

STORMWATER
ASSET
MANAGEMENT
PLAN 2020-
2029 CITY OF
BURNSIDE

EXECUTIVE SUMMARY

The objective of infrastructure asset management is to ensure that assets provide their required levels of service in the most cost effective manner to cater for both present and future customers. This Asset Management plan focuses on the management of the City of Burnside's stormwater assets which include stormwater structures (end walls, junction boxes, side entry pits, underground culverts, stormwater pipes) and stormwater quality devices (weirs, b-pods, embankments, gross pollutant traps, holding basins, lined watercourses, rainwater tanks, road culverts, rock ramps, silt traps, soakage pits, trash rack baskets). This plan specifies the requirements for effective management of this asset group and the corresponding financial implications. The figures (condition and financial data) in this plan are reviewed annually, with a full update completed every 4 years.

Effective asset management of the City of Burnside's stormwater assets will contribute towards achievement of the following strategic objectives:

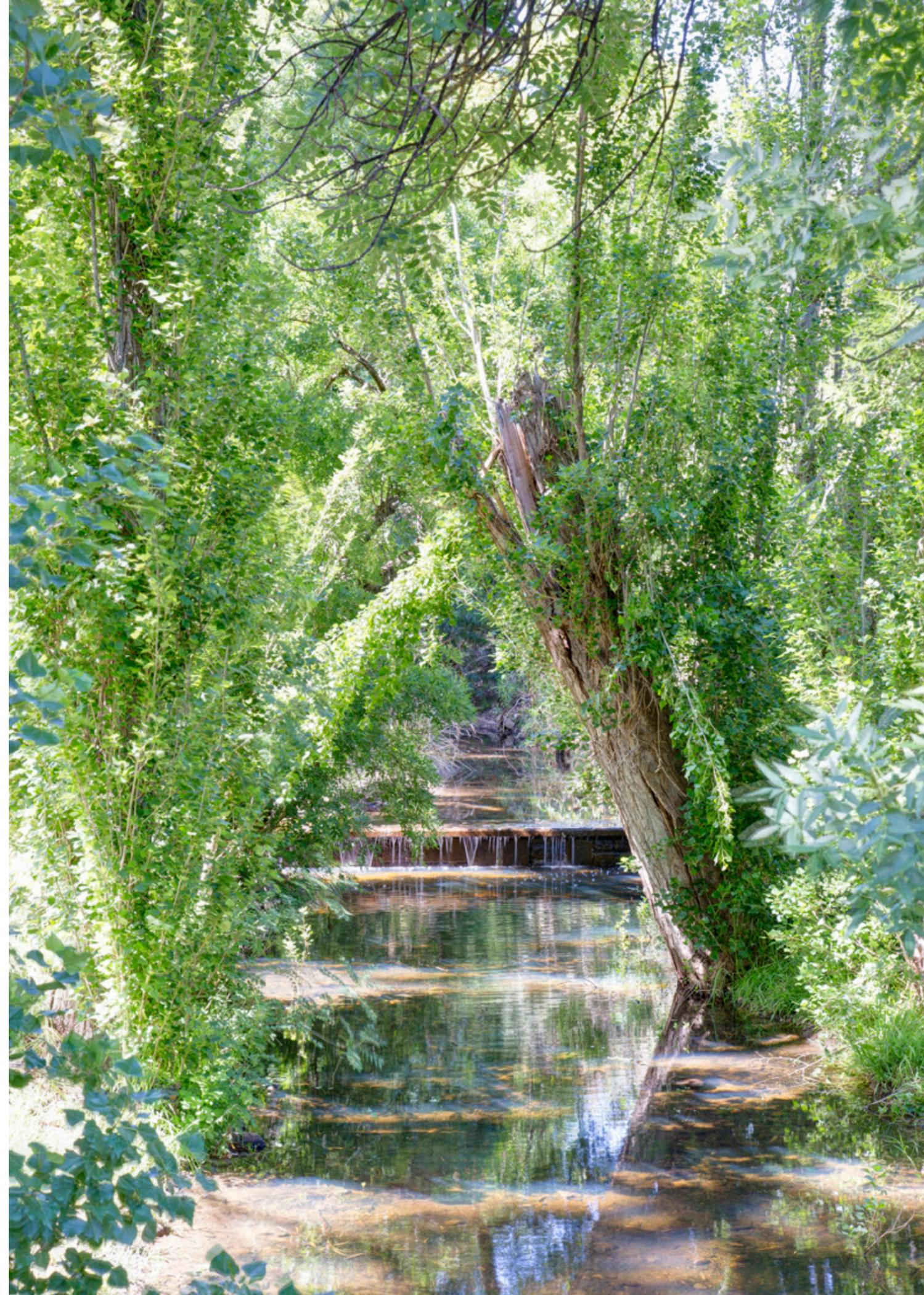
- Fit for purpose and cost-effective infrastructure that meets community needs
- Natural environments and watercourses protected and conserved in both the Hills Face and the Plains
- A financially sound Council that is accountable, responsible and sustainable
- Environmentally sustainable development which complements the City's character

- Sustainable use of natural resources and minimisation of waste to address climate change
- A safe community that values and supports its people

The contribution towards achievement of these strategic goals and asset management objectives will be achieved by:

- Community and stakeholder consultation to establish and confirm service standards
- A regular program of inspections and monitoring activities to assess asset condition and performance
- Application of a systematic analysis to prioritise renewals and establish the most cost effective works programs
- Continuously reviewing and improving the quality of Asset Management practices

The total current replacement cost of the City of Burnside's stormwater assets is around \$115m. The projected renewal expenditure necessary to meet the service standards for these assets averages around \$162,000 per year over the next 10 years. This is the average annual level of spend required to ensure all assets are maintained in accordance to current standards and renewed at appropriate times, as well as investing in new stormwater infrastructure for flood mitigation purposes. An additional \$600,000 per year is forecast for investment in new stormwater infrastructure. Actual annual expenditure requirements will differ from year to year as specific assets are due to be renewed.



REVISION HISTORY

REVISION	DESCRIPTION	DATE
0.1	Draft for community consultation	June 2019

TABLE OF CONTENTS

EXECUTIVE SUMMARY	4	IMPACT OF DEFERRING RENEWAL WORKS	35
FREQUENTLY ASKED QUESTIONS	8	ENHANCEMENT PLAN	36
STORMWATER INFRASTRUCTURE	11	SELECTION CRITERIA	36
INTRODUCTION	12	FORECAST NEW ASSET EXPENDITURE	36
LEVELS OF SERVICE INPUTS	14	DISPOSAL OF ASSETS	36
LEVELS OF SERVICE	15	FINANCIAL SUMMARY	38
FUTURE DEMAND	16	FINANCIAL PROJECTIONS	38
DEMAND FORECAST	16	KEY ASSUMPTIONS	39
CHANGES IN TECHNOLOGY	16	PLAN IMPROVEMENT AND MONITORING	40
DEMAND MANAGEMENT PLAN	16	MONITORING AND REVIEW PROCEDURES	40
NEW ASSETS FROM GROWTH	17	IMPROVEMENT PLAN	40
ASSET MANAGEMENT PRACTICES	18	GLOSSARY	42
STANDARDS AND GUIDELINES	18		
ACCOUNTING/FINANCIAL SYSTEMS	18		
ASSET MANAGEMENT SYSTEMS	19		
RISK MANAGEMENT	19		
LIFECYCLE MANAGEMENT PLAN	22		
PHYSICAL PARAMETERS	23		
ASSET CAPACITY AND PERFORMANCE	24		
ASSET CONDITION	24		
USEFUL LIVES AND UNIT RATES	26		
ASSET VALUATIONS	31		
MAINTENANCE PLAN	32		
MAINTENANCE EXPENDITURE	33		
STANDARD AND SPECIFICATIONS	33		
FUTURE MAINTENANCE EXPENSES	33		
RENEWAL PLAN	34		
RENEWAL PRIORITISATION	34		
REQUIRED RENEWAL EXPENDITURE	34		

FREQUENTLY ASKED QUESTIONS

What is an asset?

An asset is an item of property owned by the Council regarded as having value. Council's assets range from roads and footpaths to buildings, playgrounds, stormwater infrastructure and street furniture.

What is an asset management plan?

The purpose of an asset management plan is to help an organisation effectively manage their infrastructure and other assets to an agreed standard of service. The plan outlines what needs to be invested in each asset group in order to meet these defined service standards over the next ten years.

What is an asset group?

An asset group refers to a set of assets that have similar characteristics or purpose. For example, 'transport assets' all help to contribute towards enabling transport and movement across the city.

What is a service level?

A service level (or level of service) refers to a defined level of quality against which service performance can be measured. Service levels can relate to quality, quantity, reliability, responsiveness, environmental, acceptability and cost.

How do we determine service levels?

Service levels have been developed based on legislative requirements, customer research and feedback, and strategic goals.

