
2016-2017	$146,000
2017-2018	$181,000
2018-2019	$124,000

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

Summary of future operations and maintenance expenditures

Future operations and maintenance expenditure is forecast to trend in line with the value of the asset stock as shown in Figure 4. Note that all costs are shown in current 2017 dollar values (i.e. real values).

Figure 4: Projected Operations and Maintenance Expenditure

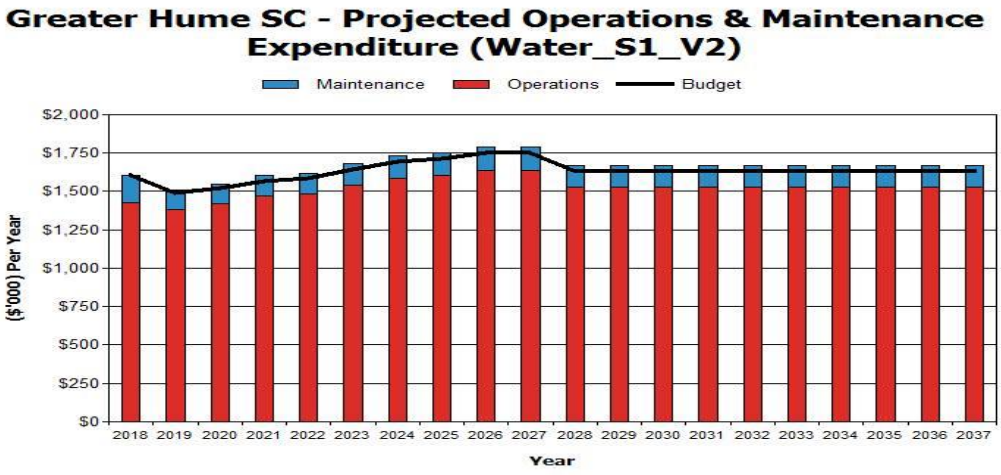


Figure Values are in current (real) dollars.

Deferred maintenance, i.e. works that are identified for maintenance and unable to be funded are to be included in the risk assessment and analysis in the infrastructure risk management plan.

Maintenance is funded from the operating budget where available. This is further discussed in Section 7.

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 service potential. Work over and above restoring an asset to original service potential is considered to be an upgrade/expansion or new work expenditure resulting in additional future operations and maintenance costs.

Assets requiring renewal/replacement are identified from one of three methods provided in the 'Expenditure Template'.

- 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'.

Method 3 is used for this asset management plan.

5.3.1 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 pump that has neared the end of its service life), or
- To ensure the infrastructure is of sufficient quality to meet the service requirements (e.g. replace filters that are failing to give current standard of service).

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 high use and subsequent impact on users would be greatest,
- Have a total value representing the greatest net value,
- 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
- Have replacement with a modern equivalent asset that would provide the equivalent service at a savings.

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

Table 5.3.1: Renewal and Replacement Priority Ranking Criteria

Criteria	Weighting
Available budget	40%
Condition	30%
Risk	10%
Regulatory standards	20%
Total	100%

5.3.2 Summary of future renewal and replacement expenditure

Projected future renewal and replacement expenditures are forecast to increase over time when the asset stock increases. The expenditure is required is shown in Fig 5. Note that all amounts are shown in current (real) dollars.

The projected capital renewal and replacement program is shown in Appendix B.

