STORMWATER DRAINAGE ASSET MANAGEMENT PLAN

LODDON
SHIRE

DOCUMENT INFORMATION

DOCUMENT TYPE:	Strategic document
DOCUMENT STATUS:	Approved
POLICY OWNER POSITION:	Manager Assets and Infrastructure
INTERNAL COMMITTEE ENDORSEMENT:	Not applicable
APPROVED BY:	Council
DATE ADOPTED:	22/02/2022
VERSION NUMBER:	1
REVIEW DATE:	22/02/20226
DATE RESCINDED:	Click here to enter a date.
RELATED STRATEGIC DOCUMENTS, POLICIES OR PROCEDURES:	Council Plan Asset Management Policy Asset Management Strategy Road Management Plan Financial Plan Community Plan Annual Budget Disability Access and Inclusion Plan 2018-2021
RELATED LEGISLATION:	*Local Government Act 2020* *Road Management Act 2004* *Transport Act 1983* *Road Safety Act 1986* *Occupational Health and Safety Act 2004* *Loddon Shire Council – Local Law No 2 – Roads and Streets Local Law*
EVIDENCE OF APPROVAL:	 Signed by Chief Executive Officer
FILE LOCATION:	K:\EXECUTIVE\Strategies policies and procedures\Strategies - adopted PDF and Word\STR Stormwater Asset Management Plan V1.docx

Strategic documents are amended from time to time, therefore you should not rely on a printed copy being the current version. Please consult the Loddon Shire website to ensure that the version you are using is up to date.

This document is available in alternative formats (e.g. larger font) if requested.

ACKNOWLEDGEMENT OF COUNTRY

Loddon Shire Council acknowledges the Traditional Custodians of the land comprising the Loddon Shire Council area. Council would like to pay respect to their Elders both past and present.

CONTENTS

LIST OF TABLES

LIST OF FIGURES

1 EXECUTIVE SUMMARY

1.1 Purpose of the plan

This asset management plan has been developed in accordance with Council's Asset Management Policy and principles of the Asset Management Strategy (Objectives).

This asset management plan details information about Council's stormwater assets. The plan outlines the management approach to:

- describing and aligning the assets to services (as informed by corporate and service planning)
- managing the future demand for assets to achieve and maintain financial sustainability
- optimising the lifecycle management of assets (achieving service demand at lowest lifecycle cost)
- identifying and managing risks associated with the relevant asset (including criticality and condition)
- what funds (operating and capital) are required to operate the asset portfolio in alignment with the asset management plan over a 10-year planning period
- continual improvement in the management of the assets and performance monitoring.

1.2 Asset description

This plan covers Council's stormwater assets which contribute to the community by:

- removing surplus stormwater run-off through an infrastructure network of pits and pipes;
- minimising the effects of flooding;
- protecting natural waterbodies by improving the quality of run-off entering watercourses.

Loddon Shire Council provides a stormwater management service to protect property and public health by safely and efficiently collecting, transporting, treating (if necessary) and disposing of stormwater runoff. This includes managing a network of stormwater assets of pits and pipes and other drainage infrastructure.

Council's stormwater network comprises some 41 km of underground pipes and open channels and 843 drainage pits of various types.

Asset description	Asset quantity	Units
Drainage Pits	843	No.
Drainage Pipes	41,115	metres

These infrastructure assets have a replacement value of ***$15,869,788.***

1.3 Levels of service

Currently our Council does not have well documented levels of service for its stormwater assets. Management of assets, including intervention points and chosen treatment methods, is based upon standard historical practices (effectively undocumented levels of service) and decisions made by management on an ad hoc basis. This is a key improvement area required to direct our future management approach and investment.

Our present funding levels are sufficient to continue to provide existing services at the current levels in the short- to medium-term. However, asset renewals and upgrades are necessary in the longer term, with medium confidence in the ability to assess the current risk of asset failure. This plan, and future revisions, will inform the long-term financial planning for necessary renewal and future upgrades.

1.4 Future demand

The main demands for new services are created by:

- population change
- Council financial sustainability
- Council operational and services priority changes
- climate change

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.

1.5 Lifecycle management plan

Lifecycle planning describes the approach to maintaining an asset from construction to disposal. It involves the prediction of future performance of an asset, or a group of assets, based on investment scenarios and maintenance strategies.

Our current approach to managing and operating our stormwater assets is predominantly reactive with only limited planning. We are striving to improve our approach to lifecycle management to make sure that we deliver on our service commitments in the most cost effective and efficient manner.

1.6 Financial summary

The projected outlays necessary to provide the services covered by this plan includes renewal, upgrade and new assets over the 10-year planning period is ***$8.20M*** or ***$820K*** on average per year.

Operations and Maintenance costs are allocated and captured as part of overall roads funding. Separate analysis was not undertaken on this funding but anecdotal evidence suggest it is adequate.

1.6.1 What funding sources are available

Estimated available funding for renewal, upgrade and new assets for the next 10 financial years is ***$3.43M*** or ***$343K*** on average per year as per the Financial Plan. This is ***42%*** of the cost to sustain the current level of service at the lowest lifecycle cost.

Council officers do not agree with the projected outlays evaluated by the modelling. The renewals are driven by the condition of the network, itself which has been inferred by the asset age. This is an inaccurate method of determining the condition of stormwater assets. The inferred condition profile of Council's stormwater network suggests widespread asset failures would be occurring which is currently not the case.

The funding as per the Financial Plan has been recommended as adequate while further investigations are undertaken on the condition of the stormwater network after which renewal projections will be updated.

1.6.2 What we will do to improve renewal modelling

Council seeks to improve its renewal modelling by:

- undertaking visual condition assessments of the stormwater network using cameras
- review the asset expected lives after undertaking visual assessments
- updating the modelling renewal projections using the updated condition and expected asset life data.

1.7 Risk management

There are risks associated with providing the service and not being able to complete all identified activities and projects.

The main risks are:

- insufficient funding for maintenance, renewal, and upgrade of the stormwater drainage system;
- confidence levels surrounding data associated with our stormwater assets;
- localised flooding and possible damage/ inconvenience due to flooding.
- stormwater assets become unfit for intended purpose and no longer meet required standards
- pollution of natural waterways
- Failure of stormwater pump stations

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

- Regular inspections to identify hazards before they occur
- Collation of data relating to stormwater assets
- Implementing condition and performance assessments of stormwater assets to identify and prioritise items that may be due for replacement/upgrade.

1.8 Asset management practices

Council's Asset Management Framework provides a structured approach for the development, coordination, and control of our activities on assets over their life cycle, and for aligning these activities with our vision and strategic objectives.

Council's asset management planning is supported by three key documents:

- Asset Management Policy
- Asset Management Strategy
- asset management plans.

Our systems to manage assets include:

Finance and accounting – *Attache*
Asset management system – Moloney

Assets requiring renewal/replacement are identified using a combination of an analysis of the long-term financial needs at a network level and Council's asset information to identify specific assets requiring renewal at a project.

1.9 Monitoring and improvement program

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

- improve the completeness and accuracy of Council's stormwater drainage information.
- undertake hydraulic modelling of the stormwater network and map areas of where capacity issues exist.
- develop a hierarchy system and criticality framework for the classification of Council's stormwater drainage assets.

2 PURPOSE

This asset management plan has been developed in accordance with Council's Asset Management Policy and principles of the Asset Management Strategy (Objectives).

This asset management plan details information about Council's stormwater assets. The plan outlines the management approach to:

- describing and aligning the assets to services (as informed by corporate and service planning)
- managing the future demand for assets to achieve and maintain financial sustainability
- optimising the lifecycle management of assets (achieving service demand at lowest lifecycle cost)
- identifying and managing risks associated with the relevant asset (including criticality and condition)
- what funds (operating and capital) are required to operate the asset portfolio in alignment with the asset management plan over a 10-year planning period
- continual improvement in the management of the assets and performance monitoring.

3 BUDGET IMPLICATIONS

The projected outlays necessary to provide the services covered by this plan includes renewal, upgrade and new assets over the 10-year planning period is ***$8.20M*** or ***$820k*** on average per year. Council officers do not agree with the projections and recommend the funding as per the Financial Plan is adopted while further investigations on the condition of the stormwater network are undertaken. After this, renewal projections and the projected outlay to provide the services will be updated. Therefore, recommended renewal funding from this plan for the next 10 years is ***$3.43M*** or ***$343k.*** This will be reviewed after the investigations of the network and renewal modelling is updated which may occur before the end of the 10 year period. Analysis of operations and maintenance costs was not undertaken, however existing roads funding is considered adequate within the current Financial Plan.