What are the objectives of asset management?

The basic premise of infrastructure asset management is to intervene at strategic points in an asset's life cycle to extend the expected service life, and thereby maintain its performance. Generally speaking, the cost of maintaining an asset decreases with planned maintenance rather than unplanned maintenance, however, excessive planned maintenance increases costs. An objective of asset management is to strategically time infrastructure renewals before unplanned maintenance costs become excessive, but not so soon that assets are renewed before it is really needed.

Council's goal in managing infrastructure assets is to meet the required levels of service in the most cost effective manner for present and future customers.

How do we determine when renewals are required?

Renewals are determined by considering the ability of an asset to meet an agreed standard of service. This is done by regularly reviewing the condition and performance of assets and using that information as a basis to prioritise renewals.

Why does Council need an Asset Management Plan?

Under section 122 of the Local Government Act, the City of Burnside has a legislative requirement to develop Asset Management Plans. In addition to the legislative requirement, there is a need for the Council to ensure effective investment in assets which need it most by having a planned, systematic approach to Asset Management.

How does Council include community feedback into the Plan?

Council includes community feedback into Asset Management Plans in a number of ways:

- Through information provided via our annual

community survey

- Through review of common customer requests and complaints in our Customer Request Management (CRM) system, and
- Through a formal community engagement process where the community is invited to provide feedback on draft Asset Management Plans, which is then incorporated into the final documents.

Further information on other terms used within this Asset Management Plan can be found in the glossary section of this document.



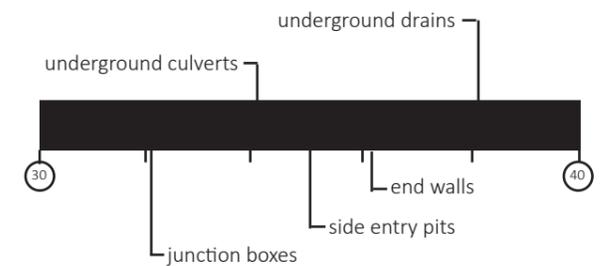


STORMWATER INFRASTRUCTURE SUMMARY

QUANTITIES:

- 151 km underground drains
- 7 km underground culverts
- 3063 side entry pits
- 1212 junction boxes
- 58 end walls
- 12 groups stormwater quality devices

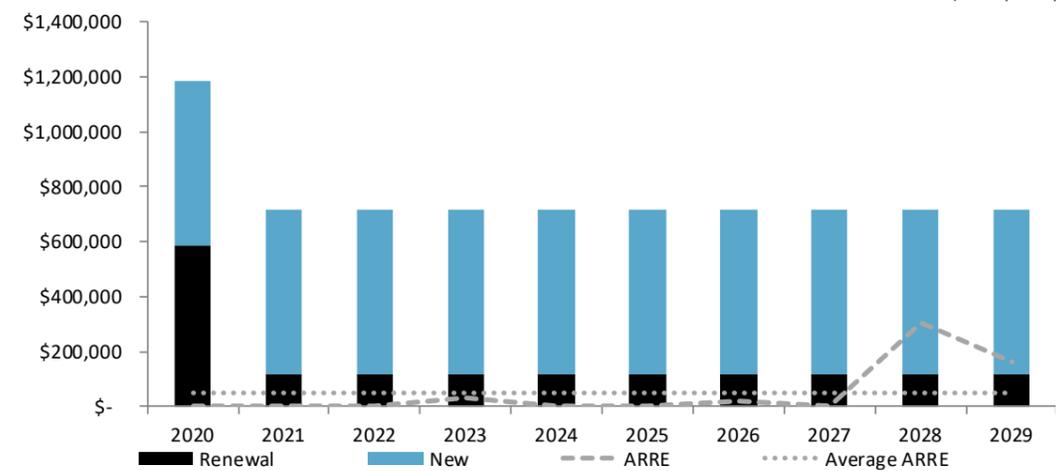
AVERAGE AGE:



REPLACEMENT COST:

underground drains	\$81.5m
underground culverts	\$11.3m
side entry pits	\$7.6m
junction boxes	\$6.6m
endwalls	\$0.9m
stormwater quality devices	\$7.1m
	<hr/>
	\$115,039,908

PROJECTED CAPITAL EXPENDITURE:



INTRODUCTION

The City of Burnside's stormwater assets provide valuable services to the area, and comprise a large number of assets established over a long period of time. These assets have been acquired and developed over several generations and must be properly maintained and developed to continue to provide adequate service and benefits for current and future generations. This plan demonstrates Council's responsive management of stormwater assets (and services provided from these assets), compliance with regulatory requirements and proposed funding requirements to provide the required levels of service.

This plan demonstrates how Council will achieve this outcome by applying the principles of responsible Asset Management Planning, the object of which is to deliver the required level of service to existing and future customers in the most cost effective way.

The key elements of infrastructure asset management are:

- Taking a life cycle approach
- Developing cost-effective management strategies for the long term
- Providing a defined level of service and monitoring performance
- Understanding and meeting the demands of growth through demand management and infrastructure investment
- Managing risks associated with asset failures
- Sustainable use of physical resources

- Continuous improvement in asset management practices

The contribution of stormwater asset services towards the strategic goals and Asset Management objectives will be achieved by:

- Stakeholder consultation to establish and confirm service standards.
- A regular program of inspections and monitoring activities to assess asset condition and performance.
- Application of a systematic analysis to prioritise renewals and establish the most cost effective works programs.
- Continuously reviewing and improving the quality of Asset Management practices.

The Asset Management Plan is to be read in conjunction with the Asset Management Policy, Long Term Financial Plan and Annual Business Plan and Budget.

The key elements of the asset management plan are:

- Levels of service
- Future demand
- Asset management practices
- Life cycle management
- Financial management
- Improvement and monitoring



Assets must be properly maintained and developed to continue to provide **service and benefits** for current and future generations

LEVELS OF SERVICE INPUTS

COMMUNITY SURVEY FEEDBACK:^{1,2}

- 95% considered provision and maintenance of infrastructure important
- 65% satisfaction with water management initiatives

ASSET MANAGEMENT PLAN COMMUNITY CONSULTATION FEEDBACK:

Q When it rains Council's stormwater system allows people to continue to use footpaths and roads:

	2016	2019
87% strongly agree	18%	xx%
agree	43%	xx%
neutral	26%	xx%
disagree	8%	xx%
strongly disagree	6%	xx%

Q When it rains heavily, Council's stormwater system protects properties and businesses from flooding:

	2016	2019
77% strongly agree	10%	xx%
agree	31%	xx%
neutral	35%	xx%
disagree	14%	xx%
strongly disagree	9%	xx%

CITY OF BURNSIDE STRATEGIC PLAN 2016-2026:

- Fit for purpose and cost-effective infrastructure that meets community needs
- A financially sound Council that is accountable, responsible and sustainable
- Conservation and enhancement of the historic character of the City
- Environmentally sustainable development which complements the City's character
- Sustainable, engaging, healthy and functional public spaces and streetscapes
- Sustainable use of natural resources and minimisation of waste to address climate change
- A safe community that values and supports its people

LEGISLATIVE:

- Local Government Act 1999
- Australian Accounting Standards
- Local Government (Financial Management and Rating) Amendment Act 2005
- Civil Liabilities Act 1936
- Public Health Act 2011

LEVELS OF SERVICE

The levels of service defined in this section will be used to:

- Clarify the level of service that our customers should expect.
- Identify works required to meet these levels of service.
- Identify the costs and benefits of the services offered.
- Enable Council and customers to discuss and assess the suitability, affordability and equality of the existing service level and to determine the impact of increasing or decreasing this level in future.

The adopted levels of service for stormwater assets are based on legislative requirements, customer research and expectations, and strategic goals.

The primary purpose of the stormwater network is to manage the treatment and/or disposal of (largely) rainfall runoff. Stormwater drainage serves to minimise property damage and danger or disruption to the community from flooding.

The following tables define existing expectations of stormwater service levels:

TABLE 1: STORMWATER NETWORK LEVELS OF SERVICE

PERFORMANCE CATEGORY	COMMUNITY SERVICE EXPECTATION	PERFORMANCE MEASURE PROCESS	PERFORMANCE TARGET	CURRENT PERFORMANCE
Minor flooding	Minimal disruption associated with minor flooding	Complaints from residents regarding repeat minor flooding	<12 complaints per year	Met (CRM subject= CRFlooding)
Major flooding	Adequate mitigation of major flooding events – warning, reduction of damage, etc.	Adequate systems in place and appropriate knowledge of risk	Complete regional study(ies) and Implement recommendations as per program and funding allows	Met
Impact of works	Good construction practices during and planning for construction	Business and personal disruptions during construction	<3 complaints per year as a result of recent construction	Met (CRM subject= CRFootRepA, CRDryCrss, CRFootPgm)
Design	Designs meet or exceed industry best practice regarding capacity and Environmental Design	Current Australian Standards and guidelines met	Guidelines met or exceeded	Met
Maintenance	Maintenance levels keep the drainage system functioning	Function of the drainage system	Inspection of routine road failures within 36 hours of a reported fault as measured by councils customer request management system	Met
Maintenance	Stormwater Quality Improvement Device structures function as designed	Function and appearance of the Structure system	No flooding arising from maintenance issue	Met (CRM subject= CRDragOut, CRDrainCrk, CRResvGen)

Indications of desired levels of service are obtained from formal surveys, residents' feedback to Councillors and staff and service requests.

figures tbc following 2019 AMP community consultation

FUTURE DEMAND

This section of the plan analyses potential factors effecting demand including population growth, social and technology changes. The impact of these trends is examined and strategies recommended as required to modify demand without compromising customer satisfaction.