Fig 5: Projected Capital Renewal and Replacement Expenditure

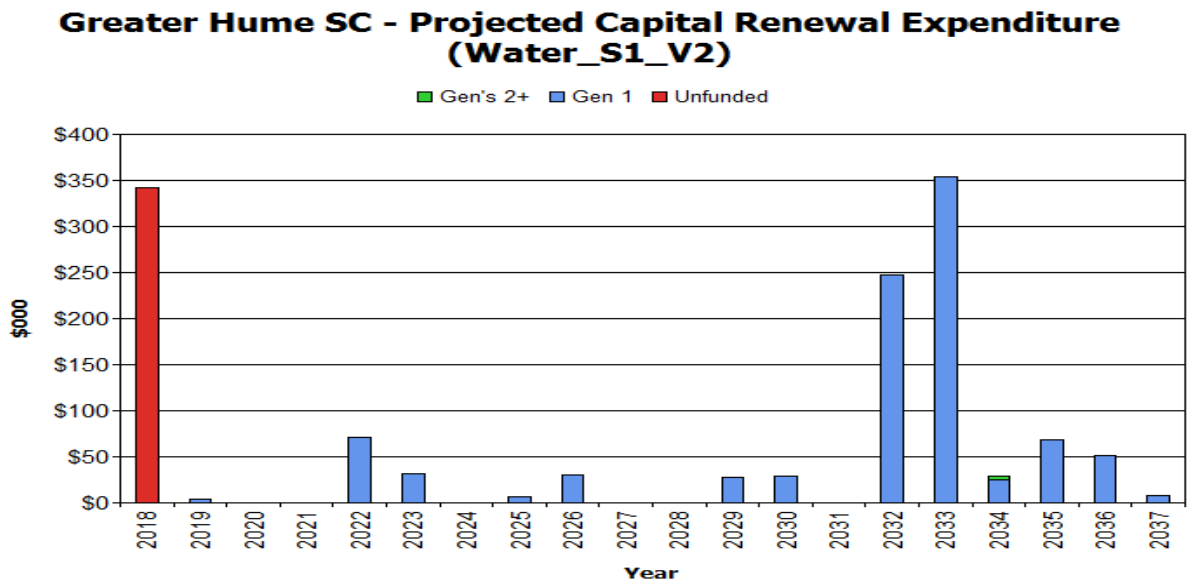


Figure Values are in current (real) dollars.

Deferred 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 capital works program will be accommodated in the long term financial plan. This is further discussed in Section 7.

5.4 Creation/Acquisition/Upgrade Plan

New works are those that create a new asset that did not previously exist, or works which will 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. These additional assets 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 community requests, proposals identified by strategic plans or partnerships with others. 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 detailed below.

Table 5.4.1: New Assets Priority Ranking Criteria

Criteria	Weighting
Fit with strategic long term plan objectives	40%
LOS – Regulatory change	15%
LOS – Community expectations	30%
Security of supply and growth	15%
Total	100%

5.4.2 Summary of future upgrade/new assets expenditure

Projected upgrade/new asset expenditures are summarized in Fig 6. The projected upgrade/new capital works program is shown in Appendix C. All amounts are shown in real values.

Fig 6: Projected Capital Upgrade/New Asset Expenditure

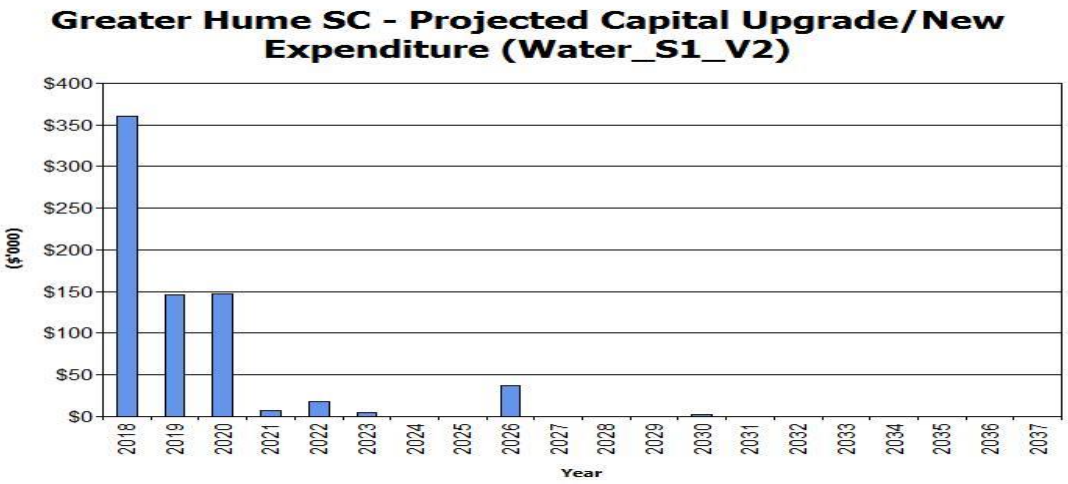


Figure Values are in current (real) dollars.