4 RISK ANALYSIS

There are risks associated with providing the service and not being able to complete all identified activities and projects.

The main risks are:

- insufficient funding for maintenance, renewal, and upgrade of the stormwater drainage system
- confidence levels surrounding data associated with our stormwater assets
- localised flooding and possible damage/ inconvenience due to flooding
- stormwater assets become unfit for intended purpose and no longer meet required standards
- pollution of natural waterways
- failure of stormwater pump stations.

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

- regular inspections to identify hazards before they occur
- collation of data relating to stormwater assets
- implementing condition and performance assessments of stormwater assets to identify and prioritise items that may be due for replacement/upgrade.

5 INTRODUCTION

5.1 Background

This asset management plan outlines the required management approach to:

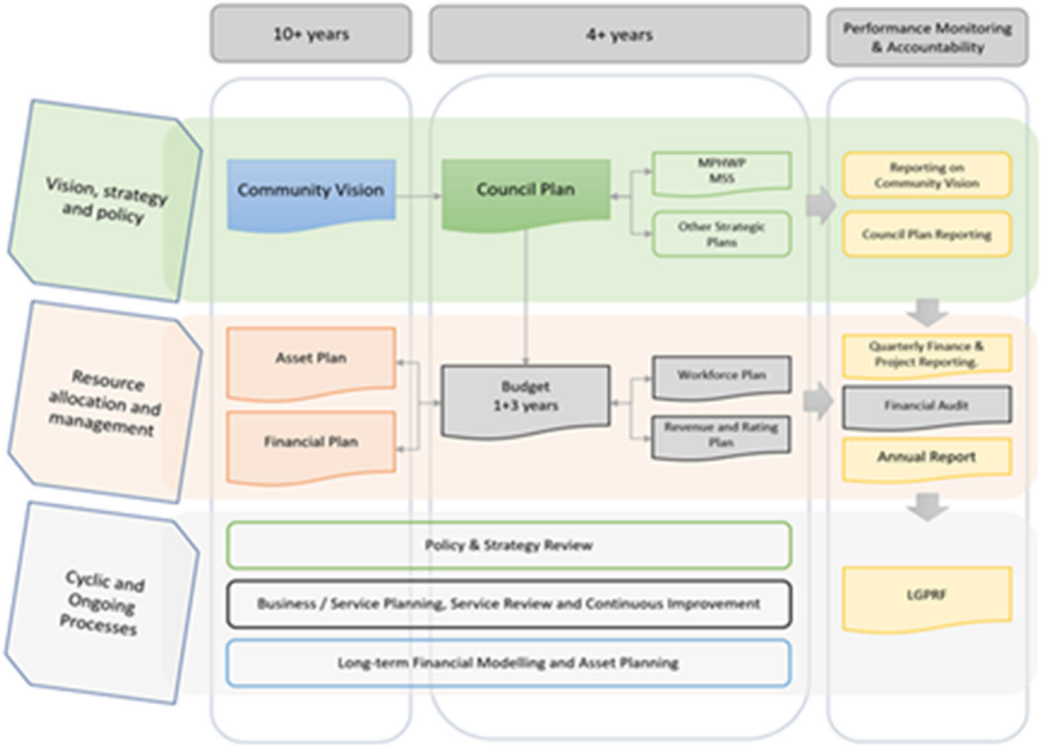
- describing and aligning the assets to services (as informed by corporate and service planning)
- managing the future demand for assets to achieve and maintain financial sustainability

- optimising the lifecycle management of assets (achieving service demand at lowest lifecycle cost)
- identifying and managing risks associated with the relevant asset (including criticality and condition)
- what funds (operating and capital) are required to operate the asset portfolio in alignment with the asset management plan over a 10-year planning period
- continual improvement in the management of the assets and performance monitoring.

This asset management plan is to be read with Council's Asset Management Policy and Asset Management Strategy along with Council's Community Plan and Council Plan.

Figure 1 shows the different documents that influence and inform this asset management plan.

Figure 1 - Asset management document relationship



The stormwater network includes surface and sub-surface items except for kerb and gutter which is considered integral to the road network and is included in the Road Asset Management Plan. These assets are used to provide stormwater conveyance and treatment services to the community.

The infrastructure assets covered by this asset management plan are shown in the following table.

Table 1 - Assets covered by this plan

Asset category	Asset group	Quantity	Unit	Current replacement value ($)	Accumulated depreciation ($)	Depreciated replacement cost ($)	Useful life (years)
Stormwater Pits	Inspection Opening	37	No.	$15,330	$11,823	$3,508	50
	Junction Pit	280	No.	$566,425	$286,966	$279,459	50
	Side Entry Pit	243	No.	$563,962	$364,293	$199,669	50
	Endwall	265	No.	$255,744	$202,296	$53,448	50
	Concrete Pit	4	No.	$6,460	$5,506	$954	50
	GPT	1	No.	$30,029	$5,503	$24,525	50
	Pumping Station	1	No.	$48,047	$8,806	$39,242	50
	Pump	4	No.	$40,539	$34,655	$5,884	50
	No Outlet Structure	1	No.	$2,025	$1,883	$142	50
	Steel Door Stop	1	No.	$824	$824	$0	50
	Drop Structure	2	No.	$4,879	$4,073	$805	50
	Korong vale Wetland	1	No.	$36,036	$6,604	$29,432	50
	Flood Control Structure	3	No.	$74,431	$24,548	$49,882	50
Stormwater Pits Total		843	No.	$1,644,731	$957,782	$686,949	
Stormwater Pipes	Culvert	2,502	metres	$1,652,782	$909,584	$743,198	80
	Open Stormwater Channel	9,072	metres	$6,662,854	$3,815,966	$2,846,888	80
	Stormwater Main	29,541	metres	$5,909,421	$2,619,212	$3,290,209	80
Stormwater Pipes Total		41,115		$14,225,057	$7,344,762	$6,880,295	

5.2 Plan framework

This asset management plan has been prepared using good practice guidance from the *ISO55000 - Asset Management standard, International Infrastructure Management Manual* and has been developed based on existing processes, practices, data, and standards.

Council is committed to striving towards best appropriate asset management practices and it is recognised that this asset management plan will need to be updated periodically to reflect changes to management of Council's assets.

It is intended that Council's asset management plans should always reflect as closely as practicable actual practices used in managing its assets. Only in this way will Council be best able to ascertain its long-term financial needs for delivering sustainable assets and services.

5.3 Key stakeholders

Our assets are utilised by a broad cross-section of the community.

A stakeholder represents any group(s) or individuals having an interest, in this case, in the service provided by our assets. The stakeholders in the management of Council's stormwater drainage assets are many and often their needs are wide-ranging.

The relevant key stakeholders are:

- Councillors
- general public
- local businesses
- land developers
- catchment management authorities
- neighbouring councils
- internal stakeholders including Council teams responsible for maintenance coordination and project delivery
- contractors and/or suppliers
- insurers

The community's needs and expectations are subject to change frequently and are becoming more demanding manifested by demands for services that provide better quality, value for money, environmental awareness and relevant value adding.

This plan will demonstrate to the various stakeholders that Council is managing its stormwater drainage assets in a responsible manner.

5.4 Goals and objectives of asset ownership

Our goal in managing infrastructure assets is to meet the defined range and levels of service in the most cost-effective manner for present and future consumers.

By achieving the most cost-effective approach, we will contribute to affordability and liveability contributing to a vibrant, growing, and connected community.

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 that meet the defined levels of service
- identifying, assessing and appropriately controlling risks

- linking to a financial plan which identifies required, affordable expenditure and how it will be allocated

6 LEVELS OF SERVICE

This section defines the level of service or performance criteria that are required and the basis of the decision behind their adoption. The levels of service support Council's strategic goals and are based on customer expectation and statutory requirements.

6.1 Strategic and corporate goals

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

Our Community Vision is:

> *Creating a community where everyone is welcome and has the opportunity to live, work and thrive.*

Relevant Council strategies and Council's role are listed below in Table 2.

Table 2 - Link to Council strategies

Strategy	Council's role
1.1 We will implement financially and environmentally sustainable infrastructure that supports our social and economic needs	
1.1.1 Plan for future facilities and infrastructure that meet community need Finalise asset management plans and long term strategies for Council assets ▪ We will do this by reviewing and implementing asset management plans across all asset classes to ensure they reflect the current environment	**Deliver**

Council will exercise its duty of care to ensure public safety in accordance with the infrastructure risk management plan prepared in conjunction with this asset management plan.

6.2 Functional hierarchy

Council stormwater assets are classified according to a hierarchy in terms of their specific function, demand, capacity, use patterns, and potential risk. The hierarchy classification is used to assist in prioritising works programs and intervention responses to remedy defects.

