MITCHELL SHIRE.

URBAN STORMWATER DRAINAGE ASSET MANAGEMENT PLAN

2021/22

MITCHELL SHIRE COUNCIL

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1 EXECUTIVE SUMMARY

1.1 The Purpose of the Plan

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

This asset management plan details information about infrastructure assets including actions required to provide an agreed level of service in the most cost effective manner while outlining associated risks. The plan defines the services to be provided, how the services are provided and what funds are required to provide the services over a 10-year planning period.

This plan covers the infrastructure assets that provide stormwater services.

1.2 Asset Description

The Drainage network comprises:

- Pipelines – 324.4km
- Pits – 12,324#
- Retention Basins – 9#
- Open Drains – 70 (length uncertain)

These infrastructure assets have significant value estimated at $120.68M.

1.3 Levels of Service

Council does work to address service issues raised by the public through its maintenance and capital works programs as quickly and effectively as possible.

Existing service levels have not been documented by Council, but the intention is they will be in the near future. By defining levels of service Council will provide a statement of service to the community which is measurable, and better informs the public as to how projects are selected and prioritised, where funds are limited.

Where current funding is not adequate to meet future requirements the service consequences are:

- Providing reduced levels of service;
- Customer satisfaction will decline as service levels decline;
- Council's renewal gap will increase, impacting future generations;
- Increased reliance on maintenance expenditure to keep assets functioning;
- Increased resource allocation to stormwater services impacting other asset groups;
- Potential for legal action and insurance excess increases where Council stormwater assets fail;
- A slowdown in planned growth where there is a reliance on old stormwater networks that lack capacity to expand services; and
- Council's overall sustainability will reduce.

1.4 Future Demand

The main demands for new services are created by:

- Population growth and the need to provide more land for future development;
- The capacity of existing networks, which are performing well now, but unable to withstand increasing volumes from newly developed sites; and
- Create greater climate change resilience where more extreme rainfall events are predicted to occur across Victoria.

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.

Demand management practices include the following;

- Implementation of flood retarding basins or on-site detention systems in new development areas to restrict the peak flow rate of stormwater run-off that may affect downstream areas;
- Encouraging the use of increased permeable surface for new developments that will reduce the amount of stormwater run-off entering the system;
- Proactive drain cleansing program to ensure system capacity is optimised;
- Stormwater hydraulic modelling to inform where development has greatest potential at lowest cost; and
- Insurance cover against failure of Council's stormwater network resulting in flooding.

1.5 Lifecycle Management Plan

What does it Cost?

The projected outlays necessary to provide the services covered by this Asset Management Plan (AM

Plan) includes operations, maintenance, upgrade and renewal, over the 10-year planning period is $25M or $2.5M on average per year. This does not include $597K of new capital planned to be funded by Council over 10 years.

1.6 Financial Summary

What we will do

Estimated available funding for this period is $22M or $2.2M on average per year as per the long term financial plan. This is 86% of the cost to sustain the current level of service at the lowest lifecycle cost. Where funding for Council delivered new projects is guaranteed, this does not change the gap between projected and available funds.

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

The allocated funding leaves a shortfall of ***$341*K** on average per year of the projected expenditure required to provide services in the AM Plan compared with planned expenditure currently included in the Long Term Financial Plan. This is shown in the figure below.

Projected Operating and Capital Expenditure

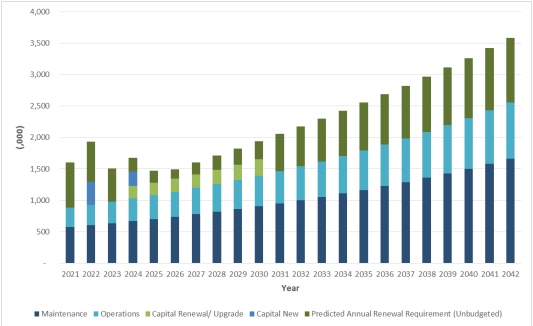

Figure Values are in current (real) dollars.