Expenditure on new assets and services in the capital works program will be accommodated in the long term financial plan but only to the extent of the available funds

5.4.3 Summary of asset expenditure requirements

The financial projections from this asset plan are shown in Fig 7 for projected operating (operations and maintenance) and capital expenditure (renewal and upgrade/expansion/new assets). Note that all costs are shown in real values.

The bars in the graphs represent the anticipated budget needs required to achieve lowest lifecycle costs, the budget line indicates what is currently available. The gap between these informs the discussion on achieving the balance between services, costs and risk to achieve the best value outcome.

Fig 7: Projected Operating and Capital Expenditure

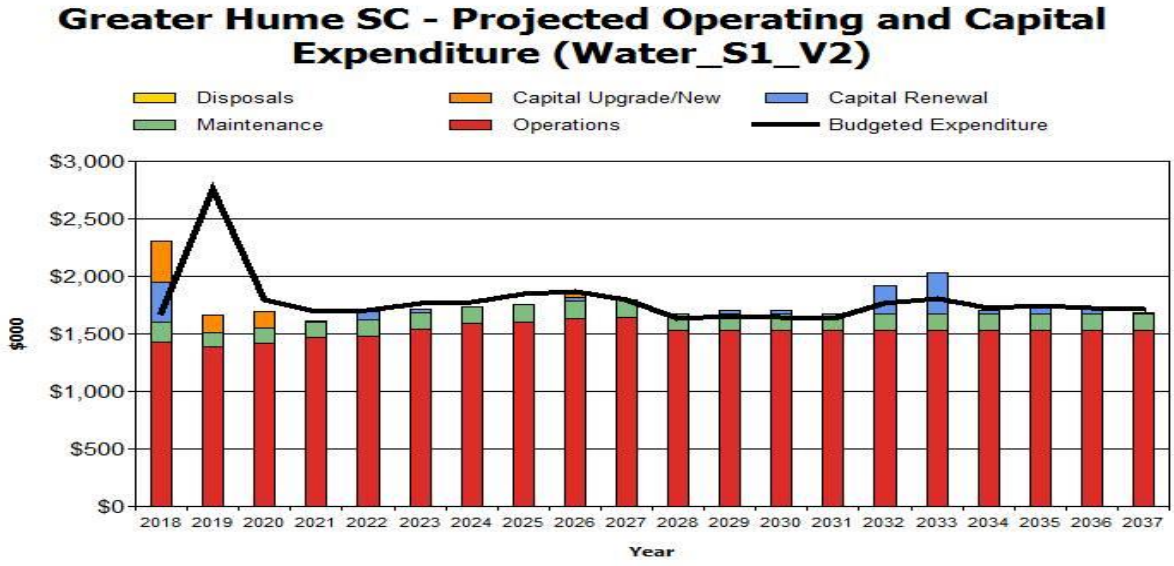


Figure Values are in current (real) dollars.

The demand for the replacement of the Black Street reservoir is in 2018 but the finance has been made available in 2019. We have time to plan the budget for the 2032 and 2033 capital renewal.

5.5 Disposal Plan

Disposal includes any activity associated with the disposal of a decommissioned asset including sale, demolition or relocation. Assets identified for possible decommissioning and disposal are shown in Table 5.5, 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 costs or revenue gained from asset disposals is accommodated in the long term financial plan.