Council presently does not have a functional hierarchy for its stormwater assets. A recommended service hierarchy is provided in Table 3.

Table 3 - Asset functional hierarchy: Stormwater

Service Hierarchy	Service Level Objective
Level 1 - Main trunk drainage system	Maintain main trunk drainage system and respective elements (inclusive of pits, pipes, open channels and detention basins) such that the risk of flooding residences is mitigated.
Level 2 - Collector drainage system	Maintain collector drainage systems and their elements (inclusive of pits, pipes, open channels) such that the risk of flooding property is mitigated
Level 3 - Minor collector drainage system	Maintain minor collector drainage system and their elements (inclusive of pits, pipes, open channels) such that the risk of flooding property is mitigated

6.3 Alignment to services

The assets covered by this asset management plan contribute and support the delivery of the following Council services:

Table 4 - Services delivered by assets

Asset type	Council service category	Service delivered
Stormwater Drainage Infrastructure	Urban Stormwater Drainage Infrastructure	Stormwater is managed from both a quality and quantity measure.

These services align with Council's service planning and delivery framework.

6.4 Levels of service

Service levels are defined in two types, customer levels of service and technical levels of service. At present, indications of current and target levels of service are obtained from various sources including:

- residents' feedback to Council and staff
- operations staff feedback to management
- feedback from other stakeholders
- service requests and related correspondence entered in Council's Customer Request System
- physical measurements of quality standards
- legislative standards (minimum requirements).

In future, it is also expected that Council will undertake deliberative community engagement to validate these levels of service.

6.4.1 Customer levels of service

Customer levels of service measure how the customer receives the service and whether value to the customer is provided in terms of:

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 target performance associated with the customer service levels are detailed in Table 5.

Table 5 - Customer levels of service

Key performance measure	Level of service objective	Performance measure process	Current performance	Target performance
Quality	Well maintained drainage infrastructure which is fit for purpose.	Number of customer service requests relating to failures and defects such as blockages, flooding, broken pit lids, pollutant in waterways.	To be determined	To be determined
Function	Drainage infrastructure is fit for purpose and meets customer needs.	Number of customer service requests relating to water ponding and safety issues.	To be determined	To be determined
Capacity/ Utilisation	Properties are not flooded Minimal inconvenience from storm flows in the drainage network Roads and footpaths remain useable	Number of private properties flooded for a 1 in 10 year rainfall event	To be determined	To be determined

6.4.2 Technical levels of service

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

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

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

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

Table 6 shows the technical levels of service expected to be provided under this asset management plan. The 'Desired' position in the table documents the position being recommended in this asset management plan.

Table 6 - Technical levels of service

Key performance measure	Level of service objective	Performance measure process	Current performance	Target performance
Operations and maintenance	Maintaining the safety, functionality, and serviceability of the stormwater drainage network	Planned maintenance, reactive maintenance, inspections	Maintenance undertaken in accordance with standards	Maintenance undertaken in accordance with standards
Asset renewal	Preserving the condition of stormwater drainage infrastructure	Annual renewal program	100% of scheduled program delivered	100% of scheduled program delivered
Asset improvements	Increase capacity of stormwater drainage network to prevent flooding	Annual upgrade program	100% of scheduled program delivered	100% of scheduled program delivered

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.

6.4.3 Actual levels of service

Council recognises the importance that levels of service play in optimising the lifecycle management of infrastructure assets. For the assets covered by this plan, Council continues to work towards achieving the required service levels in practice.

The development and monitoring of actual service level will be one of the foundations of future improvement through the asset management planning process.

6.5 Customer research and expectations

6.5.1 Community consultation

At this stage, target customer research has not been undertaken for Council's stormwater drainage infrastructure network.

Council is committed to transparent and informed decision making in relation to the management of its assets and services through engagement with the community. Council undertakes inclusive community consultation to define service levels and performance measures through the development of its Community Plan, the Council Plan, and Annual Budget. These discussions provide input to Council's strategic directions which are supported by the various services, projects, and programmes which its delivers.

Wherever practicable, community input is sought on appropriate aspects of planning our stormwater systems by way of consultation. However, Council acknowledges that it needs to do more work with its community in developing levels of service and it will target discussions when making decisions which influence the way that Council delivers its services and manage our assets.

Once service levels and budget funding issues have been properly reconciled, it is appropriate that Council should consult with the community to ensure that these service levels are meeting community expectations.

6.5.2 Community satisfaction

This first-generation asset management plan has been prepared to facilitate consultation and for adoption by Council. Future revisions of the asset management plan will aim to incorporate more community consultation on service levels and costs of providing the service. This will assist the Council and stakeholders in matching the level of service required, service risks and consequences with the community's ability and willingness to pay for the service.

Council participates in the Local Government Community Satisfaction Survey coordinated by the Department of Environment, Land, Water and Planning on behalf of Victorian councils.

While this community satisfaction survey covers a broad range of Council services is does not include any specific elements relating to stormwater drainage. Council should review and implement a process to measure the community's level of satisfaction with Council's stormwater management services on an annual basis.

What does this mean?

Future revisions of this asset management plan will aim to incorporate more community consultation on service levels and costs of providing the service. This will assist the Council and stakeholders in matching the level of service required, and service risks and consequences with the community's ability and willingness to pay for the service.

6.6 Legislative requirements

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

Table 7 - Legislative requirements

Legislation	Requirement
Local Government Act 2020	Sets out role, purpose, responsibilities and powers of Council including the preparation of a financial plan supported by asset management plans for sustainable service delivery.
Road Management Act 2004	Relates to management of the drainage system where it lies within the Public Road Reserve.
Environment Protection Act 1970	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.
Water Act 2000	Applies to the management of the use of water resources including conservation, protection and quality of discharges into waterways
Subdivision Act 1988 and Subdivision Regulations (Procedures) 1989	Applies to works for drainage to connect the subdivision to the system serving properties outside it.

Legislation	Requirement
ResCode	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
State Environment Protection Policy, Waters of Victoria	Sets the framework for government agencies, businesses and the community to work together, to protect and rehabilitate Victoria's surface water environments.
Emergency Management Act 1986	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.
Health and Wellbeing Act 2008	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
Occupational Health and Safety Act 1985	Applicable to working on stormwater infrastructure
Melbourne Water Standards	Used in conjunction with Council's Standards to determine standards for road construction and maintenance for stormwater drainage systems.
All other relevant Australian Standards	AS/NZ Standards such as Risk Management Standard.
Council Planning Scheme	Planning matters as they relate to the stormwater drainage system.
All other relevant State and federal Acts and Regulations	Where applicable.
Relevant Council Policies, Local Laws and Contracts	Amenity controls, construction standards, maintenance contracts etc.

7 FUTURE DEMANDS

The objective of asset management is to create, operate, maintain, rehabilitate, and replace assets at the required level of service for present and future customers in a cost effective and environmentally sustainable manner. The asset management plan must therefore forecast the needs and demands of the community in the future and outline strategies to develop the assets to meet these needs.

7.1 Demand forecasts and impact on assets

The present position and projections for demand drivers, and their potential impacts on future service delivery and use of assets is identified and documented in Table 8.

Table 8 - Demand drivers, projections, and impact on services

Demand factor	Projection	Impact on assets
Population change	▪ Census figures estimate the population of Loddon Shire is currently stable.	▪ Population stability reduces the capacity of Council to raise revenue through rates.

Demand factor	Projection	Impact on assets
Council financial sustainability	▪ Ongoing challenges in sustaining financial commitment to maintain, replace, and upgrade the existing stormwater drainage system. ▪ Reduced size of grants from other tiers of government not matching required asset expenditures.	▪ Decreased ability to fund timely renewal and upgrade of poor/very poor condition asset. ▪ Increased need for maintenance and repairs.
Ageing infrastructure	▪ Council has a legacy whereby drainage assets, based on their age profile, will require renewal or rehabilitation in the near term in order to maintain basic service levels.	▪ Without adequate funding the declining condition of Council's drainage assets will result in reduced levels of service and increased risk of failure.

7.2 Demand management strategy

Demand management is not intended to reduce the scope or standard of services provided by an asset, but rather, it is concerned with aligning demand or expectation of service provided by an asset with the available resources to ensure that genuine needs are met and community benefit is maximised.