Continuity of the service will be achieved through ongoing maintenance, renewal and upgrade of pits and pipes to meet service levels set by annual budgets.

What we cannot do

We currently do not allocate enough funding to sustain the existing services at the desired standard or to provide for all new services being sought or contributed to Council.

Funding for maintenance will need to increase over the next 10 years to accommodate an increasing stormwater network being constructed for new residential developments. Allowance has been made in the LTFP, but tables provided within this plan will show projected requirements increasing into the future.

Most new stormwater assets will be constructed by developers and gifted to Council. As such fulfilling the demand for new assets is not problematic at this point in time.

Council has not historically undertaken condition assessments of stormwater assets due to the cost and difficulty to access underground assets. We currently cannot confidently state that condition is as good or bad as implied which has been based on age alone. In the near future sample assessments will begin to verify wear and deterioration performance against age to start building a better condition profile.

Capacity and function of stormwater assets can impact performance as much as condition. It will be important to start recording and planning for the replacement of assets where their capacity or function no longer meet service expectations.

Managing the Risks

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

The main risk consequences are:

- we do not maintain existing levels of service (though these are not presently documented);
- Problematic areas continue to suffer drainage issues;
- Maintenance demand becomes greater over time, with less resources impacting the life of assets; and
- Council's long-term sustainability is compromised

We will endeavour to manage these risks within available funding by undertaking a more strategic approach to management of drainage assets through:

- Improved knowledge of the existing stormwater drainage system through system analysis and flood mapping of over land flows that are surplus to the capacity of the underground network;
- Improved determination of asset useful lives as part of improved lifecycle modelling;

- Develop 10 year capital works programs which will be used to improve asset management planning and budgeting for the LTFP;
- Non-Structural measures like Planning Controls used to inform more appropriate development in areas that are vulnerable to flooding; and
- Implementation of flood retarding basins in new development areas to restrict the peak flow rate of stormwater run-off that may affect downstream areas.

1.7 Asset Management Practices

Our systems to manage assets include:

- Finance and Accounting – Technology One
- Asset Management System – Conquest III
- GIS Systems – MapInfo / Exponare

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 as well as network inspections performed by internal staff to identify specific assets requiring renewal.

A condition score was derived from asset age using the assets construction date, useful life and remaining useful life to establish where the asset is in its lifecycle. Most stormwater assets are still relatively young, so this returned a very favourable condition profile.

While this is a reasonable method for assessing renewal demand for underground assets, more rigor can be applied to improve data sets; for example sample CCTV audits to determine actual condition.

1.8 Monitoring and Improvement Program

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

- Develop levels of service, in the first instance, by documenting the existing levels of service being delivered, then assessing what opportunities there are to improve on these.
- Align customer service request categorisation with customer level of service
- Complete data capture of gross pollutant traps, stormwater pumping infrastructure, and open drainage system.
- Develop a methodology for condition assessments with thought given to sample sets (where it is unrealistic to survey the entire network) and risk profiles to target assets which demonstrate high risk in the event of failure. Revise useful lives if necessary.
- Develop a comprehensive drainage capital works plan to target priority renewal/upgrade tasks.
- Review current funding allocations made to drainage maintenance to ensure it is sufficient to deliver current levels of service.
- Ensure an inspection plan is implemented to undertake inspections on known assets and to identify assets not currently recorded.
- Identify critical assets and risks and develop a treatment plan.
- Document our known service deficiencies.
- Separating Operational and Maintenance costs
- Implement a criticality framework to identify and record critical stormwater drainage assets

2. INTRODUCTION

2.1 Background

This asset management plan communicates the actions required for the responsive management of assets (and services provided from assets), compliance with regulatory requirements, and funding needed to provide the required levels of service over a 10-year planning period.

