



Drainage Asset Management Plan

Document Control

Asset Management Plan



IPWEA
INSTITUTE OF PUBLIC WORKS
ENGINEERING AUSTRALASIA



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TABLE OF CONTENTS

1	EXECUTIVE SUMMARY.....	5
	1.1 THE PURPOSE OF THE PLAN	5
	1.2 Asset Description.....	5
	1.3 Levels of Service	5
	1.4 Future Demand.....	5
	1.5 Lifecycle Management Plan.....	6
	1.6 Financial Summary	6
	1.7 Asset Management Practices	7
	1.8 Monitoring and Improvement Program	7
2.	INTRODUCTION	9
	2.1 Background	9
	2.2 Goals and Objectives of Asset Ownership.....	9
	2.3 Core and Advanced Asset Management	10
3.	LEVELS OF SERVICE	11
	3.1 Customer Research and Expectations.....	11
	3.2 Legislative Requirements	11
	3.3 Customer Levels of Service	12
	3.4 Technical Levels of Service	12
4.	FUTURE DEMAND.....	13
	4.1 Demand Drivers	13
	4.2 Demand Forecasts.....	14
	4.3 Demand Impact on Assets.....	14
	4.4 Demand Management Plan	14
	4.5 Asset Programs to meet Demand	15
5.	LIFECYCLE MANAGEMENT PLAN	16
	5.1 Background Data.....	17
	5.2 Operations and Maintenance Plan.....	17
	5.3 Renewal/Replacement Plan	18
	5.4 Creation/Acquisition/Upgrade Plan	20
	5.5 Disposal Plan	22
6.	RISK MANAGEMENT PLAN.....	23
	6.1 Critical Assets	23
	6.2 Risk Assessment	23
	6.3 Infrastructure Resilience Approach.....	25
	6.4 Service and Risk Trade-Offs.....	25
7.	FINANCIAL SUMMARY	26

7.1	Financial Statements and Projections	26
7.2	Funding Strategy	27
7.3	Valuation Forecasts.....	28
7.4	Key Assumptions Made in Financial Forecasts.....	28
7.5	Forecast Reliability and Confidence	28
8.	PLAN IMPROVEMENT AND MONITORING.....	29
8.1	Status of Asset Management Practices.....	30
8.2	Improvement Plan.....	30
8.3	Monitoring and Review Procedures.....	31
8.4	Performance Measures	31
9.	REFERENCES	32
10.	APPENDICES.....	32
	Appendix A Projected 10-year Capital Renewal and Replacement Works Program	33
	Appendix B Projected Upgrade/Exp/New 10-year Capital Works Program	34
	Appendix C Budgeted Expenditures Accommodated in LTFP	35

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.

Council owns, operates and maintains an underground urban pipe network that provides drainage and stormwater control services to the community.

The purpose of this Drainage Asset Management Plan (DAMP) is to assist with decision-making about Council's existing urban drainage infrastructure, to present asset information, and to predict the financial requirements of long-term renewal of these drainage assets.

1.2 ASSET DESCRIPTION

These assets include:

A drainage network comprising:

- 5766 Pits (generally Grated Pits, Side Entry Pits and Junction Pits)
- 5,829 Pipe segments (generally reinforced concrete); and
- 11 Gross Pollutant Traps – GPTs (designed to improve stormwater quality by intercepting litter)

These infrastructure assets have significant value estimated at \$61,166,000.

1.3 LEVELS OF SERVICE

This asset management plan is based on data in which there is a low to moderate level of confidence, primarily as the database was developed incrementally over some 25 years, and the current data set has been created from a variety of sources with varying degrees of accuracy. To date the data has not been fully tested to provide a measure of completeness and accuracy. Based on our current understanding present funding levels are believed to be insufficient to continue to provide existing services at current levels in the medium term.

The main services consequences are:

- Deterioration of the underground drainage network due to insufficient funding being allocated to asset renewal programs.
- Potential for localised inundation due to failure of aged assets.
- Possible damage to other Council assets (e.g. Roads) and/or private property.

1.4 FUTURE DEMAND

The main demand for new services is created by:

- Increased development and impervious area, requiring the creation of new storm water infrastructure. While these assets will be constructed by developers and later 'gifted' to Council at no cost, there will be increased maintenance and renewal costs associated with the additional infrastructure.
- Higher expectations of flood protection

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, such as;

- Obliging home builders to include on site detention as part of their construction
- Ensuring designs use best practice principles to minimise maintenance

- WSUD - more overland flow, green swales, detention basins, less impervious areas on new developments

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, upgrade and new assets over the 10-year planning period is \$1,335,100 on average per year.

1.6 FINANCIAL SUMMARY

WHAT WE WILL DO

Estimated available funding for this period is \$1,261,100 on average per year as per the long term financial plan or budget forecast. This is 94% of the cost to sustain the current level of service at the lowest lifecycle cost.

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 a shortfall of \$74,000 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

Wangaratta Rural CC - Projected and Budget Expenditure for (Drainage_S1_V3)

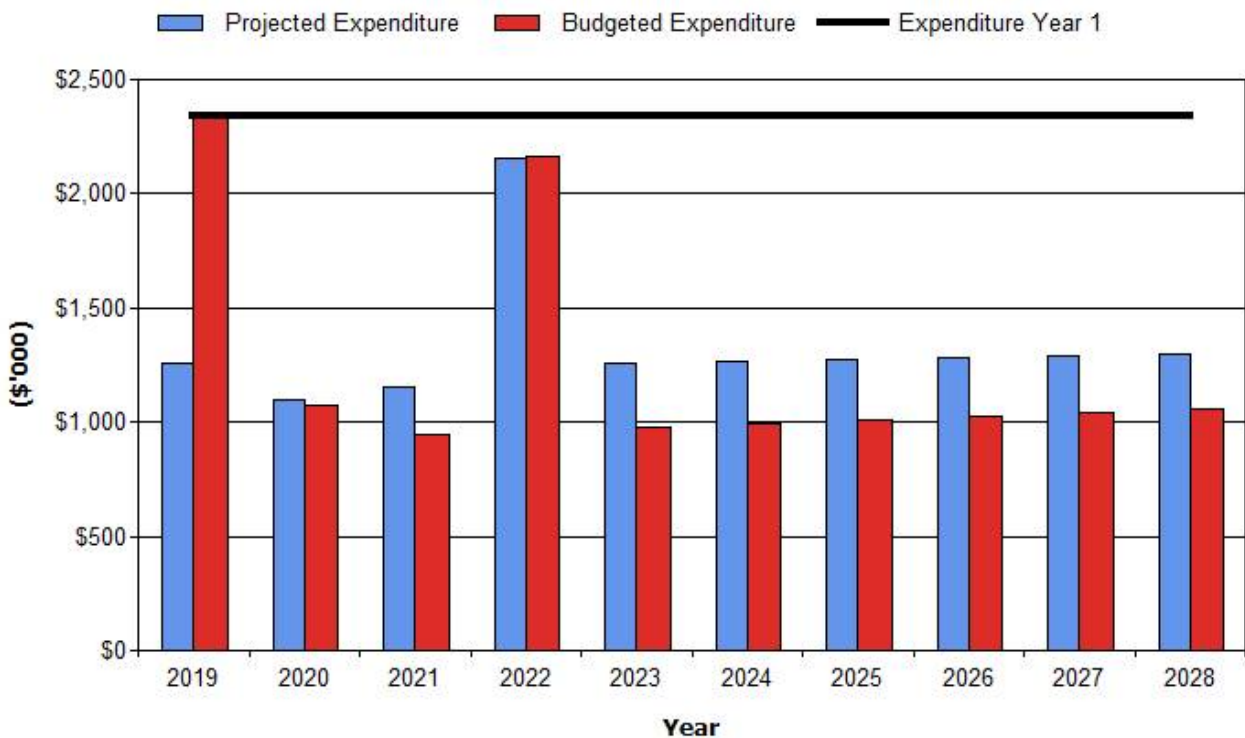


Figure Values are in current (real) dollars.