Demand management components may include:

Table 9 - Demand management strategies

Demand Factor	Applicable Strategy(s)
Operation ***(modification of access to an asset)***	▪ Council policies relating to the discharge of stormwater from private development into its drainage system ▪ Design guidelines ▪ Development of drainage strategies to address localised flooding issues
Regulation ***(restriction on the type of use of an asset)***	▪ Planning and building controls ▪ Planning conditions regulating discharge of stormwater from developments
Incentives ***(Influence the use of an asset)***	▪ Working in partnership with community and industry to maximise stormwater re-use opportunities
Education ***(promotion of alternatives)***	▪ Programs to inform the public on stormwater management issues and emergency response

7.3 Strategic direction

There are a number of existing strategies and plans which have been developed to provide a strategic response to the demands, challenges and opportunities which the ongoing management of the assets covered by this plan present. These documents include:

- Community Plan
- Council Plan
- Road Management Plan

8 LIFECYCLE MANAGEMENT PLAN

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

8.1 Background data

8.1.1 Physical parameters

Council's drainage network comprises over 41km of drainage lines, minor culverts, open channels, and 843 pits for the capture, conveyance, and treatment of stormwater.

There are some limitations with the completeness of data associated with Council's stormwater assets. It is estimated that approximately 90% of assets have been identified and recorded. This is based on an estimate by Council officers.

8.1.2 Asset condition

Asset condition is a measure of the health of an asset and is a key consideration in determining remaining useful life, as well as predicting how long it will be before an asset needs to be repaired, renewed or replaced.

Asset condition is also an indicator of how well it can perform its function. Condition data is valuable for developing long term funding scenarios for strategic planning of Council's budget.

Council measures the condition of its assets using a standardised 0 to 10 grading system.

A summary of the condition rating scale used for the assets covered by this asset management plan is detailed in the following table. Council's condition grading system follows good practice guidance as provided by various industry standards including the *International Infrastructure Management Manual.*

Condition data for Council's stormwater assets is recorded in its asset register and is used for financial renewal modelling and capital works planning.

Table 10 - Condition rating system

Score	Condition rating	Description
0	New	New or an asset recently rehabilitated back to new condition.
1	Near New	Near new no visible signs of deterioration often based upon the time since construction rather than observed condition decline.
2	Excellent	Excellent. Very slight condition decline obvious no longer in new condition.
3	Very Good	Very good early stages of deterioration minor no serviceability problems.
4	Good	Good some obvious deterioration evident slightly impaired serviceability.
5	Fair	Fair obvious deterioration some serviceability loss.
6	Fair to Poor	Fair to poor. Quite obvious deterioration serviceability would be affected and rising maintenance cost.
7	Poor	Poor severe deterioration serviceability limited high Maintenance cost
8	Very Poor	Very poor serviceability heavily impacted. Very high Maintenance cost needed to be rehabilitated.

Score	Condition rating	Description
9	Extremely Poor	Extremely poor severe serviceability problems needing rehabilitation immediately. Could also be a risk to remain in service
10	Failed	Failed no longer serviceable and should not remain in service extreme risk

The following figure(s) provide an overview of the condition of Council's stormwater drainage assets:

Figure 2 - Condition profile: Urban stormwater pits

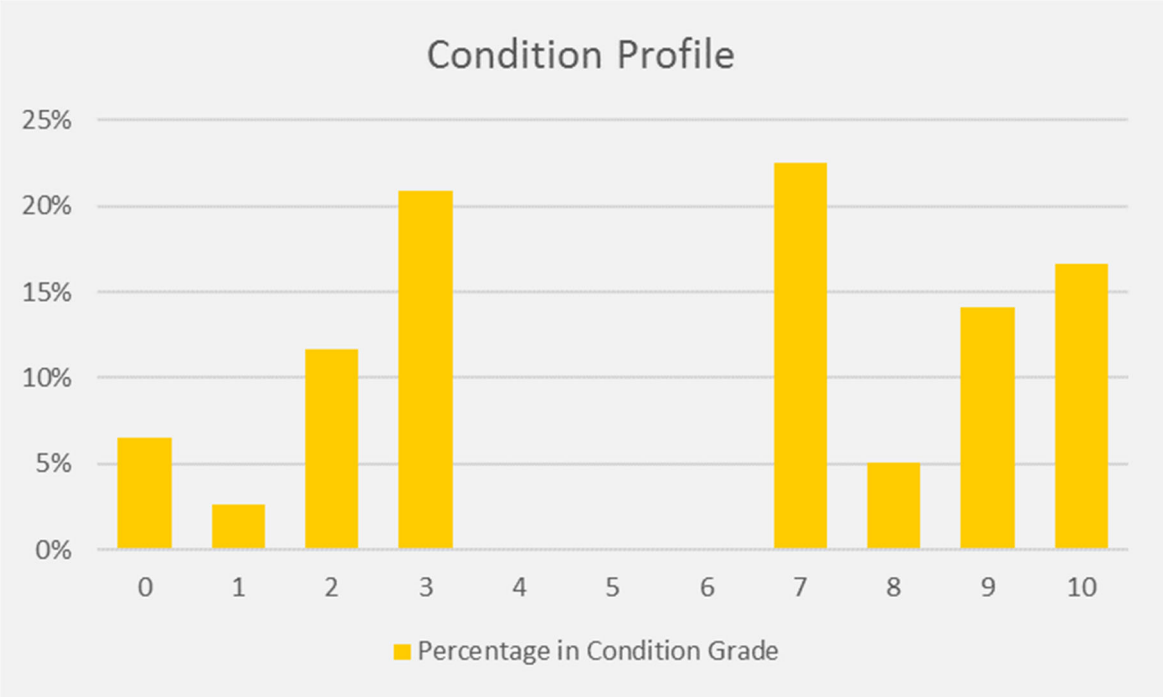
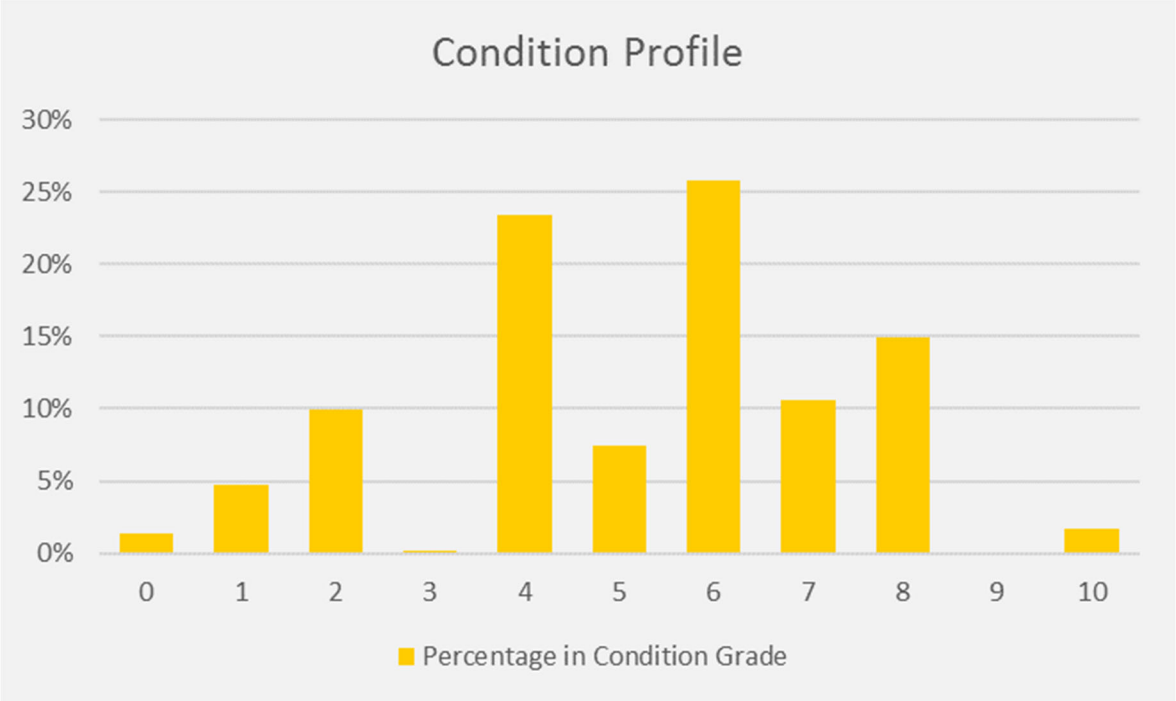


Figure 3 - Condition profile: Urban stormwater pipes



What does this mean?

Approximately 60% of Council's pits and 27% of pipes is in 'Poor' to 'Very Poor' condition, indicating that there is potentially a backlog of works that need to be addressed in the immediate to short term. The current replacement cost of these assets is $4.5M. There is a fair portion of the network in 'Very Good' condition, indicating that there has been significant renewal work over the past decade.