DEMAND FORECAST

Factors affecting demand include (but are not limited to) population change, changes in demographics, seasonal factors, consumer preferences and expectations, economic factors, agricultural practices and environmental awareness. The population for the City of Burnside was 45,491 in 2017 and is projected to grow to around 47,766 by 2031, which may realise a small increase in maintenance of our stormwater assets.

Emerging technologies and influences such as machine learning, the Internet of Things, virtual reality, artificial intelligence, smart technologies, mobility solutions and data warehousing all have the ability to affect demand and practices, however it is not anticipated that these will produce a significant impact within the 4 year life of this asset management plan.

Council rate capping, should it proceed, also has the potential to affect effective asset management if insufficient funds are able to be secured to manage existing assets to agreed levels of service, or to provide new assets desired by the community.

The demand for significant greater or improved

stormwater infrastructure is not likely to arise from increased population; rather it would be the increase of the impervious area from infill development and higher expectations of flooding protection. Research has suggested that there will be 528 additional residences by 2020, representing an increase in impervious area (allowing for duplex style as opposed to additional Single Family Dwellings).

There will, in time, be a handover of a number of stormwater assets to the City of Burnside in association with the Glenside redevelopment.

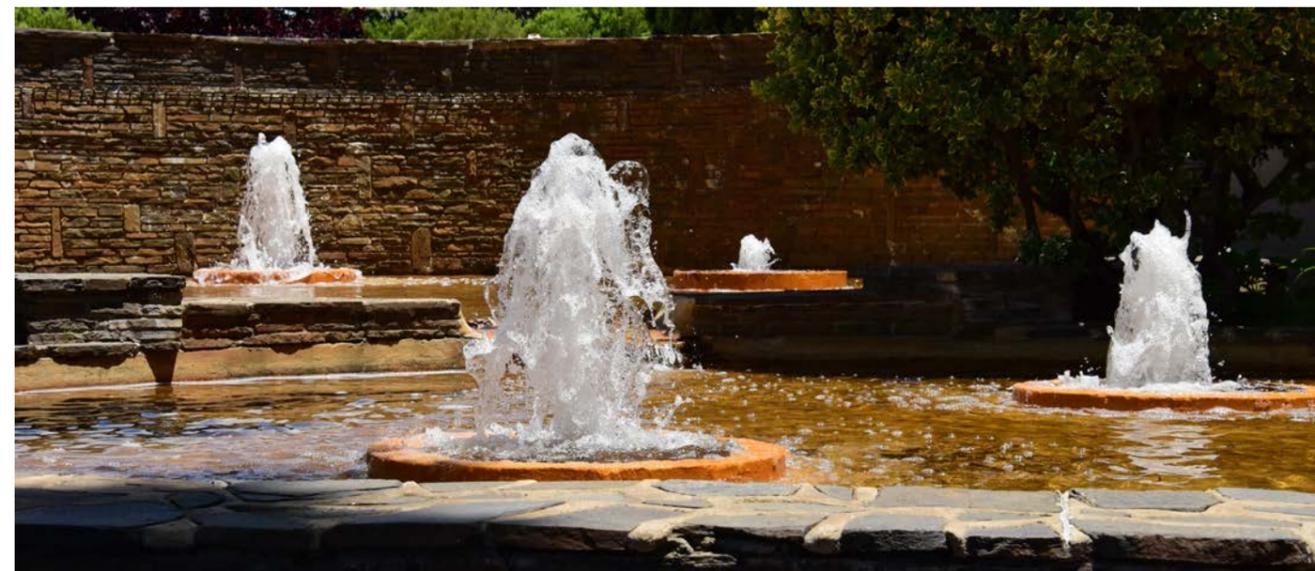
CHANGES IN TECHNOLOGY

In future, more and more stormwater projects will utilise principles of Water Sensitive Urban Design (WSUD). This involves the reduction of the volume and frequency of stormwater drained and increases the quality before it reaches waterways.

Trenchless technologies may also be used to provide a cost effective way of repairing pipes without disrupting the flow of traffic.

DEMAND MANAGEMENT PLAN

The demand for significant new local government stormwater infrastructure could be managed by minimising the amount of runoff entering the stormwater network as part of urban runoff through on-site detention schemes incorporated as part of the development approval process- however current legislation does not require or support this as mandatory.



There will be an ongoing demand for renewing the existing infrastructure as it completes its useful life and where it is identified as being under the required capacity to adequately mitigate flooding. There is also the potential that climate change may realise increased flood events and as a result increase the need for further flood mitigation works.

NEW ASSETS FROM GROWTH

The City of Burnside is principally a fully developed urban area with relatively few new substantial developments; with the exception of the Glenside Redevelopment Project- the exact full impact of which is not yet fully understood.

There will continue to be a small number of new assets associated with development handovers, however (with the exception of Glenside) the increase is estimated to be minimal and as such will not impact on the service level or the ability/cost to provide the service.

The demand for new assets is not anticipated to come from increased users but rather increased impermeable area arising from increased building footprint or added buildings on existing properties.

ASSET MANAGEMENT PRACTICES

This section identifies the strategies, practices and guidelines supporting Asset Management at the City of Burnside.

STANDARDS AND GUIDELINES

Asset Management practices and processes are guided by a number of legislative requirements and assisted by developed guidelines and standards.

- Local Government Act 1999 (sets out Councils Asset Management responsibility and the requirement to develop asset management plans)
- Australian Accounting Standard 27 Financial Reporting by Local Governments 1996 (sets out the asset accounting requirements)
- International Infrastructure Management

Manual, NAMS (Provides guidance and direction on asset management policy and plan development)

- AS ISO 55000:2014 Asset Management- Overview, principles and terminology (Provides guidance around frameworks for effective asset management)

ACCOUNTING/FINANCIAL SYSTEMS

Council utilises 'TechnologyOne' software as Council's financial management and accounting system. Incorporated into 'TechnologyOne' are facilities to manage fixed assets across the organisation with extensive functionality and reporting for the full lifecycle of assets providing full transparency from acquisition to disposal. The system also offers a total and comprehensive

purchasing solution encompassing controlling, maintaining and streamlining of purchasing activities across the organisation.

ASSET MANAGEMENT SYSTEMS

Council utilises 'TechnologyOne' software as Council's asset management system. This ensures there is full integration between operating and financial functions. Council utilises a combined Financial / Operational Asset register that avoids any reconciliation issues that arise from two separate registers.

TechnologyOne IntraMaps is the corporate GIS. The GIS is predominantly used to show information such as cadastral, topographic, aerial information and asset location. It is a computer mapping system that graphically represents the geographic component of data that is housed within TechnologyOne. Assetic myData and Predictor are used for extended data capture and predictive modelling of Council's asset network.

RISK MANAGEMENT

The objective of the risk management process with regards to stormwater assets is to ensure:

- All significant operational and organisational risks are understood and identified
- The highest risks that need to be addressed in the short to medium term are identified
- Strategies and treatments to address risks are identified and applied

An assessment of risks associated with service delivery from infrastructure assets has identified

the most critical risks to Council. The risk assessment process identifies and assesses risks, develops a risk rating and develops a risk treatment plan for non-acceptable risks.

The key risk management criteria relating to Council's stormwater assets include:

- Public health and safety
- Service provision
- Environmental and legal compliance
- Security, theft and vandalism
- Business interruption
- Financial risk (escalating costs in deterioration)
- Asset damage through storms, flooding, water damage or events such as accidents.

Owing to increased rainfall and temperatures associated with climate change, there is a risk that assets will fail or need to be maintained earlier than expected. While it is still unclear as to the exact impact of these changes, it reaffirms the importance of the flood protection and mitigation works outlined in this asset management plan.

According to the World Bank Group, "asset management, when undertaken according to best practice, is already one of the most significant climate adaptation strategies".

By continuing to ensure that the City of Burnside has the best possible information about its assets, the Council is able to better predict future demand and account for any potential required changes as a result of climate change.