We plan to provide Stormwater Drainage services for the following:

- Operation, maintenance, renewal and upgrade of Pits and Pipes to meet service levels set in annual budgets.

WHAT WE CANNOT DO

We currently do not allocate enough funding to sustain these services at the desired standard. Works and services that cannot be provided under present funding levels are:

- Completion of the full extent of projected renewal works required under this plan

MANAGING THE RISKS

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

The main risk consequences are:

- Damage to properties due to localised inundation
- Damage to other Council infrastructure due to inadequate management of stormwater flows (e.g. Roads, buildings)

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

- Undertaking proactive maintenance/cleaning programs
- CCTV investigation of known problem areas
- Prepare preliminary designs and costings of drainage network upgrades in areas with known capacity issues

1.7 ASSET MANAGEMENT PRACTICES

Our systems to manage assets include:

- TechnologyOne

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:

- Capture the estimated remaining 15% of pit & pipe assets not currently recognised in TechnologyOne and ensure all assets are mapped
- Complete data capture and commissioning of Levee Banks not currently recognised in TechnologyOne and ensure all assets are mapped
- Document ranking and prioritisation criteria for renewal, new & upgrade projects
- Document Asset Handover and Capitalisation procedures
- Develop an Infrastructure Risk Register and Risk Management Plan
- Develop an ongoing CCTV condition inspection program

- Ensure 20% of Council’s asset data is reviewed annually for completeness and accuracy
- Fund and complete works identified in the Asset Gap Analysis

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 Rural City of Wangaratta policies and strategies. This should include the Asset Management Policy and Asset Management Strategy where these have been developed along with other key planning documents:

- Other related Asset Management Plans
- Long Term Financial Plan
- Council Plan 2017 – 21

The infrastructure assets covered by this asset management plan are shown in Table 2.1. These assets are used to provide Drainage infrastructure to enable the community to go about their business without hindrance from uncontrolled stormwater. The drainage system serves to reduce the risk of inundation of both public and private property.

TABLE 2.1: ASSETS COVERED BY THIS PLAN

Asset Category	Number	Replacement Value (\$000)
Pipes	5766	\$40,665*
Pits	5829	\$19,942*
Gross Pollutant Traps	11	\$559
	TOTAL	\$61,166

*These values include an additional 15% to allow for those assets yet to be captured in Council's asset & finance systems

2.2 GOALS AND OBJECTIVES OF ASSET OWNERSHIP

2.2.1 STRATEGIC AND CORPORATE GOALS

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

¹ Based on IPWEA 2015 IIMM, Sec 2.1.3, p 2 | 13

- ISO 55000²

This asset management plan is prepared under the direction of the Rural City of Wangaratta vision, mission, goals and objectives.

Our vision is:

Rural City of Wangaratta – Feels Like Home

TABLE 2.2: GOALS AND HOW THESE ARE ADDRESSED IN THIS PLAN

Goal	Objective	How Goal and Objectives are addressed in AM Plan
We Are Sustainable	To be economically and environmentally sustainable	<p>Our team will make the best and most efficient use of Council’s resources.</p> <p>Our buildings, facilities and assets will be utilised in an efficient and equitable way.</p> <p>Our legislative, governance and compliance requirements will be met.</p> <p>Asset management systems are maintained</p> <p>Our protection of the environment underpins our development, projects and decisions.</p> <p>Our community and recreation facilities are well maintained.</p>
We are established	To create and maintain the facilities and assets that make our Community a safe, connected and enjoyable place to live.	<p>Our infrastructure is developed and maintained based on what we understand is important to the people who live, work and visit here.</p> <p>We will achieve a 90% annual completion rate for our capital project delivery.</p> <p>We will achieve 25% completion of strategic actions within the Asset Management strategy annually.</p> <p>Our infrastructure provides community links to recreational, business, services, social and cultural spaces.</p>

The Rural City of Wangaratta 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.

2.3 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. 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.

² ISO 55000 Overview, principles and terminology

³ IPWEA, 2015, IIMM.

3. LEVELS OF SERVICE

3.1 CUSTOMER RESEARCH AND EXPECTATIONS

This 'core' asset management plan is prepared to facilitate consultation 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.

We currently have no research on customer expectations. This will be investigated for future updates of the asset management plan.

3.2 LEGISLATIVE REQUIREMENTS

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

TABLE 3.2: LEGISLATIVE REQUIREMENTS

Legislation	Requirement
<i>Local Government Act 1989</i> (Vic)	Sets out role, purpose, responsibilities and powers of local governments including the requirement to prepare a long term financial plan supported by infrastructure and asset management plans for sustainable service delivery.
<i>Water Act 1989</i>	Applies to the management of the use of water resources including conservation, protection and quality of discharges into waterways
<i>Subdivision Act 1988 and Subdivision Regulations (Procedures) 1989</i>	Applies to works for drainage to connect the subdivision to the system serving properties outside it.
<i>Building Act 1993, Building Regulations 2006 and Plumbing Regulations 2008</i>	Provides for regulation of plumbing work and plumbing standards as it impacts discharge of water into the stormwater drainage system from private buildings.
<i>ResCode</i>	In relation to stormwater management, ResCode applies to the construction of new residential subdivisions to ensure environmentally sustainable residential development. This includes stormwater discharges from subdivision development.
<i>Environment Protection Act 1970</i>	Relates discharge, emission or deposit of any substance that may pollute any segment or element of the environment – in this instance, by its introduction into discharge waters of the stormwater drainage system.
<i>Emergency Management Act 1986</i>	Requires a council to have a Municipal Emergency Management Plan to address local emergency risks. This may include hazards arising from storm flows in the drainage system and associated infrastructure.
<i>Health and Wellbeing Act 2008</i>	Allows the issue of a prohibition notice for the conducting of an activity that may damage public health - in this instance being illegal discharges into the stormwater drainage system.
<i>Road Management Act 2004</i> (Vic)	Impacts on road and traffic management considerations.
<i>Road Management (General) Regulations 2016</i>	Prescribes certain matters that must be recorded on a Register of Public Roads and provides for the protection of roads and property.
<i>Road Management Act 2004 Code of Practice - Operational</i>	Provides guidance on how operational responsibility for elements of the road reserve is assigned to various road authorities.
<i>Occupational Health and Safety Act 2004</i> (Vic)	Sets out the roles and responsibilities to ensure the health, safety and welfare of persons at work.