The condition data is based on the age profile of the assets, as they are mostly sub surface assets that have not been condition inspected. There is potential for these estimates to be inaccurate if the asset life estimates are inaccurate. Council officers do not believe the graphs accurately reflect the actual condition of Council's drainage assets.

As these assets mainly compromise of sub surface assets, collecting a precise read on these assets is an unfeasible task. Council therefore, rely on historical failure data to estimate the useful and remaining life of the portfolio. Anecdotal failure data suggests to Council officers that the condition of the assets is overall much better than the graphs suggests.

Criteria such as age, material, type of asset, used to determine condition. This is especially applicable to below ground assets. Above ground assets where routine site visits occur then condition data could be captured at time of daily/weekly/annual inspection.

8.2 Routine operations and maintenance plan

Effective maintenance strategies are essential to ensure that an asset performs at the desired service level on a day-to-day basis.

Operations	Regular activities to provide public health, safety, and amenity (e.g. street sweeping, drainage inspections etc).
Maintenance	Regular ongoing day–to-day work necessary to ensure asset achieves its defined useful life (e.g. pit and pipe cleaning etc).

8.2.1 Maintenance strategy

The following general maintenance and operations strategies are applied to Council's stormwater assets:

Table 11 - Maintenance strategy summary

Operations	Use and manage the assets in a manner that minimises the long term overall total cost. Undertake scheduled inspections as justified by the consequences of failure on levels of service, costs, public health, or safety.
Reactive maintenance	A suitable level of preparedness for prompt and effective response to service requests or asset failures is maintained.
Planned or preventative maintenance	Undertake planned asset maintenance activities to minimise the risk of critical asset failure and to maintain assets in a manner that minimises ongoing lifecycle costs.

8.2.2 Management approach to maintenance and operations

Council's management response to its maintenance and operations responsibilities for its stormwater assets is detailed in Table 12:

Table 12 - Maintenance and operations management approach

Activity category	Activity examples	Prioritisation factors	Challenges/deficiencies with current practice	Improvement strategy
Operations	▪ Pit cleaning to remove litter and other debris ▪ Cleaning of gross pollutant traps to remove collected materials ▪ Cleaning and flushing of underground stormwater pipes so that they operate at optimal capacity ▪ Regular inspections of pump stations ▪ Flood monitoring and response	▪ Continued asset functionality is critical to network performance ▪ It is informed by manufacturer's recommendations or good practice guidance ▪ The health and safety of the community or Council staff has the potential to be compromised ▪ There is a risk of damage to Council assets; property; or other community infrastructure	▪ The quality of our asset information to inform our activities ▪ Activities are generally reactive in nature ▪ No maintenance management system is used to record, monitor, or schedule necessary operations	▪ Improving the completeness and accuracy of our asset data
Reactive maintenance	▪ Investigating and repairing blockages ▪ Reacting to flood situations; ▪ Repairing general damage to manhole lids, etc.	▪ The safety of users is compromised ▪ It is likely that the area of distress may expand or the method of repair changes such that the cost of any repair will increase	▪ Stormwater capacity is not well understood creating localised flooding issues which cannot be generally resolved through maintenance ▪ No maintenance management system is used to record, monitor, or schedule necessary operations	▪ Undertaking hydraulic modelling of the stormwater network to map areas of where capacity issues exist to develop longer term improvement strategies
Planned or preventative maintenance	▪ Shutdown maintenance of pump stations ▪ Clearing of open drains so that they are free flowing	▪ The safety of users is compromised ▪ High criticality or risk exposure of the asset/service ▪ It is likely that the area of distress may expand or the method of repair changes such that the cost of any repair will increase	▪ No regular planned or preventative maintenance activities on pipes, connections or manholes are currently conducted and maintenance is generally reactive in nature	▪ Develop schedule for planned maintenance activities for urban drainage assets

8.2.3 Maintenance arrangements

Drainage maintenance works are undertaken by Council's Works Department. This is supplemented by external contractors in cases where specialist services or further technical skills are required to address specific issues.

8.2.4 Maintenance standards

All materials used in the maintenance and repair of the stormwater system comply with all relevant technical standards.

All maintenance work undertaken is in accordance with Council's standard design guides, standard drawings, and specifications for stormwater drainage or, if not, covered by these technical guides, in accordance with standard industry practices.

Challenging drainage or flooding situations are generally resolved through input from Council's engineering staff, State bodies and consultants are engaged to provide design solutions for larger issues associated with long term flood prone areas.

8.2.5 Inspections

For Council to carry out effective planning and competent management of its stormwater assets, both in a strategic and operational sense, it is essential that maintenance and performance related information is collected through disciplined and regular inspections of the whole of the network.

Council's inspection activities can be grouped into the following categories based on definition and purpose:

Table 13 - Asset inspection type summary

Inspection type	Description	Current status	Inspection frequency
Cyclic inspections	Cyclic inspections involve a visual investigation to assess for hazards or maintenance issues that do not meet Council's levels of service or risk management objectives. These inspections provide a basis for urgent, preventative, and recurrent maintenance needs.	A documented inspection program is yet to be formalised within Council.	Nil
Reactive inspections	Reactive inspections are initiated generally by requests for maintenance received from asset users. Council's objective in relation to maintenance requests is to inspect and prioritise the work requests within specific timeframes.	Visual inspections undertaken in response to customer requests. Site visits are undertaken by Council's operational teams following significant rainfall events to identify problem areas.	Reactive inspections are undertaken on an ad hoc basis in response to addressing known issues.
Condition inspections	A condition audit is a systematic inspection and identification and recording of the physical and functional adequacy of assets. The purpose of these inspections is to provide an	Condition inspections are coordinated by the Assets and Infrastructure Unit.	A formal program of condition inspections for Council's stormwater assets has been

Inspection type	Description	Current status	Inspection frequency
	input for life-cycle cost analysis, and asset planning purposes. This level of inspection does not identify detailed maintenance requirements but provides a basis for managing the asset portfolio from a strategic perspective.		established as part of Council's inspections for asset valuations. This requires all stormwater assets to be inspected annually but has never been undertaken.

8.2.6 Future operation and maintenance costs

Future operation and maintenance costs have not been forecast as part of the development of this asset management plan.

What does this mean?

Future operation and maintenance for stormwater assets have not been forecast as part of this plan. Operation and maintenance costs for stormwater assets are allocated under the larger allocation for roads with anecdotal information suggesting the existing allocation is sufficient.

8.3 Renewal/replacement plan

Renewal 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 an upgrade/expansion or new work expenditure resulting in additional future operations and maintenance costs.

Assets requiring renewal are identified using a combination of an analysis of the long term financial needs at a network level and Council's asset information to identify specific assets requiring renewal at a project level.

8.3.1 Renewal strategy

Renewal strategies are based on assessing a range of factors to ensure the appropriate level of investment is targeted at the optimum time to ensure assets remain fit for purpose and that renewal plans are efficient and effective. The factors considered include the following:

- criticality
- maintenance and/or failure history (i.e. when do ongoing maintenance works become uneconomic)
- age
- expected life
- remaining useful life
- condition (where known)
- condition prediction
- geographical grouping
- timing in relation to linked asset renewal plans

As a general principle the number and cost of repairs will determine the optimum timing to invest in the renewal of assets. Every time an asset is repaired it provides information about its performance, rate of deterioration, and a prediction of the optimum time to renew.

As the rate of repairs increase a prediction can be made about the optimum time to renew an asset to keep the cost of ownership at the optimum level.

8.3.2 Renewal standards

Council's construction standards are based on various standards necessary to accommodate the demands and technical requirements placed on our assets.

These standards take into consideration the extensive work previously undertaken by the various professional and industry bodies such as:

- Infrastructure Design Manual
- Australian Standards
- Austroads Design Guidelines
- Australian Rainfall and Runoff

All renewal works shall comply with Council's engineering standards and specifications for design and construction that apply at the time. The design of drainage renewal works is in all cases undertaken by suitably qualified and experienced practitioners where necessary.

8.3.3 Renewal ranking criteria

In general, renewal works are prioritised and planned by assessing the following considerations:

- safety issues
- physical condition
- risk and asset criticality
- community/user feedback
- location and use type and patterns.

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
- have replacement with a modern equivalent asset that would provide the equivalent service at a savings.

The ranking criteria used to determine priority of identified renewal and replacement proposals is detailed in Table 14.