Table 5.5: Assets Identified for Disposal

Asset	Reason for Disposal	Timing	Disposal Expenditure	Operations & Maintenance Annual Savings
Black St Reservoir	End of life	2019	$100,000	Minimal

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 with regard to risk.

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

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.

Critical assets have been identified and their typical failure mode and the impact on service delivery are as follows:

Table 6.1 Critical Assets

Critical Asset(s)	Failure Mode	Impact
High level storage	Failure of structure	Interrupt supply and risk of injury to persons and damaging property
Reticulation pipes	Pipes bursting	Interrupt supply
Treatment Plant	Over or under supply of chemicals	Health issues caused by contaminated water
Pump failure	Electrical supply failure	Interrupt supply

By identifying critical assets and failure modes investigative activities, condition inspection programs, maintenance and capital expenditure plans can be targeted at the critical areas.

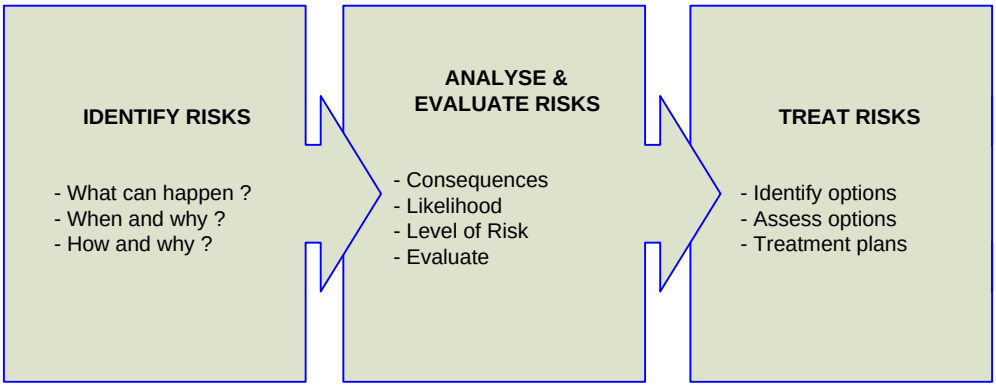
6.2 Risk Assessment

The risk management process used in this project is shown in Figure 6.2 below.

It is an analysis and problem solving technique designed to provide a logical process for the selection of treatment plans and management actions to protect the community against unacceptable risks.

The process is based on the fundamentals of the ISO risk assessment standard ISO 31000:2009.

Fig 6.2 Risk Management Process – Abridged



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 corrective action) risk ratings identified in the Infrastructure Risk Management Plan. The residual risk and treatment cost after the selected treatment plan is implemented is shown in Table 6.2. These risks and costs are reported to management.

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
Culcairn WTP	Not meeting the drinking water guidelines in regards to water quality	VH	Monitor levels and actions as per current DWMS	L	As per Operations and Maintenance budgets

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

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.

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

Our current measure of resilience is shown in Table 6.4 which includes the type of threats and hazards, resilience assessment and identified improvements and/or interventions.

Table 6.4: Resilience

Threat / Hazard	Resilience LMH	Improvements / Interventions
Drought	Various	Drought Management and Emergency Response Plan

6.4 Service and Risk Trade-Offs

The decisions made in adopting this AM Plan are based on the objective to achieve the optimum benefits from the available resources.

6.4.1 What we cannot do

There are some operations and maintenance activities and capital projects that are unable to be undertaken within the next 10 years. These include:

- Replace all Asbestos Cement pipe lines

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:

- Lower water service pressure to minimise failures in AC pipe lines

6.4.3 Risk trade-off

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

- Failures of AC pipe lines even at lower pressures

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

7. FINANCIAL SUMMARY

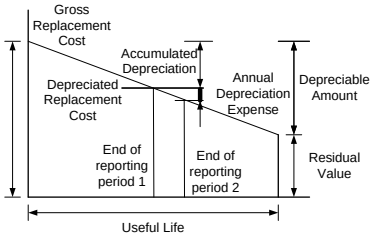
This section contains the financial requirements resulting from all the information presented in the previous sections of this asset management plan. The financial projections will be improved as further information becomes available on desired levels of service and current and projected future asset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

7.1 Financial Statements and Projections

7.1.1 Asset valuations

The best available estimate of the value of assets included in this Asset Management Plan are shown below. Assets were last re-valued at 30 June 2017 and are valued at fair value cost to replace.