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

- Mitchell Shire Council Plan
- Road Management Plan
- Township Structure Plans
- Council Annual Financial Statements
- Council Budget 2021/22 and Financial Plan 2021/22 to 2030/31

The infrastructure assets covered by this asset management plan are shown in Table 2.1. These assets are used to provide stormwater drainage to efficiently collect, transport and dispose of stormwater runoff.

Table 2.1: Assets covered by this Plan

Asset Description	Replacement Value
Pipes	$88M
Pits	$31.1M
Open Drains	$580K
Retention Basin	$1M
TOTAL	**$120.8M**

It is expected Council has not fully accounted for all its stormwater assets in its Conquest asset register. What is not currently documented includes any gross pollutant traps, stormwater pumping infrastructure, and it is likely the open drainage system is more extensive than what is currently documented in the system. The plan for Council is to capture all stormwater assets and correctly apply asset management principles as per the objectives outlined in section 2.2.

2.2 Goals and Objectives of Asset Ownership

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

Some of the fundamental requirements that will be applied to stormwater assets over the term of this plan include:

Defining a level of service for stormwater assets

The key elements of infrastructure asset management are:

- Defining a level of service for stormwater assets against which they will be managed over the course of their useful life.
- Utilising the asset management plan to inform the long term financial plan, especially as this applies to the renewal and development of upgraded and new assets that will require significant resourcing to accommodate future development.

- Establishing as best as possible an accurate estimate of year of acquisition, and useful life of stormwater assets, and establishing a mechanism to monitor condition of assets to determine the asset consumption profile.
- Developing a risk register for stormwater assets which will include 'likelihood' and 'consequence' statements and a risk mitigation approach.
- Taking a lifecycle approach to developing cost-effective management strategies for the long-term that meet the defined level of service,

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

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

2.3 Core and Advanced Asset Management

This asset management plan is prepared as a 'core' asset management plan over a 10 year planning period in accordance with the International Infrastructure Management Manual[3]. Core asset management is a 'top down' approach where analysis is applied at the system or network level.

3. LEVELS OF SERVICE

3.1 Customer Research and Expectations

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

The annual community satisfaction survey which is undertaken by Local Government Victoria does not directly address stormwater services, and as such it does not provide insight to community opinion of the current level of service.

3.2 Strategic and Corporate Goals

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

Our vision is:

Together with the community, creating a sustainable future.

Our mission is:

Working with our communities to build a great quality of life.

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

Relevant goals and objectives from the Council Plan and how these are addressed in this asset management plan are:

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

Strategic Objective	Key Strategy	Action	Measure
Strong Communities	Promote a safe and secure environment throughout the shire.	Complete the Kilmore Flood Study	Project is completed with a high-level community participation
		Investigate opportunities for future flood mapping and community awareness projects throughout the Shire.	Projects are delivered
Financial and Organisational Management	Deliver high quality projects that benefit our community	Strengthen project management and decision-making frameworks to ensure Council's project delivery reflects identified service priorities.	Projects are delivered effectively in line with agreed strategies and budgets.
	Ensure a customer-first approach for responsive service delivery and communication	Implement improved customer request management processes including the systematic tracking of customer requests and reporting about response times against agreed standards.	Reduced number of unresolved requests within agreed standards.
Caring for our Environment	Be prepared and proactive in responding to the effects of climate change on the community.	Work in partnership with relevant agencies to plan for climate change.	Increased community awareness the impacts of climate change.
		Ensure that climate change considerations are included in long term planning strategies.	Long term plans actively mitigate the impacts of climate change.