3.3 CUSTOMER LEVELS OF SERVICE

Service levels are defined service levels 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?

The current and expected customer service levels are detailed in Tables 3.4 and 3.5. Table 3.4 shows the expected levels of service based on resource levels in the current long-term financial plan.

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

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

3.4 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
- 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.⁴

Table 3.3 shows the technical levels of service expected to be provided under this AM Plan. The 'Desired' position in the table documents the position being recommended in this AM Plan.

TABLE 3.4: TECHNICAL LEVELS OF SERVICE

⁴ IPWEA, 2015, IIMM, p 2 | 28.

Service Attribute	Service Activity Objective	Activity Measure Process	Current Performance	Desired for Optimum Lifecycle Cost
TECHNICAL LEVELS OF SERVICE				
System Capacity				
	Capacity to convey stormwater to protect properties from overland flow.	Frequency of non-nuisance overland flow that impacts <ul style="list-style-type: none"> - Private property - Major roads - Minor roads - Passive open space 	Some under-capacity drains identified by investigation following resident reports	On average: <ul style="list-style-type: none"> - <1 event every 2 years - <1 event every 5 years - <1 event every 2 years - <2 events every year
System condition to meet capacity				
	Routine maintenance sufficient to allow the asset to meet capacity objectives.	<ul style="list-style-type: none"> - Defect/Safety inspection frequency. - Responsiveness. 	<ul style="list-style-type: none"> - Few inspections are programmed. - High urgency issues are assessed within the timeframes. Non urgent issues are assessed within the timeframe. 	<ul style="list-style-type: none"> - Programmed inspections as per schedule. - Attend issues identified following a questionnaire as “High Urgency” within 4 hours and other issues within 5 days.
Cost Effectiveness				
	Assets are maintained in the most cost effective manner.	Information collected annually from maintenance management systems	Maintenance Cost \$905/km/yr.	Maintenance Cost \$1350/km/yr.

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

4. FUTURE DEMAND

4.1 DEMAND DRIVERS

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

4.2 DEMAND FORECASTS

The present position and projections for demand drivers that may impact future service delivery and use of assets 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 Growth 2016 – 2031	28,310*	33,220**	The projected population growth is at the top end of the forecast range and if achieved will result in moderate demand for increased and improved services.
Climate Change	Climate change will see an increase risk of extreme weather events including storm events, flooding, sea level rise and fire events	It is expected that climate change will intensify in the medium to long term resulting in an increased number of extreme weather events	There will be an increase of structural damage caused by extreme events and an increase in deterioration rates of the network
Changes to Design Standard/Codes	RCoW currently constructs and maintains its infrastructure assets in accordance with all adopted standards.	It is expected that ongoing changes and developments in standards will result in higher construction and maintenance costs	As changes occur RCoW may need to re-appraise unit costs to ensure budgets are sufficient to meet adopted standards.

* Source - 2016 Census ABS

**High Scenario Population Forecast, Population and Housing Strategy 2013, Aurecon & SGS Economics and Planning

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.

Council does not have a formal Demand Management Plan, as more data on demographics needs to be collected to review the impacts and pressures of population growth on its Drainage network. Like most rural towns, the low population outside the towns and the distances does not lend itself to easily implementing/supporting these mode shift options.

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
Population growth	<p>Increased development and impervious area will result in the creation of new storm water infrastructure. There will be an increased maintenance effort required due to the additional infrastructure.</p> <p>Identified residential growth areas are;</p> <p><u>North West Wangaratta</u></p> <p>Generally bounded by Reith Road, Christensen Lane, Worland Road, Three Mile Creek abutting the Equine Precinct to the south and Wangandary Road, and</p> <p><u>South Wangaratta</u></p> <p>Generally bounded by residences south of Cribbes Road, Salisbury Street, One Mile Creek, Clarkes Lane, and Greta Road</p>	<p>Monitor population growth through census data and growth trends in subdivisional development.</p> <p>Manage through installing detention basins in the current infrastructure and obliging home builders to include detention on-site as part of their construction.</p> <p>Ensure designs use ‘best practice’ principles to minimise maintenance – such as additional pits for inspection, well thought out overland flow paths, easy access to new wetlands, community groups maintaining wetland vegetation, etc.</p>
Climate change	<p>There will be an increase of structural damage caused by extreme events. Increased numbers of extreme events will put the capacity of the network under pressure and may result in an increase in deterioration rates of the network</p>	<p>Investigate the development of a Climate Change Adaptation Policy/Strategy</p>
Increasing costs	<p>Increases in costs (maintenance, renewal, upgrade and new) will adversely impact the City’s operating and capital expenditure</p>	<p>Complete the capture of all drainage asset data and commence a program to assess the condition and remaining useful lives of these assets. Review unit rates on an annual basis, including benchmarking, previous works programs reviews and industry reviews.</p>

4.5 ASSET PROGRAMS TO MEET DEMAND

The new assets required to meet growth will be acquired free of cost (gifted) from land developments and constructed/acquired by council.

FIGURE 1: UPGRADE AND NEW ASSETS TO MEET DEMAND – (CUMULATIVE)