Gross Replacement Cost	$30,254,615
Depreciable Amount	$30,254,615
Depreciated Replacement Cost	$20,627,948
Annual Average Asset Consumption	$343,331



7.1.1 Sustainability of service delivery

Two 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, and
- medium term budgeted expenditures/projected expenditure (over 10 years of the planning period).

Asset Renewal Funding Ratio

Asset Renewal Funding Ratio 6.2%

The Asset Renewal Funding Ratio is the most important indicator and indicates that over the next 10 years of the forecasting that we expect to have 107% of the funds required for the optimal renewal and replacement of assets.

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 $1,712,000 on average per year.

Estimated (budget) operations, maintenance and capital renewal funding is $1,826,000 on average per year giving a 10 year funding excess of $114,000 per year. This indicates 107% of the projected expenditures needed to provide the services documented in the asset management plan. This excludes upgrade/new assets.

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 1.0 for the first years of the asset management plan and ideally over the 10-year life of the Long Term Financial Plan.

7.1.2 Projected expenditures for long term financial plan

Table 7.1.2 shows the projected expenditures for the 10 year long term financial plan.

Expenditure projections are in 2017 real values.

Table 7.1.2: Projected Expenditures for Long Term Financial Plan ($000)

Report 5 - Table 7.1.2 Long Term Financial Plan (Water_S1_V2)

Year	Operations	Maintenance	Projected Capital Renewal	Capital Upgrade/New	Disposals
2018	$1,424	$181	$343	$360	$0
2019	$1,385	$126	$4	$146	$100
2020	$1,419	$129	$1	$148	$0
2021	$1,469	$133	$0	$8	$0
2022	$1,483	$137	$71	$18	$0
2023	$1,542	$140	$31	$5	$0
2024	$1,589	$143	$0	$0	$0
2025	$1,605	$147	$6	$0	$0
2026	$1,637	$150	$30	$38	$0
2027	$1,639	$154	$0	$0	$0
2028	$1,527	$145	$0	$0	$0
2029	$1,527	$145	$28	$0	$0
2030	$1,527	$145	$29	$3	$0
2031	$1,527	$145	$0	$0	$0
2032	$1,527	$145	$247	$0	$0
2033	$1,527	$145	$354	$0	$0
2034	$1,527	$145	$29	$0	$0
2035	$1,527	$145	$69	$0	$0
2036	$1,527	$145	$51	$0	$0
2037	$1,527	$145	$8	$0	$0
All dollar values are in ($'000)'s					

7.2 Funding Strategy

Funding for assets is provided from the budget and long term financial plan.

The financial strategy of the entity determines how funding will be provided, whereas the asset management plan communicates how and when this will be spent, along with the service and risk consequences of differing options.

7.3 Valuation Forecasts

Asset values are forecast to increase as additional assets are added to the service.

Additional assets will generally add to the operations and maintenance needs in the longer term, as well as the need for future renewal. Additional assets will also add to future depreciation forecasts.

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. 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 are in Table 7.4.

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

- The historic funding will continue
- The assets will continue to provide the service to the end of their expected lives
- There will not be any excessive increases in costs for replacement, operations or maintenance

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 scale in accordance with Table 7.5.

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 agreed as the best method of assessment. Dataset is complete and estimated to be accurate ± 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 ± 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 ± 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 ± 40%
E Unknown	None or very little data held.