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

3.3 Legislative Requirements

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

Table 3.3: Legislative Requirements

Legislation	Requirement
Local Government Act 2020	Sets out role, purpose, responsibilities and powers of local governments including the preparation of a long term financial plan supported by asset management plans for sustainable service delivery.
***Road Management Act 2004* and associated Regulations**	Relates to the management of the use of water resources including conservation, protection and quality of discharge into waterways.
Water Act 2000	Applies to the management of the use of water resources including conservation, protection and quality of discharges into waterways
Local Government (Best Value Principles) Act 1999;	
Subdivision Act 1988 and Subdivision Regulations (Procedures) 1989	Applies to works for drainage to connect the subdivision to the system serving properties outside it.
Building Act 1993, Building Regulations 2006 and Plumbing Regulations 2008	Provides for regulation of plumbing work and plumbing standards as it impacts discharge of water into the stormwater drainage system from private buildings.
Environment Protection and Biodiversity Conservation Act 1999	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.
Occupational Health and Safety Act 2004	Applicable to working within the road reserve.
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.
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.

3.4 Customer and Technical Levels of Service

At this point in time Council does not have documented levels of service for stormwater assets. This includes both **customer levels of service**; how the customer receives the service and whether value to the customer is provided, or, **technical levels of service**; which relate to the allocation of resources to services to best achieve the desired customer outcomes and demonstrate effective performance.

The development of levels of service will form part of Council's improvement action plan.

It is worth providing an example of levels of service to demonstrate how Council will start to assess stormwater service delivery performance in the near future.

Table 3.4: Customer Level of Service

	Expectation	Performance Measure Used	Current Performance	Expected Position in 10 Years based on the current budget.
Service Objective: The collection, transportation and disposal / discharge of stormwater runoff that is safe, environmentally friendly, efficient and protects people, property and public health.				
Function	The drainage system meets user requirements for removal of stormwater in accordance with design standards.	Customer service requests relating to surcharging and flood incidents a) Total number of flooding incidents arising from blockages; b) Number of incidents affecting an individual property	Not currently measured	a) <2 blockage incidents per km reported to Council per year; b) No individual property affected > 2 times in 5 years.
Accessibility	All weather access to properties free from blockage by stormwater flooding	Duration and frequency of access being impassable	Not currently measured	Less than 30 minutes when access is impassable on no more than 1 occasion per year
Health and Safety	System is safe and hazard free	Absence of significant health and safety hazards	Not currently measured	All significant hazards identified and removed or mitigated where practicable
Responsiveness	Council's response to various community raised issues ranging from calls about problems, response to and repair of problems, handling correspondence and service applications	(a) Provision of a 24 / 7 call-out service to attend to issues; (b) percent of calls that were responded to within the set time-frame; (c) percent of repairs that are completed, including reinstatement, within the set time-frame; (d) initial request response within 10 days 95% of the time (e) applications for new connections processed within 5 working days	Not currently measured	(a) Service available 100% of the time. (b) 95% (c) 95% (d) 95% (e) 95%
	Confidence levels		**Low**	**Medium**

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

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

- Operations – the regular activities to provide services (e.g. opening hours, cleansing, mowing grass, energy, inspections, etc.

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

Table 3.5 shows the technical levels of service expected to be provided under this AM Plan. The 'Desired' position in the table documents the position being recommended in this AM Plan.

Table 3.5: Technical Levels of Service

Service Attribute	Service Activity Objective	Activity Measure Process	Current Performance	Desired Performance
TECHNICAL LEVELS OF SERVICE				
System Capacity	Protection of property from inundation of water caused by drains that have capacity below current design standards	Frequency of inundation flooding in: (a) Arterial roads (b) local streets, private yards, active recreation areas (c) passive parks & reserves	Not currently measured	(a) < 1 event / 100 yrs (b) < 1 event / 10 yrs (c) < 1 event / 5 yrs
Service Satisfaction	Overall Customer Satisfaction with the Drainage System	Annual complaints received	Not currently measured	<30 customer complaints per annum (0.1% of ratepayers)
Condition	Carry out routine maintenance activities as per service agreement	(a) Inspection frequency (b) Defect response times	Not currently measured	Service levels set to measure against
Standard of New Works	Quality of new works taken over by Council and also renewals	Number of new assets designed and constructed/renewed in accordance with the relevant Council standards (D-Spec)	Not currently measured	100% of new assets taken over by Council meet the required standards

4. FUTURE DEMAND

4.1 Demand Drivers

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

Mitchell's main demand driver is new residential development. Council's southern townships of Wallan and Beveridge form part of the Urban Growth Area (UGA) of Melbourne, and large scale development is planned to proceed in and around these townships. Kilmore is just outside the UGA but it too is experiencing rapid population increase. While other townships in the Shire are expected to see growth, it will be on a much slower scale than these mentioned townships.