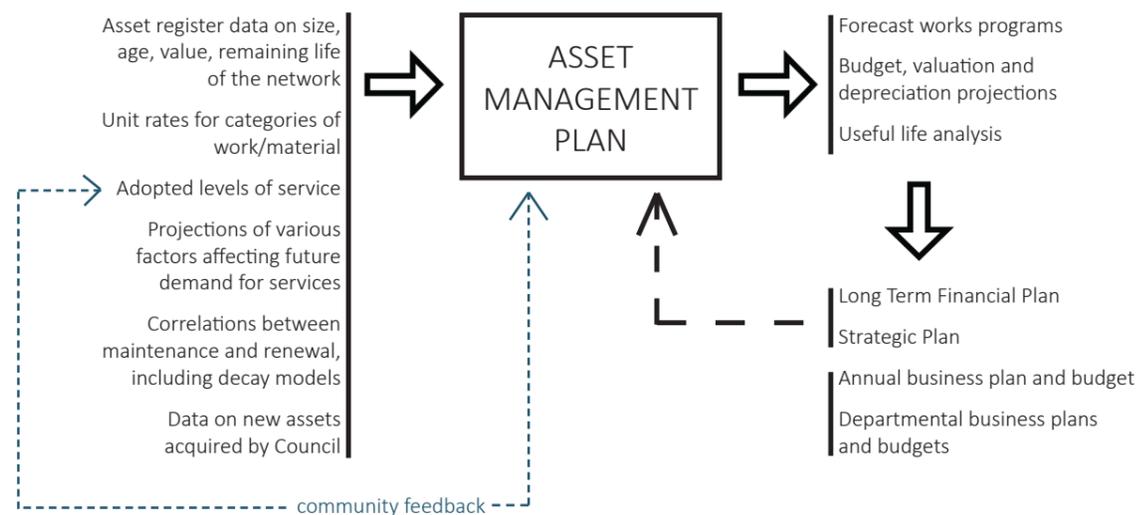


FIGURE 1: ASSET MANAGEMENT INFORMATION FLOWCHART

Risk identification for stormwater assets can be identified from a number of resources such as:

- Routine inspections
- Reports and complaints from general public
- Information obtained from incidents
- Advice from professional bodies
- Past experience.

Risk ratings are determined using the City of Burnside’s risk matrix:

TABLE 2: RISK RATING MATRIX

Likelihood	Consequence				
	Insignificant	Minor	Moderate	Major	Severe
Certain	Medium	High	High	Extreme	Extreme
Likely	Medium	Medium	High	High	Extreme
Possible	Low	Medium	Medium	High	Extreme
Unlikely	Low	Low	Medium	Medium	High
Rare	Low	Low	Low	Medium	High

Once risks have been assessed and rated, the most significant risks (those rated as high or extreme) are isolated for treatment/control. Those identified as moderate or low will continue to be monitored and reviewed if circumstances change.

Options to treat risk posed by stormwater assets include (but not limited to):

- Risk elimination
- Reduction in the cause or likelihood of the event occurring
- Reduction in the consequence or severity of the event if it were to occur
- Increasing maintenance
- Initiating improvements, which could include amending operating processes or procedures
- sharing risk through insurance or contracts
- accepting the risk as-is

TABLE 3: MAJOR RISKS RELATING TO STORMWATER ASSETS

RISK	CONSEQUENCE	LIKELIHOOD	RISK RATING*	TREATMENTS IN PLACE	RESPONSIBILITY	DUE DATE
Strategic targets and objectives not aligned to community expectation	Moderate	Possible	Moderate	Community Engagement (Public Consultation) Policy. Dedicated human resources to advise on consultation and engagement. Bi-annual community survey. Documented strategic plan consulted upon every 4 years.	Community Engagement Strategic Planning & Delivery	Ongoing
Worker or member of the public injured as a result of Council activities or using Council assets/facilities	Moderate	Unlikely	Moderate	Asset management plans, Internal and external condition assessments. Audited WHS Management System, Workplace Inspections, SOP's/SWMS/JSA, Job Dictionaries, training and education, procurement evaluation criteria (licences, certifications etc), site inspections / monitoring, site risk assessments	Assets & Infrastructure WHS and Risk Coordinator Operations & Environment	Ongoing
Significant breach of legislation, Council policies or frameworks	Moderate	Unlikely	Moderate	Training and education, Legal and LGA Updates. Delegations register. Security protocols and levels within corporate systems, Liability Insurance policy, memberships of professional bodies/ Local Government Networks, Internal and external audit program.	Assets & Infrastructure Finance & Strategy WHS and Risk Coordinator	Ongoing
Extreme weather events which result in requirement for significant unplanned capital renewal works			Low	Disaster recovery plans, crisis management plans, stormwater capacity study / preventative works- SEP clearance programme, asset insurance	Assets & Infrastructure WHS and Risk Coordinator Operations & Environment	Ongoing
Poor quality data within Asset Management systems			Moderate	Independent asset valuations, compliance with AASB, fully integrated financial and non-financial asset information, Strategic Asset Management system, regular condition monitoring programs, AMPs, work order system integration	Assets & Infrastructure	Ongoing
Failure to deliver and maintain infrastructure that is safe and adequately fits the needs of users			Low	Asset Management Plans, condition assessments, reactive and proactive maintenance programs, staff training, community survey, customer feedback, community engagement, strategic planning, Specifications reference Australian Standards	Assets & Infrastructure	Ongoing
Injury sustained during construction of infrastructure project (public / staff or contractor)			Moderate	Risk assessments undertaken prior to construction. Daily monitoring programs. Traffic control plans and security for sites. Staff training, procurement processes (requirement of licences etc)	Assets & Infrastructure Finance & Strategy Operations & Environment	Ongoing
Insufficient resources secured to deliver Asset Management Plan requirements			Moderate	Asset management plans reviewed every 4 years, costing of maintenance regimes, budgetary processes, LTFP	Assets & Infrastructure Finance & Strategy	Ongoing
Climate change impact			High	Delivery of the Adaptation Plans associated with ERA Resilient East Program	Operations & Environment	Ongoing

*Risk rating = residual risk rating with treatments in place

LIFECYCLE MANAGEMENT PLAN

This section outlines asset performance and condition information, and uses Asset Management principles to develop broad strategies and specific work programs to achieve the service standards previously outlined.

It presents an analysis of available asset information and the life cycle management plans covering the three key work activities to manage the stormwater network

- **Maintenance Plan**- Activities undertaken to ensure efficient operation and serviceability of the assets. This will ensure that the assets retain their service potential over the course of their useful life.

- **Renewal Plan**- Provides a program of

progressive renewal of individual assets. Deteriorating asset condition primarily drives renewal needs, with increasing maintenance costs also considered.

- **Enhancement Plan**- Provides a program of works to create new assets or substantially upgrade existing assets. Primarily driven by community, growth, social and/or environmental needs/desires.

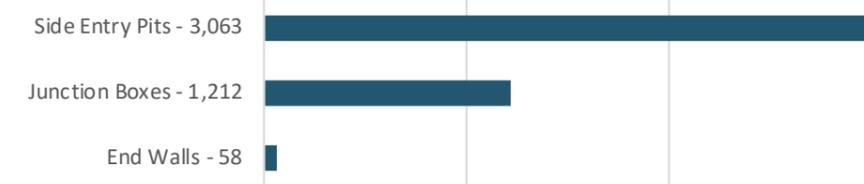


PHYSICAL PARAMETERS

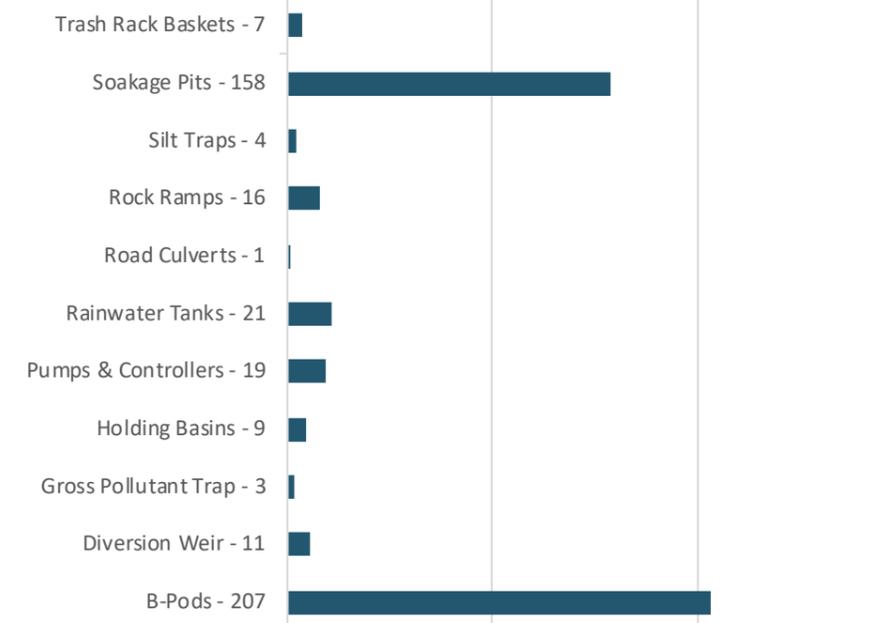
PIPES AND CULVERTS:



STORMWATER STRUCTURES:



STORMWATER QUALITY DEVICES:



ASSET CAPACITY AND PERFORMANCE

Stormwater studies | Council has undertaken a drainage infrastructure capacity analysis, referred to as the Stormwater Infrastructure Capacity Study (SICS). This study highlights areas prone to flooding and helps to prioritise future works.