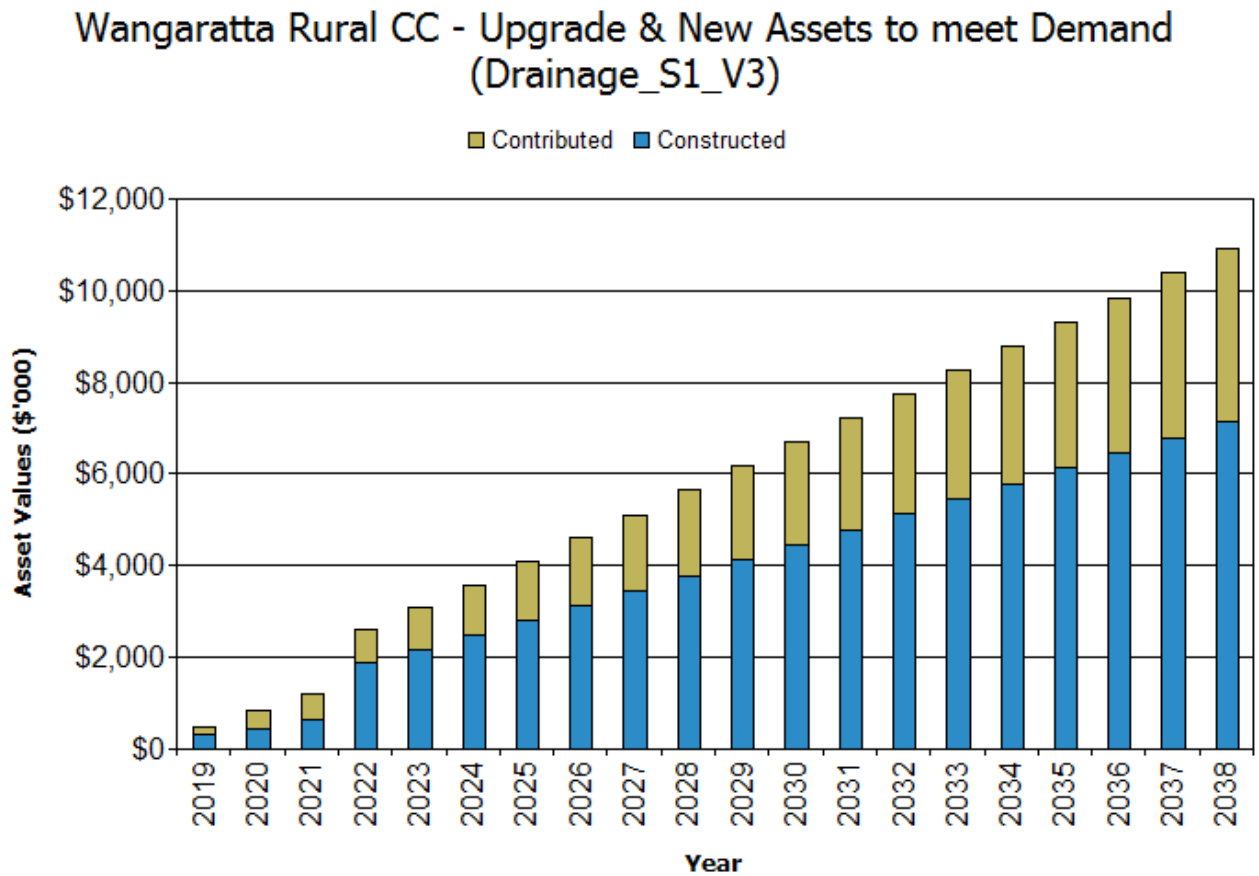


Figure Values are in current (real) dollars.

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.

The lifecycle management plan details how the Rural City of Wangaratta 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.

The great majority of Council’s underground drainage assets are located in the city of Wangaratta with a small number of assets located in the townships Glenrowan, Milawa, Moyhu, Oxley, Whitfield and Whorouly.

A reliable age profile of the existing assets is not currently available. An improvement action for this plan will be to develop estimates of the network age profile based on the apparent age of the neighbourhoods where the assets are located or where a clear linkage can be established to the age of adjacent road segments. This is considered adequate for the purposes of a core level AMP.

Over time, as a better understanding of the network condition is acquired through an ongoing CCTV inspection program more accurate profiles based on condition rather than age can be developed for management purposes.

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
Whorouly	Improve Drainage outside Whorouly Primary School
Milawa	Snow Road Drainage Near Cafe - RPP
Eldorado	Drainage design for Percy, Mackay and Main Streets
Waldara	Waldara Drive Drainage
South Wangaratta	Concept design - Drainage Upgrade for the South Wangaratta Industrial Estate
Wangaratta	Newman Street - Drainage Upgrade
Wangaratta	Cusack & Spearing Street - Drainage & Car Parking Renewal
Wangaratta	Bachelors Green - Carpark and Drainage Upgrade

*The above service deficiencies were identified from CAMMS Project

5.1.3 ASSET CONDITION

Currently there is no defined asset data collection process for drainage although data collection activities are listed in the 5 year asset condition audit program. It is understood that Councils knowledge of its urban drainage network is incomplete and that a comprehensive review of the data held in TechOne, on GIS and hardcopy plans needs to be evaluated. The drainage assets recorded in TechOne, apart from a very small number of recently constructed assets, have no condition scores recorded against them. There is currently no formal, proactive CCTV inspection program for condition assessment of drainage assets. Assessments are ad hoc and in response to identified service issues.

5.2 OPERATIONS AND MAINTENANCE PLAN

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

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

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.

Maintenance expenditure is shown in Table 5.2.1.

TABLE 5.2.1: MAINTENANCE EXPENDITURE TRENDS

Year	Maintenance Budget \$
2019	\$162
2020	\$162
2021	\$162

Maintenance expenditure levels are not considered to be adequate to meet current or projected 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 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 2019 dollar values (i.e. real values).

FIGURE 4: PROJECTED OPERATIONS AND MAINTENANCE EXPENDITURE

Wangaratta Rural CC - Projected Operations & Maintenance Expenditure (Drainage_S1_V3)

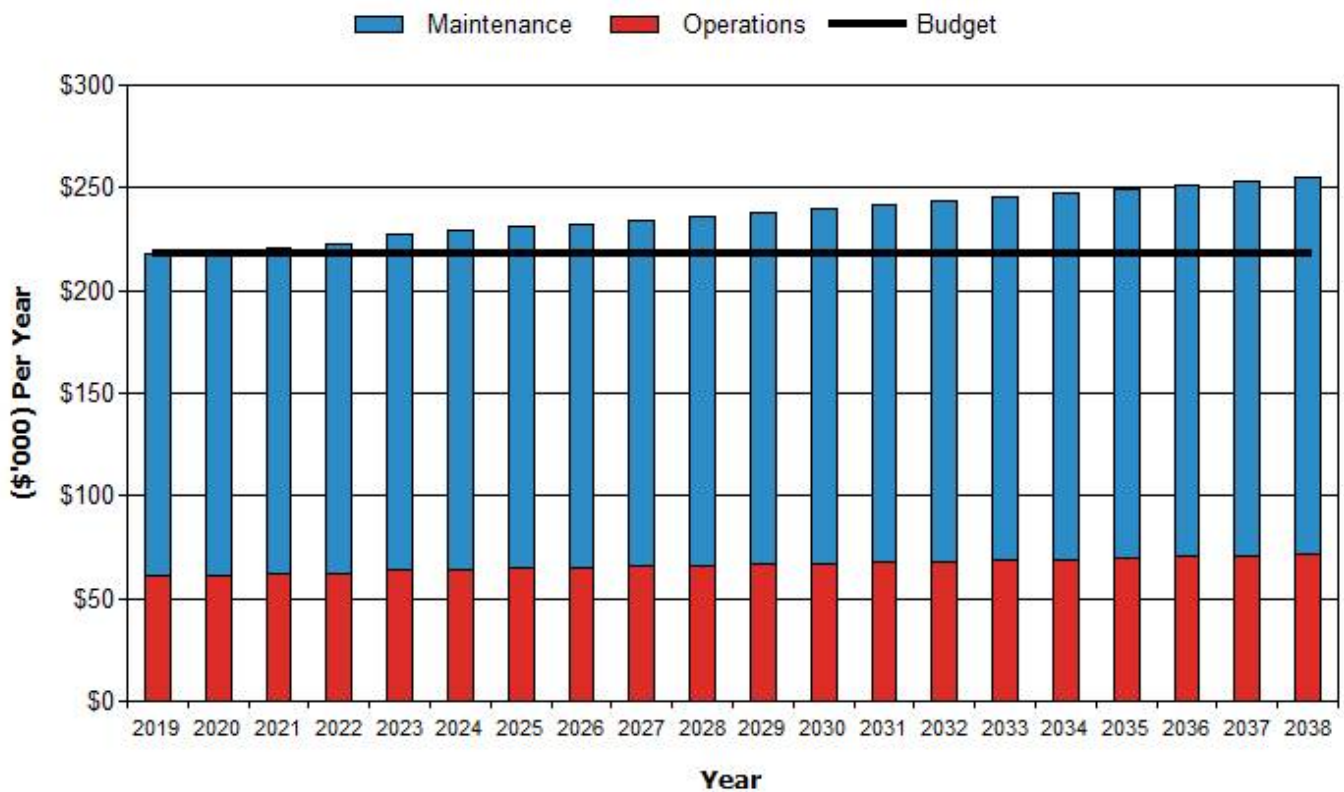


Figure Values are in current (real) dollars.