4.2 Demand Forecasts

The present position and projections for demand drivers that may impact future service delivery and use of assets were identified and are documented in Table 4.3.

Population growth within the Mitchell Shire is around 5.79% per annum over a sustained period.

Over the past 5-year period of sustained growth Council has increased its drainage asset base by an annual average of 5.2% per year. This has occurred mainly in the southern part of the municipality in the towns of Wallan, Beveridge and Kilmore.

4.3 Demand Impact on Assets

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

Table 4.3: Demand Drivers, Projections and Impact on Services

Demand Drivers	Present Position	Projection	Impact on services
Population change	The total population of the Shire in 2020 was 47,647.	Projected population in 2036 is 130,631. This is an increase of 82,984 persons. This equates to an average annual growth rate over this period of 10.9%.	An increase in development within the shire will increase the assets being maintained into the future.
Design standards	Drainage provided, constructed and maintained according to current standards.	Drainage and other related infrastructure provided, constructed (and possibly) maintained according to future standards.	Potential for increased costs to meet more rigorous standards
Council financial sustainability	Councils Long Term Financial Plan is not able to meet the required budgets to deliver key components to manage the drainage assets.	Expenditure increases exceeding income growth.	• Decreased ability to fund timely renewal and upgrade of assets • Increased need for maintenance and repairs that may not be funded.
Climate change	Australia's current climates are variable and prone to extremes - droughts, heatwaves, fires, intense rainfall and floods. These extremes can have a significant impact on communities, natural environments and regional economies.	Variable climate Increased frequency and intensity of extreme rainfall and storm events is likely to cause damage to drainage or create access issues. Localised problem areas are likely to increase.	Increased flooding and damage will be experienced by the community if the funding ability does not match the need for upgrade and expansion.
Ageing infrastructure	Less than 10% of Council's existing stormwater assets are past the halfway mark of their standard life.	Ageing assets are not a major concern for the short to medium term future, but will progressively become more telling in the next 20 years.	Without adequate funding planned for the long term sustainability of stormwater assets, declining condition of Council's drainage will result in reduced levels of service and increased risk.

4.4 Demand Management

Demand for new services will be managed through a combination of managing existing assets, upgrading of existing assets and providing new assets to meet demand and demand management. Demand management practices can include non-asset solutions, insuring against risks and managing failures. A formal demand management plan is to be developed however the following areas are highlighted.

<u>Drainage systems in Established Areas.</u>

Councils have a legislated obligation to maintain stormwater drains within its municipal area. However, there is no statutory obligation of Councils to upgrade stormwater drainage systems to provide a higher level of capacity or performance above that which they were originally designed. Notwithstanding, Mitchell Shire recognises there is

moral obligation to improve the overall performance and function of the stormwater drainage network through both structural and non-structural improvements.

In the context of the overall stormwater drainage network this is not just confined to the constructed network of pit and pipes throughout our townships, but it also includes road carriageways and drainage reserves that are capable of conveying overland stormwater flows that exceed the capacity of the underground network in a safe and efficient manner whilst ensuring protection of built assets.

Structural mitigation measures to improve drainage capacity

Current and forecast budget limitations mean that upgrades of the drainage network on a township wide scale are not possible. Instead, structural mitigation measures (upgrades) are typically confined to isolated sections of the network. These measures typically focus on optimisation of a localised section of the drainage network through inlet capacity improvements and short sections of increased or re-aligned pipes that improve the hydraulic efficiency of the underground network.