Council uses the SICS to guide drainage improvement projects.

System Capacity | The SICS analysis proposed a prioritised list of infrastructure works using the following target standards of protection.

TABLE 4: CAPACITY ANALYSIS ARI ASSUMPTIONS

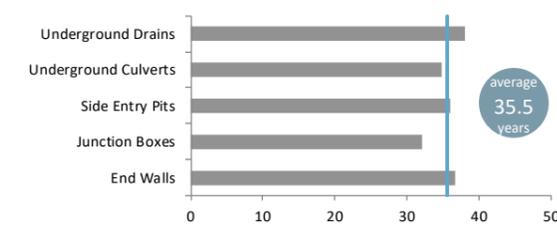
Situation	Average Recurrence Interval (typical costs)	Average Recurrence Interval (minimal added cost)
Where safe overland flow paths (such as the road network) are available	1 in 2 year event	1 in 5 year event
Trapped low points	1 in 20 year event	1 in 100 year event

Minor flooding | Further to the carrying capacity of the network are localised flooding issues identified separate to the SICS. These represent minor flooding and are recognised as affecting the level of service Council provides. These localised sites are addressed on a reactive basis once Council has been informed of their location.

ASSET CONDITION

For stormwater assets, common practice is to use age as an indicator of condition, and base renewals accordingly. Council's stormwater network age profile is shown below.

STORMWATER STRUCTURES:



STORMWATER QUALITY DEVICES:

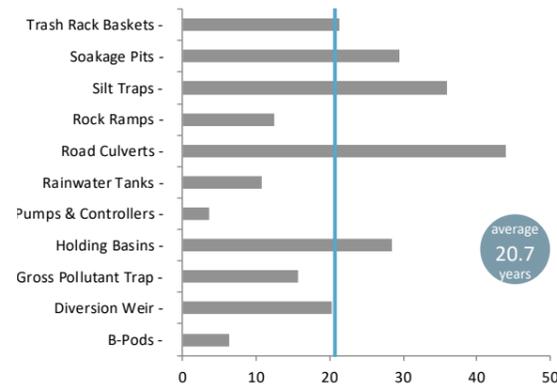


FIGURE 2: ASSET AGE



USEFUL LIVES AND UNIT RATES

TABLE 5: USEFUL LIVES AND UNIT RATES

Asset Group	Size / Type	Useful Life (years)	Unit Rate (\$)	Units
Underground Culverts	100x100	90	\$196.00	m
	100x200	90	\$196.00	m
	100x300	90	\$196.00	m
	150x300	90	\$196.00	m
	150x450	90	\$196.00	m
	200x600	90	\$220.50	m
	225x300	90	\$196.00	m
	225x375	90	\$196.00	m
	225x450	90	\$220.50	m
	225x600	90	\$220.50	m
	225x750	90	\$578.25	m
	250x375	90	\$196.00	m
	250x500	100	\$220.50	m
	275x375	100	\$196.00	m
	300x1200	100	\$819.19	m
	300x375	100	\$220.50	m
	300x450	100	\$220.50	m
	300x600	100	\$475.00	m
	300x750	100	\$578.25	m
	300x900	100	\$655.35	m
	400x1100	100	\$848.10	m
	400x600	100	\$522.50	m
	450x1200	100	\$939.16	m
	450x1700	100	\$1202.13	m
	450x750	100	\$638.63	m
	450x900	100	\$751.33	m
	520x820	100	\$751.33	m
	550x750	100	\$751.33	m
	600x1200	100	\$1356.96	m
	600x1250	100	\$1356.96	m

Asset Group	Size / Type	Useful Life (years)	Unit Rate (\$)	Units
Underground Culverts	600x1400	100	\$1484.18	m
	600x750	100	\$751.33	m
	700x900	100	\$832.68	m
	750x1200	100	\$1958.35	m
	750x900	100	\$884.72	m
	800x1200	100	\$2088.90	m
	800x1400	100	\$2219.46	m
	800x1600	100	\$3128.56	m
	850x1000	100	\$1040.85	m
	900x1200	100	\$2219.46	m
	900x1500	100	\$2611.13	m
	900x1800	100	\$3128.56	m
	1100x1700	100	\$3441.42	m
	1100x3000	100	\$5213.43	m
	1200x1200	100	\$2,102.00	m
	1200x1500	100	\$2,620.58	m
	1200x1800	100	\$3,139.15	m
	1200x2400	100	\$4,176.29	m
	1200x2700	100	\$5,011.55	m
	1200x3000	100	\$5,213.43	m
	1200x4200	100	\$7,820.15	m
	1300x1700	100	\$3,139.15	m
	1300x2100	100	\$3,560.77	m
	1350x2550	100	\$3,921.38	m
	1350x4200	100	\$7,121.54	m
	1370x3050	100	\$5,228.50	m
	1500x2100	100	\$3,921.38	m
	1500x3000	100	\$5,228.50	m
	1500x4000	100	\$6,797.05	m
	1800x2400	100	\$4,201.99	m
	1800x3300	100	\$5,243.67	m
	2000x2300	100	\$4,214.84	m

Asset Group	Size / Type	Useful Life (years)	Unit Rate (\$)	Units
Underground Drains	ASBESTOS 100	100	\$89.77	m
	ASBESTOS 150	100	\$126.12	m
	ASBESTOS 225	100	\$254.84	m
	ASBESTOS 300	100	\$254.84	m
	ASBESTOS 375	100	\$286.44	m
	ASBESTOS 450	100	\$344.77	m
	BLCKMAX 300	100	\$425.92	m
	BLCKMAX 600	100	\$514.43	m
	CONCRETE 150	100	\$254.84	m
	CONCRETE 225	100	\$254.84	m
	CONCRETE 300	100	\$254.84	m
	CONCRETE 275	100	\$254.84	m
	CONCRETE 375	100	\$286.44	m
	CONCRETE 450	100	\$344.77	m
	CONCRETE 525	100	\$425.92	m
	CONCRETE 575	100	\$514.43	m
	CONCRETE 600	100	\$514.43	m
	CONCRETE 675	100	\$584.36	m
	CONCRETE 750	100	\$621.99	m
	CONCRETE 825	100	\$691.07	m
	CONCRETE 900	100	\$911.46	m
	CONCRETE 975	100	\$911.46	m
	CONCRETE 1050	100	\$1,053.71	m
	CONCRETE 1100	100	\$1,053.71	m
	CONCRETE 1125	100	\$1,053.71	m
	CONCRETE 1200	100	\$1,327.95	m
	CONCRETE 1350	100	\$1,516.46	m
	CONCRETE 1425	100	\$3,267.69	m
	CONCRETE 1500	100	\$3,267.69	m
	CONCRETE 1575	100	\$3,267.69	m
	CONCRETE 2000	100	\$4,718.92	m
	CONCRETE 2100	100	\$4,718.92	m

Asset Group	Size / Type	Useful Life (years)	Unit Rate (\$)	Units
Underground Drains	ERTHNWRE 100	100	\$89.77	m
	ERTHNWRE 150	100	\$126.12	m
	ERTHNWRE 225	100	\$200.59	m
	ERTHNWRE 275	100	\$286.56	m
	ERTHNWRE 300	100	\$286.56	m
	PVC 80	100	\$89.77	m
	PVC 90	100	\$89.77	m
	PVC 100	100	\$89.77	m
	PVC 150	100	\$126.12	m
	PVC 225	100	\$200.59	m
	PVC 300	100	\$286.56	m
	PVC 375	100	\$350.49	m
	PVC 450	100	\$344.77	m
	RIBLOC 300	100	\$267.04	m
	RIBLOC 375	100	\$335.24	m
	RIBLOC 450	100	\$387.47	m
	RIBLOC 525	100	\$474.72	m
	RIBLOC 600	100	\$587.63	m
	RIBLOC 675	100	\$723.14	m
	RIBLOC 750	100	\$723.14	m
	RIBLOC 900	100	\$911.46	m
	STEEL 150	100	\$141.98	m
End Walls	Block	80	\$1,782.00	ea
	Concrete	80	\$1,782.00	ea
	Stone	80	\$1,782.00	ea
Junction Boxes	Type 1 (600x600 equiv)	80	\$1,783.18	ea
	Type 2 (900x900 equiv)	80	\$3,610.87	ea
Side Entry Pits	Single	80	\$2,346.55	ea
	Double	80	\$3,563.50	ea
	Triple	80	\$5,314.82	ea

Useful lives and unit rates for stormwater structures are from 'Infrastructure Fair Value: AASB13 & AASB116 Asset Accounting Methodology 1 July 2016' (Assetic). Useful lives and unit rates for all remaining stormwater assets are from 'Valuation – Financial Reporting – Various Asset Classes' (Maloney Field Services).