Preferred 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 was 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 an undersized drainage line), or
- To ensure the infrastructure is of sufficient quality to meet the service requirements (e.g. roughness of a road).⁵

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.⁶

Formal renewal ranking and weighting criteria have been developed only for the sealing of township gravel roads at this point. It planned to extend this methodology to other renewal and replacement programs in the future.

5.3.2 SUMMARY OF FUTURE RENEWAL AND REPLACEMENT EXPENDITURE

⁵ IPWEA, 2015, IIMM, Sec 3.4.4, p 3|91.

⁶ Based on IPWEA, 2015, IIMM, Sec 3.4.5, p 3|97.

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 A.

FIG 5: PROJECTED CAPITAL RENEWAL AND REPLACEMENT EXPENDITURE

Wangaratta Rural CC - Projected Capital Renewal Expenditure (Drainage_S1_V3)

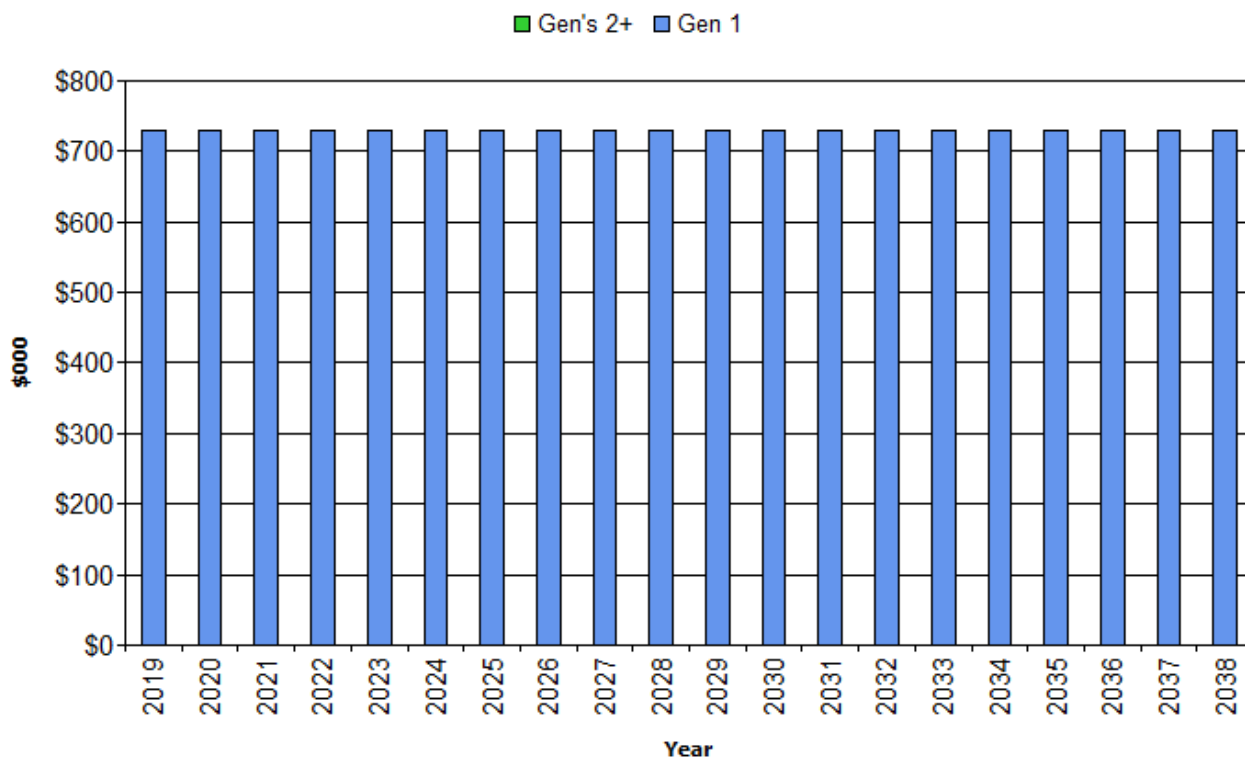


Figure Values are in current (real) dollars.

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 SUMMARY OF FUTURE UPGRADE/NEW ASSETS EXPENDITURE

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

FIG 6: PROJECTED CAPITAL UPGRADE/NEW ASSET EXPENDITURE

Wangaratta Rural CC - Projected Capital Upgrade/New Expenditure (Drainage_S1_V3)

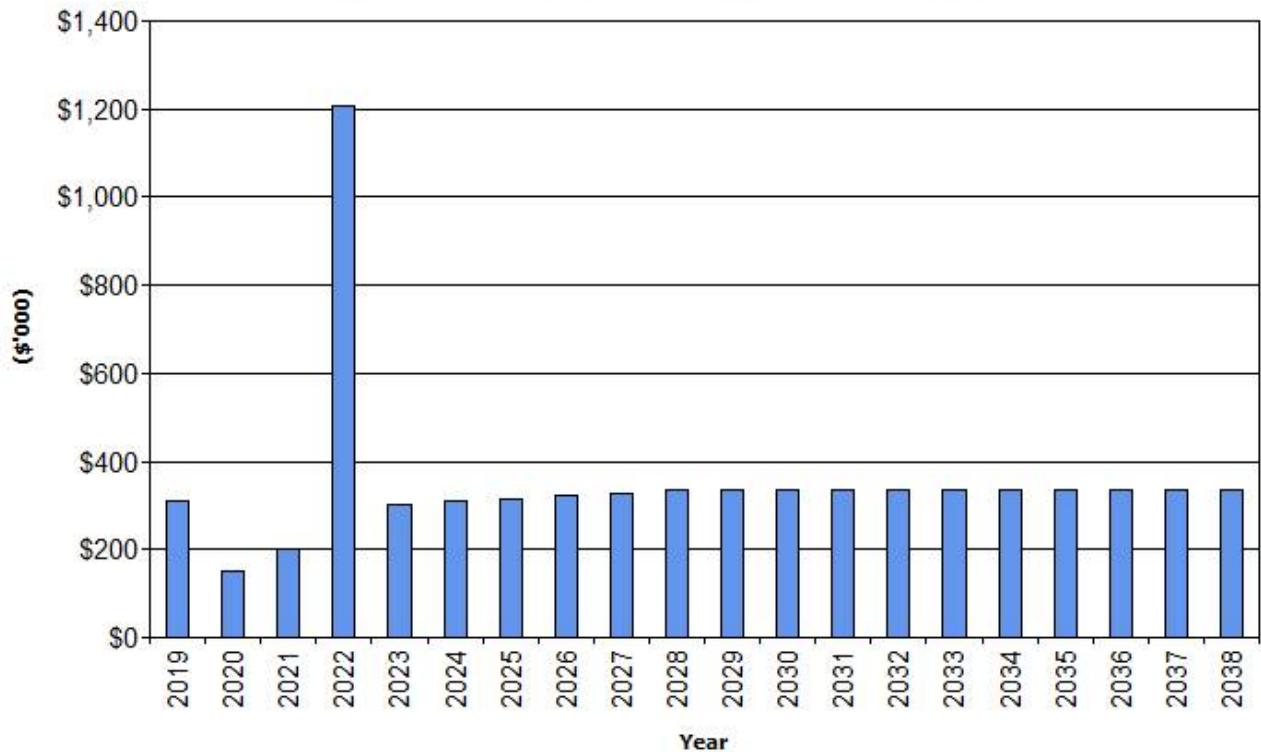


Figure Values are in current (real) dollars.