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

8. PLAN IMPROVEMENT AND MONITORING

8.1 Status of Asset Management Practices

8.1.1 Accounting and financial data sources

Council's financial management system is Authority and the data sources are from reports extracted from this system

8.1.2 Asset management data sources

This management plan is based on the valuation report as at 30 June 2017, the asset data extracted from Councils asset management system BizeAsset and financial data from reports extracted from Councils finance system Authority.

8.2 Improvement Plan

The asset management improvement plan generated from this asset management plan is shown in Table 8.1.

Table 8.1: Improvement Plan

Task No	Task	Responsibility	Comments / Outcomes	Timeline
1	Council to develop a service level agreement with Albury City Council regarding the supply of water for the Villages Water Supply	M-W&WW & DE	This task is on hold as discussions are happening on weather water services will be taken over by ACC or Riverina Water	End 2017
2	Culcairn - Council to consider online monitoring of chlorine residual and alarm	M-W&WW	It will be useful to have the online monitoring with alarms and SCADA for the CCP at the Culcairn WTP. This task is on hold as discussions are happening on whether water services will be taken over by ACC or Riverina Water.	End 2017
3	Culcairn - Council to develop SOP's to prevent cross contamination due to tools being used on both water and waste water assets. Council to disinfect tools used on wastewater assets with hypochlorite sprays.	M-W&WW	Needs to be prepared	End 2017
4	Village supply – Council to implement DBP testing in the reticulation system through NSW Health	M-W&WW	Tom to discuss with PHU	End 2017
5	Village supply – Council to discuss issue of unstable water during negotiations with ACC for water supply	M-W&WW	Should be done with item 1 which is discussion about the supply agreement. ACC is also upgrading its WTP, which will help with the issue	End 2017
6	Develop a calibration schedule for monitoring equipment, and ensure records of calibration undertaken are maintained.	M-W&WW & overseer	Equipment are calibrated but schedule needs to be developed.	June 2018
7	Investigate Authority software to use asset module to schedule the 4 yearly reservoirs clean and thorough inspection by divers.	M-W&WW & overseer	Reservoirs were externally inspected and cleaned in 2017. The next round of reservoir clean will be in 2021.	Dec 2018
8	Where possible before the next external contractor inspection in 2021, repair/replace internal roof support for Culcairn WTP and internal ladder for Big Brock reservoir.	M-W&WW & overseer		Dec 2020

8.3 Monitoring and Review Procedures

This asset management plan will be reviewed during annual budget planning processes and amended to show 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 long term financial plan.

The AM Plan has a life of 4 years and is due for complete revision and updating within 2 years of each Greater Hume Shire 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 the long term financial plan,
- The degree to which 1-5 year detailed works programs, budgets, business plans and corporate structures take into account the 'global' works program trends provided by the asset management plan,
- The degree to which the existing and projected service levels and service consequences (what we cannot do), risks and residual risks are incorporated into the Strategic Plan and associated plans,
- The Asset Renewal Funding Ratio achieving the target of 1.0.

9. REFERENCES

- IPWEA, 2006, 'International Infrastructure Management Manual', Institute of Public Works Engineering Australasia, Sydney, www.ipwea.org/IIMM
- IPWEA, 2008, 'NAMS.PLUS Asset Management', Institute of Public Works Engineering Australasia, Sydney, www.ipwea.org/namsplus.
- IPWEA, 2015, 2nd edn., 'Australian Infrastructure Financial Management Manual', Institute of Public Works Engineering Australasia, Sydney, www.ipwea.org/AIFMM.
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- IPWEA, 2012 LTFP Practice Note 6 PN Long Term Financial Plan, Institute of Public Works Engineering Australasia, Sydney
- Community Strategic Plan 2017 - 2030
- Delivery Program 2017-2021 and Operational Plan 2017-201 .
- Greater Hume Drought Management & Emergency Response Plan – May 2014
- Greater Hume Shire Demand Management Plan - May 2012
- Greater Hume Shire Risk Management Policy – July 2013