The total value of Council's stormwater assets is around \$115 million dollars

ASSET VALUATIONS

The value of Council's stormwater assets as at 1 July 2018 is summarised in the table below. The derivation of these figures is described within the Financial Summary section.

TABLE 6: ASSET VALUATION FIGURES

Asset Group	Current Replacement Cost	Depreciated Amount	Depreciated Replacement Cost	Annual Depreciation
Junction Boxes	\$6,628,960	\$2,687,092	\$3,941,868	\$82,862
Side Entry Pits	\$7,563,150	\$3,180,235	\$4,382,915	\$94,544
Underground Culverts	\$11,308,129	\$4,334,811	\$6,973,318	\$113,223
Underground Drains	\$81,482,874	\$33,516,094	\$47,966,780	\$814,829
End Walls	\$908,889	\$371,757	\$537,132	\$9,337
Stormwater Quality Devices	\$7,147,906	\$1,889,427	\$5,258,479	\$124,458
TOTAL	\$115,039,908	\$45,979,415	\$69,060,492	\$1,239,253

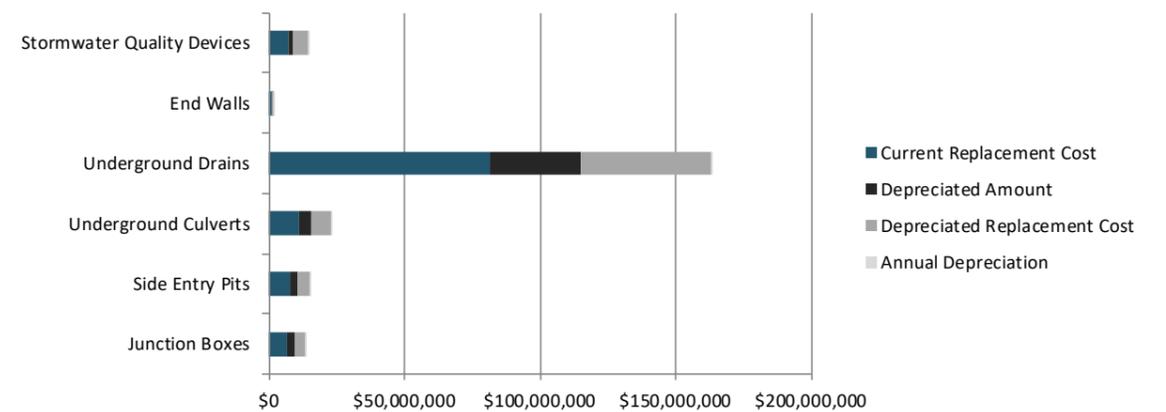


FIGURE 3: ASSET VALUATION

MAINTENANCE PLAN

Routine maintenance is the regular on-going work necessary to keep assets operating. Maintenance includes reactive and proactive work activities.

Reactive maintenance is unplanned repair work carried out in response to service requests and management/supervisory directions. An example of this type of maintenance is urgent repairs due to flooding.

Proactive maintenance is repair work that is identified and managed through a maintenance management system (MMS). MMS activities include inspection, assessing the condition against failure/breakdown experience, prioritising, scheduling, actioning the work and reporting what was done to develop a maintenance history and improve maintenance and service delivery performance. An example of this type of maintenance are the proactive annual side entry pit clearance program.

Maintenance expenditure trends are shown on the following page.

Maintenance expenditure has trended downward over the past few years as more assets are renewed or replaced, requiring less maintenance work.



MAINTENANCE EXPENDITURE

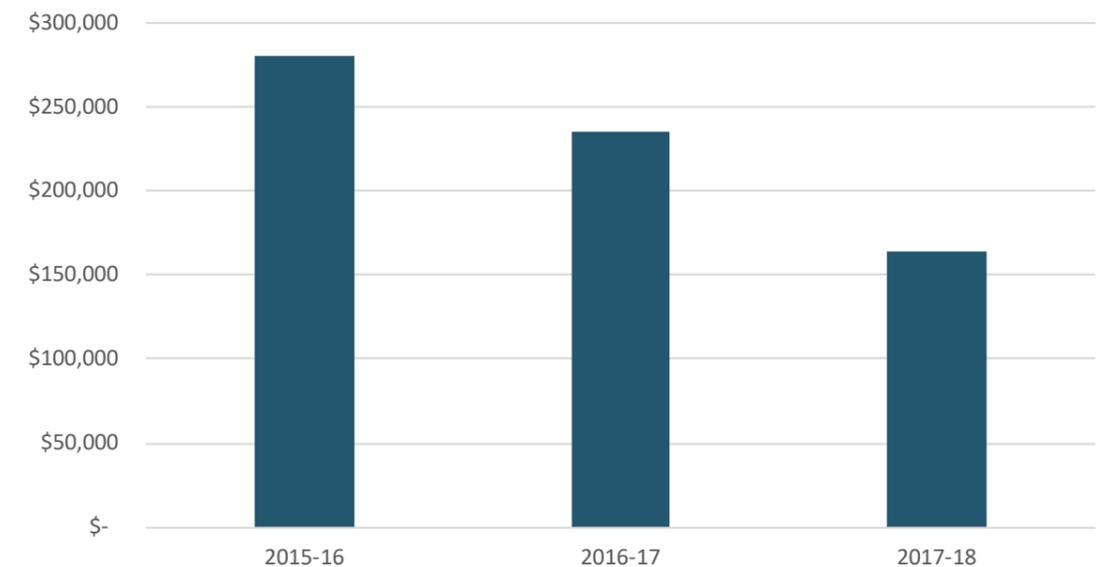


FIGURE 4: MAINTENANCE EXPENDITURE TRENDS

STANDARD AND SPECIFICATIONS

Maintenance work is carried out in accordance with the following specifications:

- Contract Document WKS0215
- Council's Standard Drawings
- Council's Specification documents
- Council's Watercourse Management Policy
- Council's Water Sensitive Urban Design Policy

FUTURE MAINTENANCE EXPENSES

Future maintenance costs are forecast to trend in line with the value of the asset stock, plus an allowance for increase as a result of stormwater capacity improvement projects.

RENEWAL PLAN

Renewal expenditure is major work that restores, rehabilitates, replaces or renews an existing asset.

Assets requiring renewal are identified through Council's stormwater capacity study, in response to continued localised flooding complaints, and in conjunction with overall streetscape works. Proposed renewals are inspected to verify accuracy of remaining life estimate and to develop a preliminary renewal estimate. Verified proposals are ranked by priority and available funds and scheduled into future works programmes.

RENEWAL PRIORITISATION

The decision criteria for major stormwater renewal includes:

- Complementary to other works at the drainage location (i.e. drainage upgraded in conjunction with re-kerbing works)
- Property damage reduction
- Flood frequency reduction
- Minor flooding
- High maintenance areas (i.e. areas with a high maintenance requirement which would be reduced through a stormwater renewal project)

It is important to note that many stormwater drainage infrastructure works are under roads, which have their own construction priority and drainage works are timed with these accordingly where possible.

RENEWAL STANDARDS

Renewal work is generally carried out to current standards and capacity (or modern equivalent), unless there is solid justification and data to support a change.

REQUIRED RENEWAL EXPENDITURE

Projected future renewal expenditure is forecast to remain relatively stable, with the exception of the first year where additional funding has been allocated to address priority items identified through audits of First and Second Creeks following flood events in late 2016. Note that forecast investment is higher than ARRE as most stormwater assets are renewed to address flooding risk, as opposed being as a result of age or condition. All costs are shown in current 2019/20 dollar values.