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

When consideration is given to the acquisition of new assets, the lifetime cost of those assets must be well understood. The operations and maintenance costs attributable to those assets must be identified and funded through the budget process.

5.4.2 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

Wangaratta Rural CC - Projected Operating and Capital Expenditure (Drainage_S1_V3)

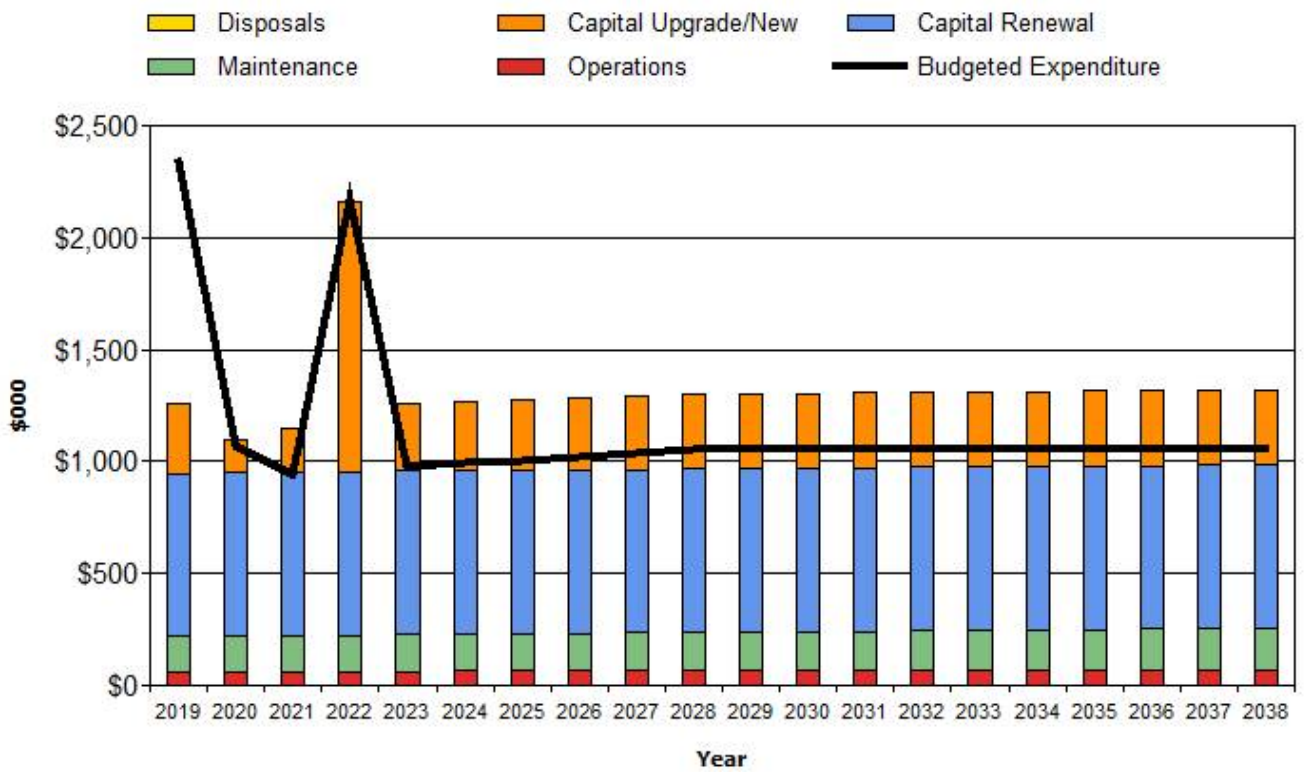


Figure Values are in current (real) dollars.

5.5 DISPOSAL PLAN

Disposal includes any activity associated with the disposal of a decommissioned asset including sale, demolition or relocation. Drainage assets are rarely disposed of and RCoW has no plans at present to dispose of any of its current drainage assets.

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.

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.

Council, through the process of updating its Corporate Risk Register will seek to understand, define and put in place strategies to manage identified infrastructure risks.

Risk Management is defined in ISO 31000:2009 as: ‘coordinated activities to direct and control with regard to risk’⁷.

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
Large pipe crossings under main roads	Road failures as a result of significant pipe damage	Proactive CCTV inspection program and reporting on critical pipelines

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

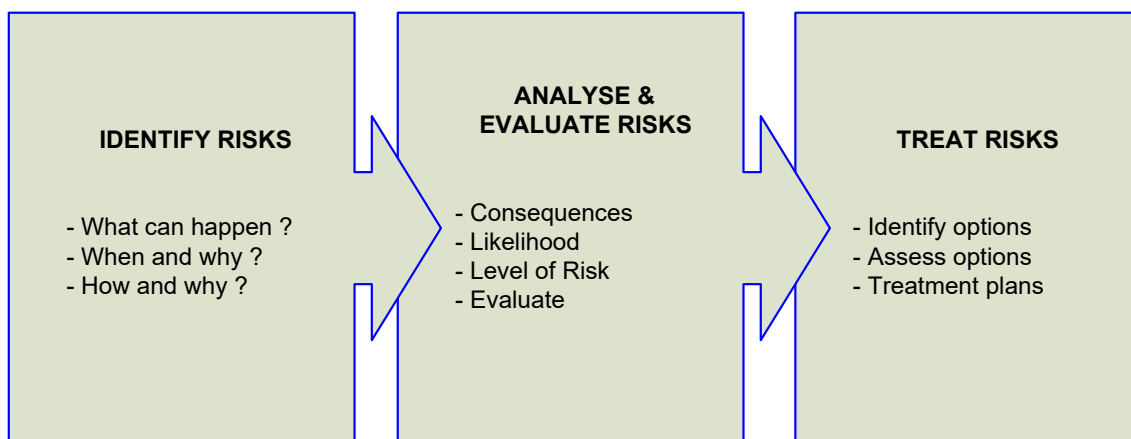
6.2 RISK ASSESSMENT

The risk management process used in the development of this asset management plan is shown in Figure 6.2.

The fundamentals of the risk management process have been formed from the International Standard ISO 31000:2009 Risk Management - Principles and Guidelines, and the process has been designed to provide a logical method for the identification, analysis and treatment of risk.