Table 14 - Renewal and replacement priority ranking criteria

Criteria	Scoring method
Conforms to Council Plan	Yes = 2, Partial = 1, No = 0
Priority in drainage strategy	High = 3, Medium = 2, Low = 1
Subject to local flooding	Frequent = 3, Occasional = 2
Improvement to amenity	Significant = 2, Low = 1, No = 0
Improvement to safety	Significant = 2, Low = 1, No = 0
Water harvesting potential	Yes = 1, No = 0
Benefit contribution available	Yes = 1, No = 0

Council's Infrastructure renewal demand forecasts are developed using the predictive modelling capabilities of its asset management system. These forecasts are annually reviewed and

updated as new information (e.g. condition assessments) becomes available. The Renewal Gap Module has the capability to assesses the predicted asset renewal requirements versus the forecast renewal expenditure on a network basis over a long term planning horizon.

These forecasts and the underlying assumptions are further reviewed to factor in specific projects and any upgrade projects that include a renewal component to provide the best available guide to renewal requirements. These forecasts are then referred for consideration in the development of the Financial Plan which provides a specific allocation for the renewal of assets for each year of the Plan.

8.3.4 Future renewal and replacement expenditure

Renewal demand and expenditure forecasts for the assets covered by this plan are summarised in Figure 4. These forecasts have been extrapolated from existing finance data and are presented as long-term projections to provide input into Council's Financial Plan.

The following graph shows a comparison between the:

- level of funding required to renew Council's stormwater assets to achieve its service level objectives; and
- the amount of funding which Council is projected to commit to renewing these assets.

Figure 4 - Projected capital renewal and replacement expenditure

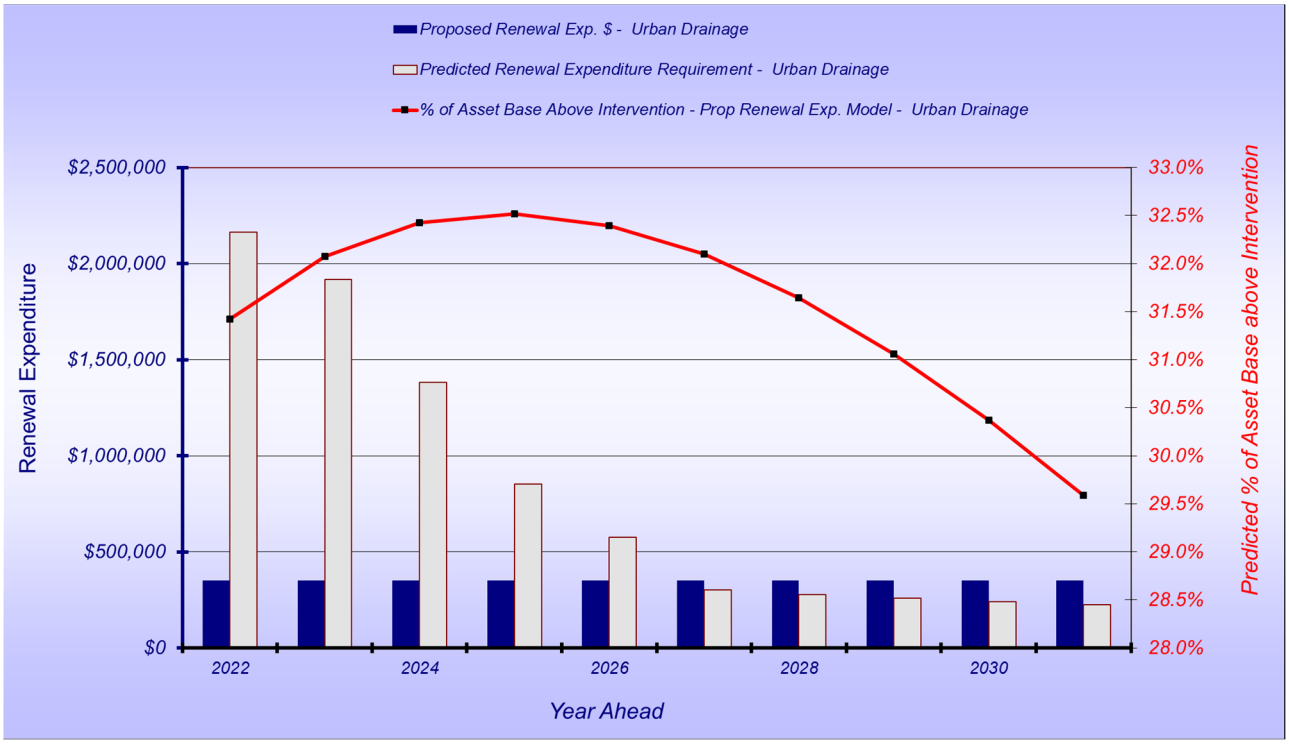


Figure 4 values are in current (real) dollars.

What does this mean?

This forecast indicates that Council is presently significantly under funding the renewal of its stormwater assets.

Council has allocated approximately ***$281,500*** towards the renewal and replacement of its stormwater network within its 2021/22 budget. The amount of funding set aside for stormwater renewal which is included in the Financial Plan has been used as a basis for calculating the long-term projection of Council's renewal position.

Over the next ten (10) years, the predicted average annual renewal demand associated with Council's stormwater network is ***$819,570***. According to Council's current Financial Plan, it is projected to allocate approximately ***$343,150*** on average per year for the renewal of these assets over the next 10 years. This indicates that there is an average renewal funding gap of approximately ***$476,420*** (average) per annum.

The red line in the shown in Figure 4 represents the percentage of the asset base that no longer meets minimum performance or service standards. This is also referred to as the intervention condition.

At the commencement of the forecast period ***31%*** Council's stormwater network does not meet minimum service standards. At Year 10 (2030), based on the current Financial Plan, this decreases slightly to ***29.6%***.

Anecdotally, an authority responsible for managing public assets should aim to not let the percentage of assets above the intervention condition to exceed 3% to 4%. Beyond this, the community notices a decrease in standards that may result in an increase in the number of service requests for asset maintenance and repairs.

Council may need to considers increasing the funding amounts which are allocated to the renewal of its stormwater assets.

A renewal funding strategy has been prepared as part of this asset management plan and is detailed in section 10.2.

8.3.5 Renewal modelling assumptions

The analysis to determine Council's future asset renewal requirements is based on the best available information held at this time. The future funding forecasts will be revised and refined to best represent the performance of the asset base as the maturity of Council's asset management practices improves.

These renewal funding projections are based on the following assumptions:

- the renewal costs are based on the asset data register as at 30 June 2020.
- asset quantities within the asset register are assumed to be correct.
- modelled outcomes are derived using the Moloney Renewal Model and are therefore subject to the limitations of that model and data is used in it, which includes assumed performance of the asset types and trigger intervention levels.
- useful Service Lives derived from the asset register are assumed to be a reasonable estimate of the life of the assets.
- condition data has been derived from Council's asset register.
- service levels are based on a technical assessment and may not reflect community expectations or the organisations goals and objectives.
- all projections are in present dollar value.
- renewal funding is based on current renewal expenditure levels contained in Council's current Financial Plan.
- these projections only represent future asset renewal requirements at an overall network level. This modelling does not provide project level assessments or programs.

The following variables and input values have been used to calculate the long-term renewal projections for Council's stormwater network:

Table 15 - Renewal modelling variables and input values

Asset type	Model variable and input value						
	Useful life	Unit rate	Condition profile	Confidence level	Asset degradation profile	Renewal condition	Returned asset condition
Urban Stormwater Drainage							
Stormwater Pits	50	Variable rate	Based on life of asset	Medium	Standard	Condition 7 (Poor)	Condition 0 (As new)
Stormwater Pipes	80	Variable rate	Based on life of asset	Medium	Standard	Condition 7 (Poor)	Condition 0 (As new)

8.4 Creation/acquisition/upgrade plan

New works are those works that create a new asset that did not previously exist or works that upgrade or improve an asset beyond its existing capacity or performance in response to changes in supply needs or customer expectations.

Within the context of stormwater, development works are generally capacity upgrades, reconfiguration, although construction of new assets is also included.

Council's asset improvement strategy for the stormwater drainage network aims to develop a system which meets community expectations and growth projections over the next 10 years.

Stormwater drainage upgrade works will be undertaken to correct flooding problems within the limits of available funding and risk in accordance with the service delivery targets. The general order of priorities is to protect public safety, avoid property loss and abate nuisance flooding.

As new projects are brought forward for consideration with the annual budget, they will also have an assessment of these ongoing operational (recurrent) costs presented to Council as part of the overall project cost projections.

8.4.1 Selection criteria

New assets and upgrade/expansion of existing assets are identified from various sources such as councillor/director or community requests, proposals identified by strategic plans or partnerships with other organisations. Verified proposals are ranked by priority and available funds and are scheduled in future works programmes.

The prioritisation of asset improvement works is undertaken in accordance with the following criteria to ensure alignment with Council's strategic direction and to deliver maximum and affordable community benefits.