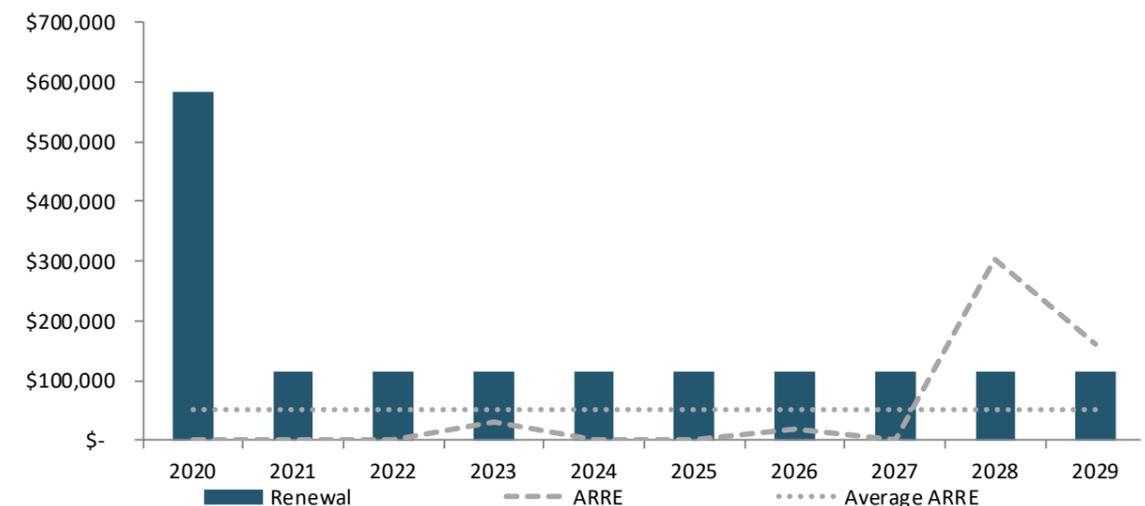


FIGURE 5: FORECAST RENEWAL EXPENDITURE

IMPACT OF DEFERRING RENEWAL WORKS

Renewal works may be deferred if the cost (or aggregate cost) is beyond the current financial ability to fund. This can occur when there are short term renewal profile peaks, or higher priority works are required on other infrastructure asset groups.

When renewal works are deferred, the impact of the deferral on the assets ability to still provide the required level of service will be assessed. Although the deferral of some renewal works may not impact significantly on the short-term operation of the assets, repeated deferral will create a liability (backlog) in the longer term, and this needs to be taken into account before making a decision to defer.

ENHANCEMENT PLAN

New works are those works that create a new asset that did not previously exist. They may result from growth, social or environmental needs. Assets may also be acquired at no cost to the Council from land development or through 'gifts' provided to the Council.

SELECTION CRITERIA

The need for new assets arises from various sources, including community requests, Council resolutions, proposals identified through strategic plans, or partnerships with other organisations. Potential proposals are inspected to verify need and to develop preliminary estimates. Verified proposals are ranked by priority and available funds and scheduled in future works programmes.

As for renewal works, the decision criteria for major stormwater enhancement includes:

- Complementary to other works at the drainage location (i.e. drainage upgraded in conjunction with re-kerbing works)
- Property damage reduction
- Flood frequency reduction
- Minor flooding
- High maintenance areas (i.e. areas with a high maintenance requirement which would be reduced through a stormwater renewal project)

FORECAST NEW ASSET EXPENDITURE

Planned new asset expenditures is summarised in Figure 6. All costs are shown in current 2019/20 financial year dollar values.

DISPOSAL OF ASSETS

Disposal of drainage assets associated with renewal projects are not itemised, as they are included in renewal costs. Pit and large pipe disposal are offset by reduced excavation costs, and small pipe disposal costs are offset in part by occasional salvage and re-use. The existing excavation is typically either incorporated into the new pavement or removed as part of the excavation for new construction

There is occasionally some loss on disposal incurred where assets fail earlier than expected. This occurs as useful lives are developed based on the average lifespan for a particular type of asset, and there are occasionally exceptions where individual assets do not last quite as long as anticipated. This loss is minimised by regularly reviewing the actual lifespans of assets and undertaking revaluations to adjust useful lives where required.

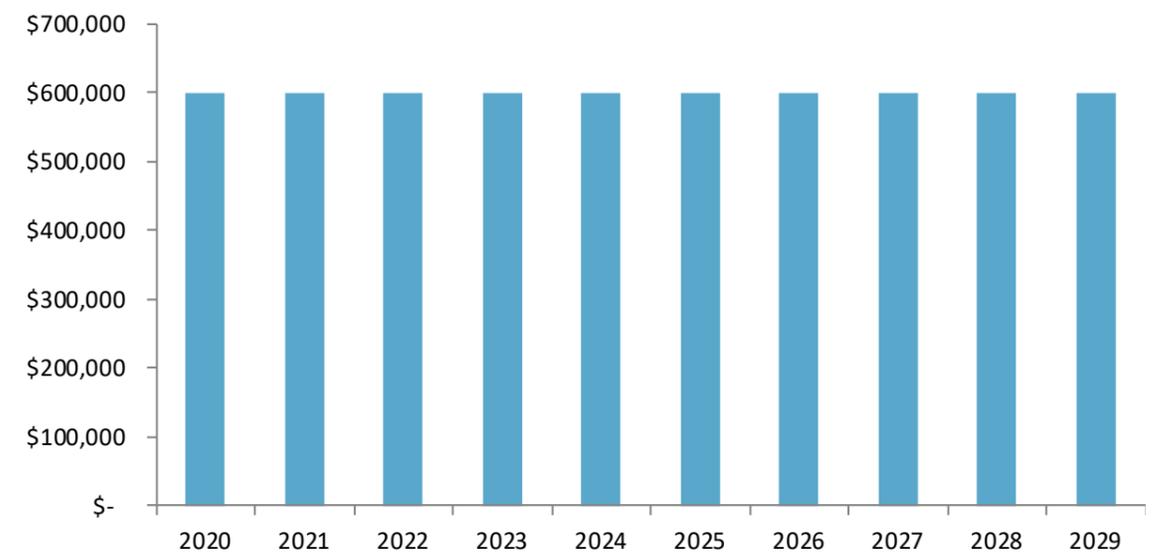


FIGURE 6: FORECAST NEW EXPENDITURE

FINANCIAL SUMMARY

This section contains the financial requirements resulting from all the information presented in the previous sections of this infrastructure and asset management plan.

FINANCIAL PROJECTIONS

Figure 7 highlights the financial projections for planned operating (maintenance) and capital expenditure (renewal and new) for stormwater assets. The target is to retain relatively stable levels of operating expenditure for all asset types.

Projected expenditure is to be funded from Council’s maintenance, operating, and capital budgets. The funding allocation is detailed in Council’s 10-year Long Term Financial Plan (LTFP).

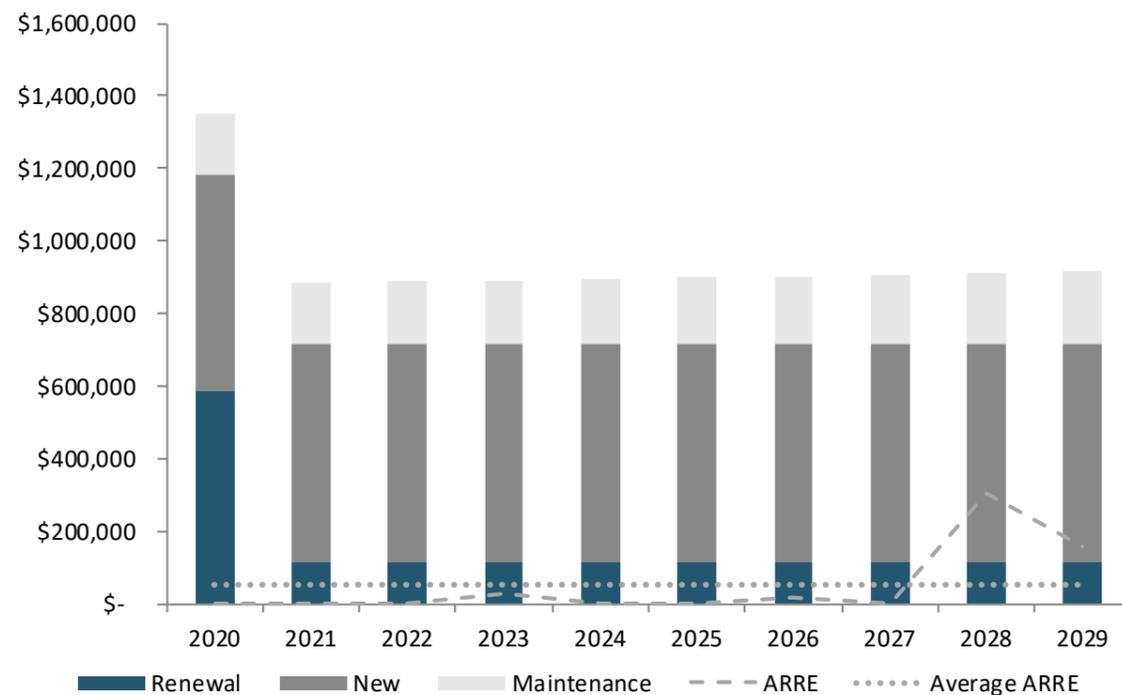


FIGURE 7: TOTAL FORECAST EXPENDITURE - STORMWATER ASSETS

As can be seen, for Stormwater assets, there is a disparity between the LTFP and the ARRE, however, the ARRE is not the main driver for asset investment. The majority of future expenditure will be used to construct projects as highlighted by the Stormwater Infrastructure Capacity Study for flood mitigation purposes. The higher costs in 2020 reflect the work that will be done as a result of identified creek audit priorities.