10. APPENDICES

Appendix A Projected 10 year Capital Upgrade/New Works Program

Appendix B LTFP Budgeted Expenditures Accommodated in AM Plan

Appendix A Projected Upgrade/Exp/New 10-year Capital Works Program

NAMS.PLUS3 Asset Management **Greater Hume SC**

Water_S1_V2 **Asset Management Plan**

IPWEA INSTITUTE OF PUBLIC WORKS ENGINEERING AUSTRALASIA JRA

First year of expenditure projections **2018** (financial yr ending)

Water

Asset values at start of planning period

Current replacement cost	$30,255 (000)	Calc CRC from Asset Register	$30,255 (000)
Depreciable amount	$30,255 (000)	This is a check for you.	
Depreciated replacement cost	$20,628 (000)		
Annual depreciation expense	$343 (000)		

Operations and Maintenance Costs for New Assets

	% of asset value
Additional operations costs	4.93%
Additional maintenance	0.47%
Additional depreciation	1.13%

Planned renewal budget (information only)

You may use these values calculated from your data or overwrite the links.

Planned Expenditures from LTFP

20 Year Expenditure Projections Note: Enter all values in current **2018** values

Financial year ending	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
	$000	$000	$000	$000	$000	$000	$000	$000	$000	$000
Expenditure Outlays included in Long Term Financial Plan (in current $ values)										
Operations										
Operations **budget**	$1,137	$1,080	$1,107	$1,150	$1,163	$1,222	$1,268	$1,284	$1,316	$1,316
Management **budget**	$287	$287	$287	$287	$287	$287	$287	$287	$287	$287
AM systems **budget**	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total operations	$1,424	$1,367	$1,394	$1,437	$1,450	$1,509	$1,555	$1,571	$1,603	$1,603
Maintenance										
Reactive maintenance **budget**	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Planned maintenance **budget**	$181	$124	$127	$130	$134	$137	$140	$144	$147	$151
Specific maintenance items **budget**	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total maintenance	$181	$124	$127	$130	$134	$137	$140	$144	$147	$151
Capital										
Planned renewal **budget**	$34	$1,120	$123	$115	$103	$111	$80	$130	$83	$37
Planned upgrade/new **budget**	$41	$145	$148	$8	$18	$5	$0	$0	$38	$0
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	2018 $000	2019 $000	2020 $000	2021 $000	2022 $000	2023 $000	2024 $000	2025 $000	2026 $000	2027 $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)										
	2018 $000	2019 $000	2020 $000	2021 $000	2022 $000	2023 $000	2024 $000	2025 $000	2026 $000	2027 $000
Forecast Capital Renewal from Forms 2A & 2B	$52	$1,120	$123	$115	$103	$111	$80	$130	$83	$37
Forecast Capital Upgrade from Form 2C	$360	$146	$148	$8	$18	$5	$0	$0	$38	$0

Appendix B Budgeted Expenditures Accommodated in LTFP

Report 7 - LTFP Expenditure Projections (Water_S1_V2)

All dollar values are in ($'000)'s in nominal (current Year 1) values.

Projected Expenditure	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Capital Expenditure on Renewal/Replacement of existing assets	$343	$4	$1	$0	$71	$31	$0	$6	$30	$0
Capital Expenditure on Upgrade/New assets	$360	$146	$148	$8	$18	$5	$0	$0	$38	$0
Operational cost of existing assets	$1,424	$1,367	$1,394	$1,437	$1,450	$1,509	$1,555	$1,571	$1,603	$1,603
Maintenance cost of existing assets	$181	$124	$127	$130	$134	$137	$140	$144	$147	$151
Operational cost of New assets	$0	$18	$25	$32	$33	$33	$34	$34	$34	$36
Maintenance cost of New assets	$0	$2	$2	$3	$3	$3	$3	$3	$3	$3
Disposal of Surplus assets	$0	$100	$0	$0	$0	$0	$0	$0	$0	$0

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