Table 16 - Asset improvement priority ranking criteria

Criteria	Scoring method
Conforms to Council Plan	Yes = 2, Partial = 1, No = 0
Priority in drainage strategy	High = 3, Medium = 2, Low = 1
Subject to local flooding	Frequent = 3, Occasional = 2
Improvement to amenity	Significant = 2, Low = 1, No = 0
Improvement to safety	Significant = 2, Low = 1, No = 0
Water harvesting potential	Yes = 1, No = 0
Benefit contribution available	Yes = 1, No = 0

A ranking process is used for assisting in determining the priority of new capital works. This process enables key criteria for each type of asset to be assessed in an objective manner, ranked, and a composite “need” score to be assigned to each project. This enables several projects of the same asset type to be objectively ranked against each other and prioritised.

Council carries out a capital works planning process each year prior to commencing its overall budget process.

Council determines the capital works program for the coming financial year based upon the objective rankings provided from Council’s asset management system and Council’s own priorities. In the process, a ‘rolling’ capital works program is developed.

8.4.2 Standards and specifications

As with replacements where new assets are created, they are designed using all relevant design codes and Australian Standards and by using materials to achieve the greatest asset life while trying to minimise maintenance costs.

8.4.3 Summary of Future Upgrade/New Assets Expenditure

Expenditure on new assets in the capital works program is considered for inclusion within the Financial Plan.

While the provision of new and upgraded assets is important in maintaining and enhancing services to the community there must be a clear business justification for the investment in capital improvement projects that is aligned with Council’s strategic and service objectives.

Evaluation of proposals for new and upgraded assets is underpinned, and informed, by sound business, investment, and risk assessment practices to maximise public value of infrastructure investment.

Funding of capital improvement projects is only included within the Financial Plan where it is deemed a priority according to Council’s capital works evaluation framework.

At present, extensions and improvements to Council’s stormwater network are identified according to community feedback, staff knowledge of problem areas and through drainage strategies that are undertaken.

8.5 Disposal plan

Disposal includes any activity associated with disposal of a decommissioned asset including sale, demolition, or relocation.

It is not envisaged that drains included in this asset management plan will be considered for decommissioning in the foreseeable future. Costs may be incurred associated with the removal or disposal of a decommissioned asset and this may also include any site rehabilitation after the structure has been removed. Where it is impracticable to remove decommissioned pipes, they are to be filled. Obsolete surface pits are to be removed.

When disposal does occur, recognition needs to be made in the Recurrent/Operating budget of the reduction of associated operating or maintenance costs of the decommissioned assets, as well as any removal and site rehabilitation costs.

9 RISK MANAGEMENT PLAN

The purpose of this section is to describe the basis of Council's strategic risk and investment policies and the way it will manage risk associated with Council's transport assets.

9.1 Risk management process

Council's risk management framework and processes are in accordance with AS/NZS ISO 31000:2009 – Risk Management – Principles and Guidelines and HB 436:2013 – Risk Management Guidelines.

The framework is designed to provide the architecture for a common platform for all risk management activities undertaken by Council and is used to identify specific risks associated with Council's delivery of services and management of assets.

The objective of the risk management process with regards to Council's assets is to ensure that:

- 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; and
- 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.

9.1.1 Risk assessment

Network or system risks assessed as 'Very High' - requiring immediate corrective action and 'High' – requiring prioritised corrective action identified by Council's asset risk assessment process are summarised in the Table 17.

Table 17 - Infrastructure risk register

Risk event	Cause	Risk rating (VH, H)	Risk mitigation plan
Investment and decision making not effective	Lack of accurate asset data, processes, supporting systems, prioritisation methodology and responsibility framework.	High	▪ Confirm accuracy of asset data, ensure, network assessment to confirm processes are documented and update responsibility matrix.
Localised flooding and possible damage/ inconvenience due to flooding.	Capacity issues due to design standards or inadequate maintenance.	Medium	▪ Undertaking flood and drainage studies for areas which are subject to flooding.
Stormwater assets become unfit for intended purpose and no longer meet required standards	Structural damage due to deterioration, age.	High	▪ Condition assessment to ensure knowledge of performance
Pollution of natural waterways	Inadequate instream stormwater treatment	Medium	▪ Adequate cleaning of pits and traps (planned maintenance)

Risk event	Cause	Risk rating (VH, H)	Risk mitigation plan
	features (litter traps, gross pollutant traps, WSUD elements)		
Failure of stormwater pump stations	Failure of pump equipment due to a lack of scheduled inspections and maintenance.	Medium	▪ Undertake regular testing, inspections and maintenance

9.2 Critical assets

Critical assets are defined as those which have a high consequence of failure or reduction in service.

It is important to identify critical assets as well as the critical failure modes. This makes it possible to target and refine maintenance plans, capital expenditure plans, and investigative activities at the critical areas.

Criticality has not been applied to Council's stormwater network, it is recommended that criticality be applied based on risk if necessary. Given that criticality is the consequence of a given risk event (asset failure), the consequences associated with the failure of each asset, criticality will be manually assessed against the consequence table within the Council's risk management framework where required.

10 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 forecasts made will be refined as Council improves its understanding of future asset performance and required levels of service.

10.1 Financial statements and projections

10.1.1 Asset valuations

The value of the assets covered by this asset management plan as recorded in Council's asset register as at 30 June 2020 are shown below.

Current replacement cost	**$15,869,788**
Accumulated depreciation	**$8,302,544**
Depreciated replacement cost	**$7,567,244**
Annual average asset consumption	**$210,708**

Assets are valued at fair value based on depreciated replacement cost according to Greenfield rates. Quantities represent those assets whose replacement cost meets Council's adopted capitalisation thresholds.

10.1.2 Asset sustainability

Council uses the following indicators to measure asset sustainability:

- Asset renewal funding ratio, and
- Projected funding requirements compared with budget allocations (Financial Plan).

10.1.3 Asset renewal funding ratio

Asset renewal funding ratio	**42%**

The asset renewal funding ratio is the most important indicator and shows that over the next ten (10) years we expect to have ***42%*** of the funds required for the optimal renewal and replacement of assets according to our current Financial Plan and the renewal requirement as determined by the modelling. As previously indicated, Council officers do not believe the renewal forecasts from the model are accurate and they overestimate the amount of renewal expenditure required.

10.1.4 Financial planning

This asset management plan identifies the projected capital renewal expenditures required to provide agreed levels of service over the next ten (10) years.

These projected funding requirements may be compared to the allocations made in the Financial Plan to determine possible funding shortfalls.

The projected renewal expenditure required over the next ten (10) years for Council's stormwater network is ***$819,570*** on average per year, this is to completely eliminate the renewal gap at year 5.

Estimated (budget) capital renewal funding is ***$343,150*** on average per year giving a 10-year funding shortfall of ***$476,420*** per year.

If this gap is left unaddressed, Council may be faced with significant risks relating to:

- continued deterioration of its assets
- poor performing assets
- asset failure
- public health and safety liability
- loss of financial and economic viability
- reputational and political impacts
- ultimately, declining community satisfaction and public confidence

10.2 Funding strategy

10.2.1 Full funding of renewal demand

Council should be committed to funding its long term asset renewal liabilities. This also aligns with Council's *Asset Management Policy* objective of focussing on asset renewal before allocating funding to new assets and limiting asset expansion unless justified through sound business cases.

Figure 5 shows the impact of fully funding the renewal demand being driven by Council's stormwater network. In this scenario, there is no asset renewal gap. In year one of the analysis, ***30%*** of the stormwater network does not meet Council's service standards. Based on this renewal funding profile at year 10 of the forecast period the entire network would meet Council's service objectives with no assets being in a condition above Council's intervention criteria. Under this scenario, Council would be required to spend ***$8.196 million*** on stormwater renewal

over the 10 year forecast period. At present, Council is projected to allocate ***$3.43 million*** towards stormwater renewal over the next 10 years as identified in its current Financial Plan.