FIG 6.2 RISK MANAGEMENT PROCESS – ABRIDGED

⁷ ISO 31000:2009, p 2



The risk assessment process includes the:

- identification of risks;
- consideration of the likelihood of the risk event occurring and the consequences should the event occur;
- allocation of a risk rating;
- evaluation of the risk; and
- development of a risk treatment plan for non-acceptable risks.

In the development of this management plan a risk assessment was completed to identify the risks likely to impact the Drainage Asset Group.

Risks that were identified as critical to the Infrastructure Risk Management Plan are shown in Table 6.2. These risks will be addressed and treated through actions generated by the Drainage Asset Management Plan.

TABLE 6.2: CRITICAL RISKS AND TREATMENT PLANS

Service or Asset at Risk	Risk Description
Drainage Network	Unknown asset acquisition and renewal demand caused by a failure to understand the current condition of existing infrastructure will result in an unsustainable fiscal position and consequent financial or service level impacts to the community.
	Poorly maintained Council assets may result in property damage, injury or death of a member of the public or staff member.
	Polluted or contaminated surface water is released into natural environment from drainage system
	Localised flooding due to inadequate capacity of network
	Localised flooding due to inadequate capacity of the network.

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 6.3: RESILIENCE

Threat / Hazard	Resilience (L, M or H)	Improvements / Interventions
Extreme Weather Event	Medium	Ensure Council’s Municipal Emergency Management Plan remains current and covers all reasonably foreseeable potential emergency situations.
Climate Change	Low	No specific strategic documents (Policy, Strategy or Plan) have been developed to address the effects of climate change on the RCoW, as identified in the DELWP “Climate Change Adaptation Governance Assessment”, 2017. ¹

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:

- Currently, insufficient funds have been allocated to undertake the projected renewal activities forecast in this plan.

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:

- Underperformance of the network due to deteriorating condition
- Inability to adequately manage stormwater flows to community’s expectations

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:

- Damage to properties due to localised inundation
- Damage to other Council infrastructure due to inadequate management of stormwater flows (e.g. Roads, buildings)
- Injury to members of the public due to poorly maintained infrastructure

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

7. FINANCIAL SUMMARY

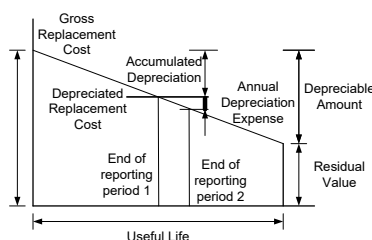
This section contains the financial requirements resulting from all the information presented in the previous sections of this asset management plan. The financial projections will be improved as further information becomes available on desired levels of service and current and projected future asset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

Gross Replacement Cost	\$61,166,000
Depreciable Amount	\$19,127,000
Depreciated Replacement Cost ⁸	\$42,040,000
Annual Average Asset Consumption	\$851,000



7.1.2 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

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 95% 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 \$1,335,000 on average per year.

⁸ Also reported as Written Down Value, Carrying or Net Book Value.

Estimated (budget) operations, maintenance and capital renewal funding is \$1,261,000 on average per year giving a 10 year funding shortfall of -\$74,000 per year. This indicates 92% 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.

7.1.3 PROJECTED EXPENDITURES FOR LONG TERM FINANCIAL PLAN

Table 7.1 shows the projected expenditures for the 10 year long term financial plan.

Expenditure projections are in 2019 real values.

TABLE 7.1: PROJECTED EXPENDITURES FOR LONG TERM FINANCIAL PLAN (\$000)

Year	Operations (\$000)	Maintenance (\$000)	Projected Capital Renewal (\$000)	Capital Upgrade/ New (\$000)	Disposals (\$000)
2019	\$61	\$157	\$730	\$310	\$0
2020	\$61	\$158	\$730	\$150	\$0
2021	\$62	\$159	\$730	\$200	\$0
2022	\$62	\$160	\$730	\$1,207	\$0
2023	\$64	\$164	\$730	\$303	\$0
2024	\$64	\$165	\$730	\$309	\$0
2025	\$65	\$166	\$730	\$315	\$0
2026	\$65	\$167	\$730	\$322	\$0
2027	\$66	\$169	\$730	\$328	\$0
2028	\$66	\$170	\$730	\$335	\$0

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.

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:

TABLE 7.4: KEY ASSUMPTIONS MADE IN AM PLAN AND RISKS OF CHANGE

Assumptions
A growth rate of 0.3% has been applied for the period of this plan and represents an annual average of the dollar value of developer contributed assets over the past seven years. These rates are considered to be conservative and may increase due to stronger than anticipated growth in new developments.
A split of 80/20 has been assumed between planned and reactive maintenance.
Unit rates for current replacement costs were derived from the 2018 drainage revaluation worksheets.
All assets covered by this plan are assumed to have no residual value at end of their useful life - (Management Reporting Coordinator).
LTFP & SRP expenditure figures are from D18/31863(v2) and are most up to date figures available - (Financial Coordinator)
It is anticipated there will be no material change in service levels
It is agreed that not all drainage asset data has been captured in TechOne. It has been assumed for the purposes of this plan that 15% of the network remains to be captured. Therefore 15% has been added to the pit and pipe asset valuations used in the financial modelling in order to generate a more accurate funding scenario.
Levee Banks are recognised in TechOne but have a status of 'Not Commissioned' and have no associated financial attributes. In the next iteration of this plan it is expected the Levee Bank data will be complete
Budget figures for Renewal and Upgrade/New from LTFP and SRP. Renewal figures for 2029-38 are the average of previous 10yrs LTFP figs. Upgrade/New figures for the same period are an average of the previous 5yrs as the very high spends in the early years of the plan would have skewed the projections.

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 scale⁹ 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 $\pm 2\%$
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 considered to be “C” Uncertain.

8. PLAN IMPROVEMENT AND MONITORING

⁹ IPWEA, 2015, IIMM, Table 2.4.6, p 2 | 71.

8.1 STATUS OF ASSET MANAGEMENT PRACTICES¹⁰

8.1.1 ACCOUNTING AND FINANCIAL DATA SOURCES

- Rural City of Wangaratta Long Term Financial Plan
- Rural City of Wangaratta Budget 2018/19
- TechnologyOne CS Production Database

8.1.2 ASSET MANAGEMENT DATA SOURCES

- TechnologyOne CS Production Database
- 2018 Revaluation Worksheets

8.2 IMPROVEMENT PLAN

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

TABLE 8.2: IMPROVEMENT PLAN

Task	Description	Responsibility	Resources	Timeline
1	Approximately 15% of the Pit & Pipe network, is yet to be captured and accurately reflected in Council's asset and finance systems. Undertake a program to capture this data.	Asset Planning, Finance	Internal	Jun 2020
2	Complete the capture of Levee Bank data, commission in the asset and finance systems and incorporate these assets in the next iteration of this plan.	Asset Planning, Finance	Internal	Jun 2020
3	Documented ranking and prioritisation criteria needs to be established for proposed renewal and upgrade/new projects. Programs of works should then be developed for at least the next 5 yrs based on this methodology.	Asset Planning	Internal	Nov 2019
4	Completion of the Capitalisation and Asset Handover process with documented work flows in WIM which will ensure all new assets are captured and all required attributes recorded.	Asset Planning, Delivery and Finance	Internal	Jul 2019