KEY ASSUMPTIONS

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

Key assumptions made in this infrastructure and asset management plan are:

- All costs are shown in 2018/19 financial year dollar values.
- General assumptions have been made in the replacement of assets based on the asset type. For example, asbestos pipes are replaced with concrete pipes.
- The required renewal expenditure assumes that the community is content with the current levels of service across the entire asset category, which is confirmed through the consultation

process for asset management plans. Should these levels of service be refined through future community consultation, it could have a significant impact on the intervention levels used and funding required.

- Replacement works will be valued based on actual costs of work, the brownfield cost.

PLAN IMPROVEMENT AND MONITORING

MONITORING AND REVIEW PROCEDURES

This figures within this infrastructure and asset management plan will be reviewed annually as part of Council's long term financial plan review process and amended to recognise any changes in service levels, valuations, conditions and/or resources available to provide those services.

The Plan has a life of 4 years and is due for full revision and updating within 2 years of each Council election.

IMPROVEMENT PLAN

Council is committed to working to continuously improve the quality and rigour of our Asset Management practices. The asset management improvement plan generated from this infrastructure and asset management plan is shown below.

TABLE 7: IMPROVEMENT PLAN

Item	Task	Responsible Department	Target Date	Funded By
1	Maintenance Service Agreement – establish current levels of service, covering maintenance activities and service standards, to reflect the work undertaken with the current budget	Operations Services and Assets & Infrastructure	June 2019	Internal Resources
2	Stormwater Network Asset Inspections – Develop a regime covering inspection program and reporting and recording mechanisms.	Operations Services and Assets & Infrastructure	December 2019	Internal Resources
3	Risk Assessment – examine and assess potential risks associated with the stormwater network	Assets & Infrastructure	Ongoing	Internal Resources
4	Use feedback obtained from annual community survey to confirm and / or update asset management plan	Assets & Infrastructure	Ongoing	Internal Resources



The City of Burnside is committed to continuously improving the quality and rigour of our asset management practices

GLOSSARY

Term	Definition
A Annual Required Renewal Expenditure (ARRE)	The amount needed to be spent in a given year to maintain assets to their agreed level of service.
Annual service cost (ASC)	The Annual Service Cost includes operating, maintenance, depreciation, finance/ opportunity and disposal costs, less revenue
Asset condition assessment	The process of continuous or periodic inspection, assessment, measurement and interpretation of the resultant data to indicate the condition of a specific asset so as to determine the need for preventative or remedial action
Asset group	Grouping of assets of a similar nature and use in an entity's operations (AASB 166.37)
Asset management	The combination of management, financial, economic, engineering and other practices applied to physical assets with the objective of providing the required level of service in the most cost effective manner.
Assets	Resources owned by the organisation which have future economic value (AAS27.12).

Term	Definition
Average annual asset consumption (AAAC)	The value of asset base consumed during a year. This may be calculated by dividing the Depreciable Amount (DA) by the Useful Life and totalled for each and every asset OR by dividing the Fair Value (Depreciated Replacement Cost) by the Remaining Life and totalled for each and every asset in an asset category or class.
B Backlog	Refers to renewal work that has not been carried out, which is required to bring the condition of the asset up to a standard that will enable it to meet agreed service levels.
Brownfield asset values	Asset (re)valuation values based on the cost to replace the asset including demolition and restoration costs.
C Capital expenditure	Expenditure which contributes to or results in a physical asset. Also referred to as Capital Investment Expenditure.
Capital grants	Monies received from another party, which are generally tied to the specific projects for which they are granted.
Capital new expenditure	Expenditure which creates a new asset that is additional to Council's previous asset complement.
Capital renewal expenditure	Expenditure to replace or rehabilitate an existing asset.
Component	An individual part of an asset which contributes to the composition of the whole and can be separated from or attached to an asset or a system
Componentisation	The practice of considering the components of a fixed asset individually, to account for the fact that these components have unique physical and economic lives.
Cost of an asset	The amount of cash or cash equivalents paid or the fair value given to acquire an asset at the time of its acquisition or construction, plus any costs necessary to place the asset into service. This includes one-off design and project management costs

Term	Definition
Current replacement cost (CRC)	The cost the entity would incur to acquire the asset on the reporting date. The cost is measured by reference to the lowest cost at which the gross future economic benefits could be obtained in the normal course of business or the minimum it would cost, to replace the existing asset with a technologically modern equivalent new asset with the same economic benefits allowing for any differences in the quantity and quality of output and in operating costs
Current replacement cost 'as new' (CRC)	The current cost of replacing the original service potential of an existing asset, with a similar modern equivalent asset.
Cyclic maintenance	Replacement of higher value components/sub-components of assets that is undertaken on a regular cycle.
D Depreciable amount	The cost of an asset, or other amount substituted for its cost, less its residual value (AASB 116.6)
Depreciated replacement cost (DRC)	The current replacement cost (CRC) of an asset less, where applicable, accumulated depreciation calculated on the basis of such cost to reflect the already consumed or expired future economic benefits of the asset
Depreciation / amortisation	The systematic allocation of the depreciable amount (service potential) of an asset over its useful life
E Economic life	Refer useful life
F Fair value	The amount for which an asset could be exchanged, or a liability settled, between knowledgeable, willing parties, in an arms-length transaction
G Greenfield asset values	Asset (re)valuation values based on the cost to initially acquire the asset
Group of assets	Refer asset group
H Heritage asset	An asset with historic, artistic, scientific, technological, geographical or environmental qualities that is held and maintained principally for its contribution to knowledge and culture and this purpose is central to the objectives of the entity holding it.

Term	Definition
I Infrastructure assets	Physical assets of the entity or of another entity that contribute to meeting the public's need for access to major economic and social facilities and services, eg. roads, drainage, footpaths and cycleways. The components of these assets may be separately maintained, renewed or replaced individually so that the required level and standard of service from the network of assets is continuously sustained. Generally the components and hence the assets have long lives. They are fixed in place and are often have no market value
L Level of service	The defined service quality for a particular service from an asset. Service levels usually relate to quality, quantity, reliability, responsiveness, environmental, acceptability and cost.
M Maintenance and renewal gap	Difference between estimated budgets and projected expenditures for maintenance and renewal of assets, totalled over a defined time (eg 5, 10 and 15 years)
Maintenance expenditure	Recurrent expenditure, which is periodically or regularly required as part of the anticipated schedule of works required to ensure that the asset achieves its useful life and provides the required level of service.
Modern equivalent asset	A structure similar to an existing structure and having the equivalent productive capacity, which could be built using modern materials, techniques and design.
N Non-revenue generating investments	Investments for the provision of goods and services to sustain or improve services to the community that are not expected to generate any savings or revenue to the Council, eg. parks and playgrounds, footpaths, roads and bridges, libraries, etc.
O Operating expenditure	Expenditure which does not result or contribute to a physical asset.
P Planned maintenance	Repair work that is identified and managed through a maintenance management system (MMS). MMS activities include inspection, assessing the condition against failure/breakdown criteria/experience, prioritising scheduling, actioning the work and reporting what was done to develop a maintenance history and improve maintenance and service delivery performance.
R Rate of annual asset consumption	A measure of average annual consumption of assets (AAAC) expressed as a percentage of the depreciable amount (AAAC/DA).

Term	Definition
Rate of annual asset renewal	A measure of the rate at which assets are being renewed per annum expressed as a percentage of depreciable amount (capital renewal expenditure/DA).
Reactive maintenance	Unplanned repair work that carried out in response to service requests and management/supervisory directions.
Recoverable amount	The higher of an asset's fair value less costs to sell and its value in use
Remaining life	The time remaining until an asset ceases to provide the required service level or economic usefulness.
Renewal	Refer capital renewal expenditure
Residual value	The net amount which an entity expects to obtain for an asset at the end of its useful life after deducting the expected costs of disposal
Revenue generating investments	Investments for the provision of goods and services to sustain or improve services to the community that are expected to generate some savings or revenue to offset operating costs, eg public halls and theatres, childcare centres, sporting and recreation facilities, etc.
Risk management	The application of a formal process to the range of possible values relating to key factors associated with a risk in order to determine the resultant ranges of outcomes and their probability of occurrence.
S Section or segment	A self-contained part or piece of an infrastructure asset.
Strategic plan	Documents Council objectives and goals for a specified period (3-5 yrs).
U Useful life	<p>Either:</p> <p>(a) the period over which an asset is expected to be available for use by an entity, or</p> <p>(b) the number of production or similar units expected to be obtained from the asset by the entity.</p> <p>It is estimated or expected time between placing the asset into service and removing it from service, or the estimated period of time over which the future economic benefits embodied in a depreciable asset, are expected to be consumed by the council.</p>