Figure 5 - Renewal forecast: Full funding of renewal

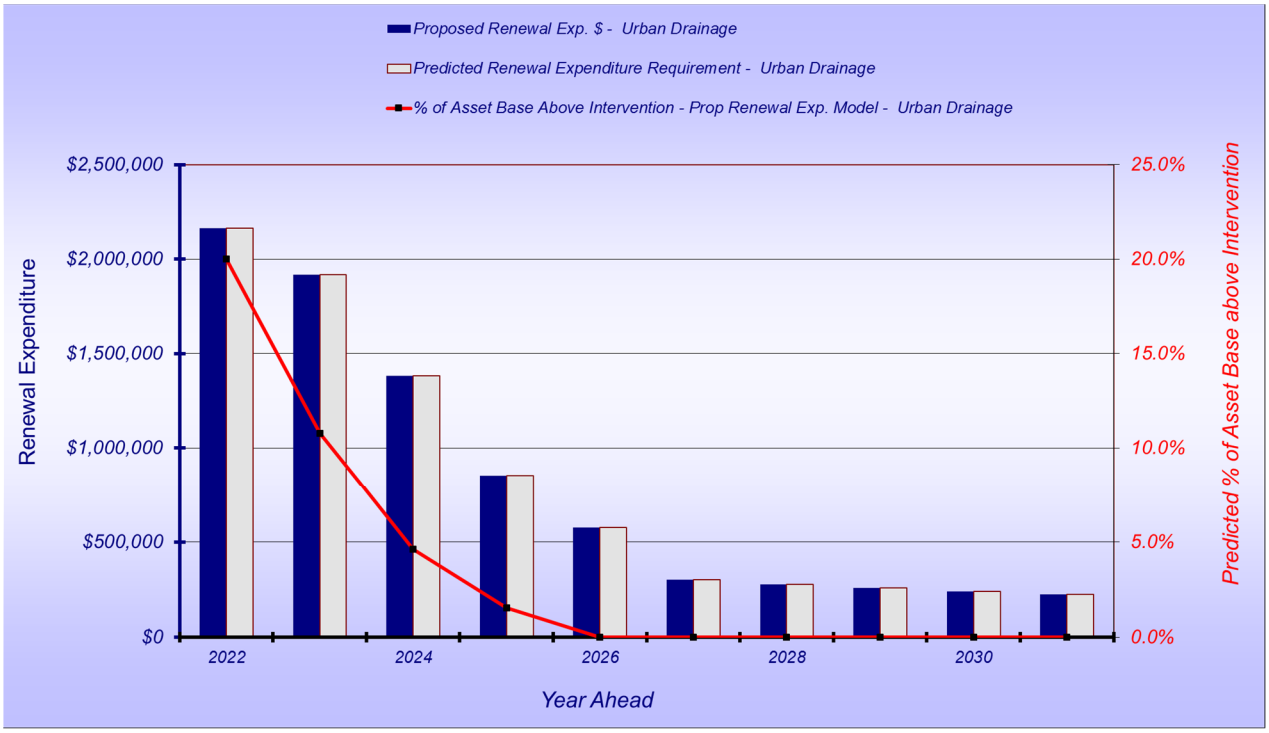


Table 18 shows the proposed funding allocations for Option 1 for the next ten (10) years. Expenditure projections are in 2021/22 real values.

Table 18 - Projected allocations: Full funding of renewal

Year	Renewal	Financial Plan
2021/22	$2,162,505	$281,500
2022/23	$1,918,336	$350,000
2023/24	$1,382,066	$350,000
2024/25	$853,309	$350,000
2025/26	$575,082	$350,000
2026/27	$302,225	$350,000
2027/28	$278,053	$350,000
2028/29	$257,675	$350,000
2029/30	$240,482	$350,000
2030/31	$225,967	$350,000
Total	$8,195,701	$3,431,500

10.2.2 Funding as per the existing Financial Plan

Council officers assessment is that the funding strategy and modelling outlined in 10.2.1 does not accurately represents the true condition and required renewal funding of Council's stormwater assets. The lack of condition inspection data, with condition estimated from the assets age, means there is uncertainty associated with the renewal modelling forecasts.

If a large percentage of Council's stormwater assets had a condition at the intervention level it would be expected that asset failures which result in localised flooding would be widespread.

However, this is not occurring which suggests that the stormwater assets are in better condition than the estimate derived from the assets ages. It is proposed the existing funding in the Financial Plan is maintained while Council officers undertake inspections to investigate the condition of the stormwater network.

Funding as per the existing Financial Plan is the recommended funding plan.

10.3 Funding sources

Funding for assets is provided from Council's annual budget and Financial Plan.

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

Council uses several different funding sources to maintain, renew and improve its stormwater. These are:

Table 19 - Funding sources

Activity	Funding source
Maintenance and operations	▪ Council's own source funds
Renewal	▪ Council's own source funds
Capital improvement (i.e. new, upgrade, and expansion	▪ Council's own source funds ▪ External grant opportunities ▪ Special charge schemes ▪ Developer contributions and donated assets

10.4 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:

- forecasted on present day dollars
- staffing needs are resourced adequately
- no significant changes in legislation
- average growth in asset base of 2% per annum over the period of this asset management plan
- increases in maintenance and operational budgets are consistent with the Financial Plan
- condition data is based on useful lived, rather than a visual assessment

10.5 Forecast reliability and confidence

The expenditure and valuations projections in this asset management 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 five (5) level scale in accordance with Table 20.

Table 20 - Data confidence grading system

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

The estimated confidence level for and reliability of data used in this asset management plan is ***C – Uncertain*** at this stage. The implementation of the improvement actions identified will result in increased levels of confidence in future revisions of this asset management plan.

11 PLANNED IMPROVEMENT AND MONITORING

11.1 Status of asset management practices

Council currently uses the following corporate information systems for recording relevant asset data and information:

Table 21 - Overview of corporate systems

Module	System
Customer Request Management	▪ Merit
Financial/Accounting	▪ Attache ▪ Magiq
Records Management	▪ LCM
Mapping (GIS)	▪ QGIS ▪ Pozi
Asset Register	▪ Moloney Asset Management System
Strategic Asset Management	▪ Moloney Asset Management System
Mobile Solutions	▪ Reflect
Works Management	▪ Reflect

The asset management system underpins asset management capacity and capabilities and is a key source of information for decision making, coordination of operations, and performance reporting.

11.2 Improvement plan

The asset management improvement plan generated from this asset management plan is shown in Table 22.

Table 22 - Improvement plan

Task	Responsible Person	Resource Type	Timeline
Council should undertake proactive CCTV inspection of underground stormwater pipes which, according to present condition data, are near the end of their useful life. Useful lives should be reviewed and updated according to the outcomes of these investigations.	Asset Management Coordinator	Internal	As resources permit
Develop community levels of service. Community service levels should then be translated into technical levels of service which should be incorporated into future revisions of this asset management plan.	Manager Assets & Infrastructure	Internal	As resources permit
Review renewal modelling after CCTV inspections have been undertaken	Manager Assets & Infrastructure	Internal	As resources permit
Undertake hydraulic modelling of the stormwater network and map areas of where capacity issues exist. Medium and long-term climate risk projections should be incorporated to determine total drainage capacity required.	Manager Assets & Infrastructure	Internal	As resources permit
Implement a criticality framework to identify and record critical stormwater drainage assets. This should involve seeking input from operational teams and other staff with working knowledge of the performance of the drainage network.	Manager Assets & Infrastructure	Internal	As resources permit

It will be necessary to determine the priority of the actions in this improvement plan, allocate a responsible officer and identify resource needs. This is to ensure that the implementation of these improvement actions align with Council's overall asset program. This prioritisation and allocation of resources should be consistent with Council's Asset Management Strategy and overall asset management framework.

11.3 Monitoring and review procedures

The asset management plan will have a life of **four years** and will be completely reviewed and updated in order to inform the development of the Community Plan, Council Plan, and the Financial Plan. This asset management plan will be reviewed and update in accordance with Council's deliberative engagement practices as set out in its *Community Engagement Policy.*

11.4 Performance measures

Performance measures will be developed to ensure that work practices and the asset management plan are reflective of each other.

The performance of the asset management plan shall be monitored against the following criteria in accordance with the process detailed below.

- renewal programs - to confirm that allocated budget projects were delivered on time, within budget and to the specified level of service (see following item on delivery performance).
- inspection programs - to confirm that they were undertaken as specified in the asset management plans and any other service level agreements which may be in operation.
- scheduled condition surveys – to confirm that they were undertaken as required.
- maintenance of asset information systems - to ensure that stored data is current and accurate.
- external factors - including legislative requirements, ongoing development of Council policies, plans, and other major system implementations, that may affect the contents of the asset management plan.

12 APPENDICES

12.1 Appendix A – Recreational, leisure and community facilities risk assessments

No	Risk	Likelihood	Consequence	Risk severity
1	Investment and decision making not effective	Likely	Moderate	High
2	Localised flooding and possible damage/ inconvenience due to flooding.	Possible	Minor	Medium
3	Stormwater assets become unfit for intended purpose and no longer meet required standards	Possible	Major	High
4	Pollution of natural waterways	Possible	Moderate	Medium
5	Failure of stormwater pump stations	Possible	Minor	Medium