¹⁰ ISO 55000 Refers to this the Asset Management System

5	An Infrastructure Risk Management Plan and Risk Register be developed in order to; <ul style="list-style-type: none"> • identify risks to RCoW that may impact on the delivery of services from infrastructure, • select credible risks for detailed analysis, • prioritise risks, • identify risks requiring treatment by management action, • develop risk treatment plans identifying the tasks required to manage the risks, the officer/authority responsible for each task, the resources required and the due completion date. 	Asset Planning and Governance	Internal	Jun 2020
	Develop an ongoing CCTV condition inspection program for underground assets.	Asset Planning	External	Ongoing
6	20% of Council's asset data by value to be reviewed for completeness and accuracy each year. This activity should form part of the revaluation process to ensure both physical attributes and financial records are accurate.	Asset Planning and Finance	Internal	Ongoing
7	Community consultation plan developed on desired service levels for the drainage asset group.	Asset Planning	Internal	Jun 2020
8	Collaborate with Development Services to support the development of a climate change adaptation strategy.	Development Services	Internal	Jun 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 6 months 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 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 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,

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.
- IPWEA, 2015, 3rd edn., 'International Infrastructure Management Manual', Institute of Public Works Engineering Australasia, Sydney, www.ipwea.org/IIMM
- IPWEA, 2012 LTFP Practice Note 6 PN Long Term Financial Plan, Institute of Public Works Engineering Australasia, Sydney
- Rural City of Wangaratta Council Plan 2017-21
- Rural City of Wangaratta Annual Budget 2018/19
- Climate Adaptation and Local Government – RCoW Analysis Report, (C18/7241)

10. APPENDICES

Appendix A Projected 10 year Capital Renewal and Replacement Works Program

Appendix B Projected 10 year Capital Upgrade/New Works Program

Appendix C LTFP Budgeted Expenditures Accommodated in AM Plan

APPENDIX A PROJECTED 10-YEAR CAPITAL RENEWAL AND REPLACEMENT WORKS PROGRAM

Year End June 30	Projected Renewals (\$'000)	LTFP Renewal Budget (\$'000)	Renewal Financing Shortfall (- gap, + surplus) (\$'000)	Cumulative Shortfall - gap, + surplus) (\$'000)
2019	\$730	\$1,810	\$1,080	\$1,080
2020	\$730	\$704	\$-26	\$1,054
2021	\$730	\$528	\$-202	\$852
2022	\$730	\$742	\$12	\$864
2023	\$730	\$455	\$-275	\$589
2024	\$730	\$464	\$-266	\$323
2025	\$730	\$473	\$-257	\$66
2026	\$730	\$482	\$-248	\$-182
2027	\$730	\$492	\$-238	\$-420
2028	\$730	\$502	\$-228	\$-648

Year End June 30	LTFP Upgrade/New (\$'000)
2019	\$310
2020	\$150
2021	\$1200
2022	\$1207
2023	\$303
2024	\$309
2025	\$315
2026	\$322
2027	\$328
2028	\$335

APPENDIX C BUDGETED EXPENDITURES ACCOMMODATED IN LTFP

NAMS.PLUS3 Asset Management Wangaratta Rural CC																		
© Copyright. All rights reserved. The Institute of Public Works Engineering Australasia																		
<div style="display: flex; justify-content: space-between;"> Drainage_S1_V3 Asset Management Plan <div style="text-align: right;"> </div> </div>																		
First year of expenditure projections: 2019 (financial yr ending)																		
<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>Drainage</p> <p>Asset values at start of planning period</p> <table border="1" style="width: 100%;"> <tr> <td>Current replacement cost</td> <td>\$61,168 (000)</td> </tr> <tr> <td>Depreciable amount</td> <td>\$19,127 (000)</td> </tr> <tr> <td>Depreciated replacement cost</td> <td>\$42,040 (000)</td> </tr> <tr> <td>Annual depreciation expense</td> <td>\$851 (000)</td> </tr> </table> </div> <div style="width: 45%;"> <p>Calc CRC from Asset Register: <input type="text" value="\$0"/> (000)</p> <p>This is a check for you.</p> </div> </div>											Current replacement cost	\$61,168 (000)	Depreciable amount	\$19,127 (000)	Depreciated replacement cost	\$42,040 (000)	Annual depreciation expense	\$851 (000)
Current replacement cost	\$61,168 (000)																	
Depreciable amount	\$19,127 (000)																	
Depreciated replacement cost	\$42,040 (000)																	
Annual depreciation expense	\$851 (000)																	
<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>Planned Expenditures from LTFP</p> <p>20 Year Expenditure Projections Note: Enter all values in current 2019 values</p> </div> <div style="width: 45%;"> <p>Operations and Maintenance Costs for New Assets</p> <table border="1" style="width: 100%;"> <tr> <td>Additional operations costs</td> <td>0.10%</td> </tr> <tr> <td>Additional maintenance</td> <td>0.26%</td> </tr> <tr> <td>Additional depreciation</td> <td>4.45%</td> </tr> </table> <p>Planned renewal budget (information only)</p> <p>You may use these values calculated from your data or overwrite the links.</p> </div> </div>											Additional operations costs	0.10%	Additional maintenance	0.26%	Additional depreciation	4.45%		
Additional operations costs	0.10%																	
Additional maintenance	0.26%																	
Additional depreciation	4.45%																	
Financial year ending	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028								
	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000								
Expenditure Outlays included in Long Term Financial Plan (in current \$ values)																		
Operations																		
Operations budget	\$61	\$61	\$61	\$61	\$61	\$61	\$61	\$61	\$61	\$61								
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	\$61	\$61	\$61	\$61	\$61	\$61	\$61	\$61	\$61	\$61								
Maintenance																		
Reactive maintenance budget	\$32	\$32	\$32	\$32	\$32	\$32	\$32	\$32	\$32	\$32								
Planned maintenance budget	\$125	\$125	\$125	\$125	\$125	\$125	\$125	\$125	\$125	\$125								
Specific maintenance items budget	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0								
Total maintenance	\$157	\$157	\$157	\$157	\$157	\$157	\$157	\$157	\$157	\$157								
Capital																		
Planned renewal budget	\$1810	\$704	\$528	\$742	\$455	\$464	\$473	\$482	\$492	\$502								
Planned upgrade/new budget	\$310	\$150	\$200	\$1,207	\$303	\$309	\$315	\$322	\$328	\$335								
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 asse	\$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	2019 \$000	2020 \$000	2021 \$000	2022 \$000	2023 \$000	2024 \$000	2025 \$000	2026 \$000	2027 \$000	2028 \$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	2019 \$000	2020 \$000	2021 \$000	2022 \$000	2023 \$000	2024 \$000	2025 \$000	2026 \$000	2027 \$000	2028 \$000								
Forecast Capital Upgrade from Form 2C	\$730	\$730	\$730	\$730	\$730	\$730	\$730	\$730	\$730	\$730								
	\$310	\$150	\$200	\$1,207	\$303	\$309	\$315	\$322	\$328	\$335								