Physical measures may also include the construction of stormwater retarding basins in established areas however these measures require extensive parcels of land and unless suitable Council owned land is available, the costs to acquire land to construct these retarding basins is often prohibitive. Notwithstanding cost implications, these structures offer practical ways to limit downstream flows in the underground stormwater network.

These upgrade projects may provide isolated relief from persistent localised drainage issues, but in the context of the wider drainage network, these improvements will be limited by the capacity offered by the downstream underground network and its existing capacity to accept these flows. During significant rainfall events that result in stormwater flows that exceed the downstream capacity of the underground network, these isolated network improvements may have little benefit in the wider context.

For these reasons, the preferred long term solution to drainage capacity issues on a township wide scale is for the ongoing investigation and implementation of Non-Structural mitigation measures.

Non-Structural Mitigation Measures

Much of the constructed stormwater drainage network across the Mitchell Shire has evolved over many decades and to varying standards of design. At present, the design capacity of the overall network, (as measured by contemporary design standards) is not well understood.

What is understood is that Councils cannot design and build stormwater drainage systems that cater for very large rainfall events. Overland flow of storm water along the natural depressions in the local topography is inevitable from time to time. Proper planning for these overland flows in established areas is a more cost effective long-term solution to keeping people and property safe from inundation than attempting to capture and contain large stormwater flows in very large stormwater drainage systems through major upgrade projects.

In order to understand the capacity of the existing network and the level of protection it provides to the community, it is necessary to understand the physical capacity of the pit and pipe network and the local geography for transporting overland flows that may impact roads and private properties as it moves to natural waterways. This is best achieved using flood mapping software that can model the under ground network and map how overland flows move across the local topography.

Mapping of these overland flows can then serve as a basis for future planning controls that help to inform more appropriate redevelopment of properties in known flooding hotspots. These network improvements are known as 'Non-structural' improvements.

'Non Structural' mitigation measures include;

- Planning and Building controls informed by flood mapping;
- The use of natural features in the landscape to control and retard stormwater flows.
- Education and awareness among property owners and the community of known overland flow paths in problematic areas.

Drainage in New Developments

Unlike drainage systems in established areas that have evolved over many years and to varying standards of capacity, the Mitchell Shire's contemporary drainage design standards nominate the 1:10 year design storm as the minimum standard for the design of the underground drainage system.

While these contemporary design standards adopt a higher standard for underground drainage design capacities as opposed to historical standards, the most significant shift in the design of new subdivisions is the innate understanding and appreciation of the need to cater for overland flows that exceed the capacity of the underground network. This is achieved through more appropriate planning of subdivision layouts including the placement of roads and open space reserves in areas that are expected to be subject to overland flows as opposed to the placement of habitable lots in these vulnerable locations.

Contemporary design standards also require developers to limit the outflows from new subdivision to pre-development conditions thus protecting the down-stream stormwater network (or waterway) from excessive flows generated by these developments.

This is achieved through the use of detention systems and retarding basins that;

- restrict the flow of stormwater leaving a development to pre-development levels;
- store excess flows in purpose built storages; and,
- release these flows in a more controlled manner that is sympathetic to the capacity of the downstream network.

Contemporary design standards also require developers of new drainage systems to achieve water quality objectives that seek to reduce the amount of heavy metals, phosphorus, nitrates, sediments, suspended solids and gross pollutants that reach waterways.

These objectives are met through the careful design of wetlands, vegetated swales, sedimentation ponds and gross pollutant traps. These water quality objectives are not covered by this Asset Management Plan.

4.5 Asset Programs to meet Demand

The new assets required to meet growth will be acquired free of cost (gifted) from private sector land development and to a much lesser degree constructed by Council.

The new assets required to meet demand can be acquired, donated or constructed. Additional assets are discussed in Section 5.5. The summary of the cumulative value of additional asset is shown in Figure 1Figure 1: Upgrade and New Assets to meet Demand – (Cumulative)

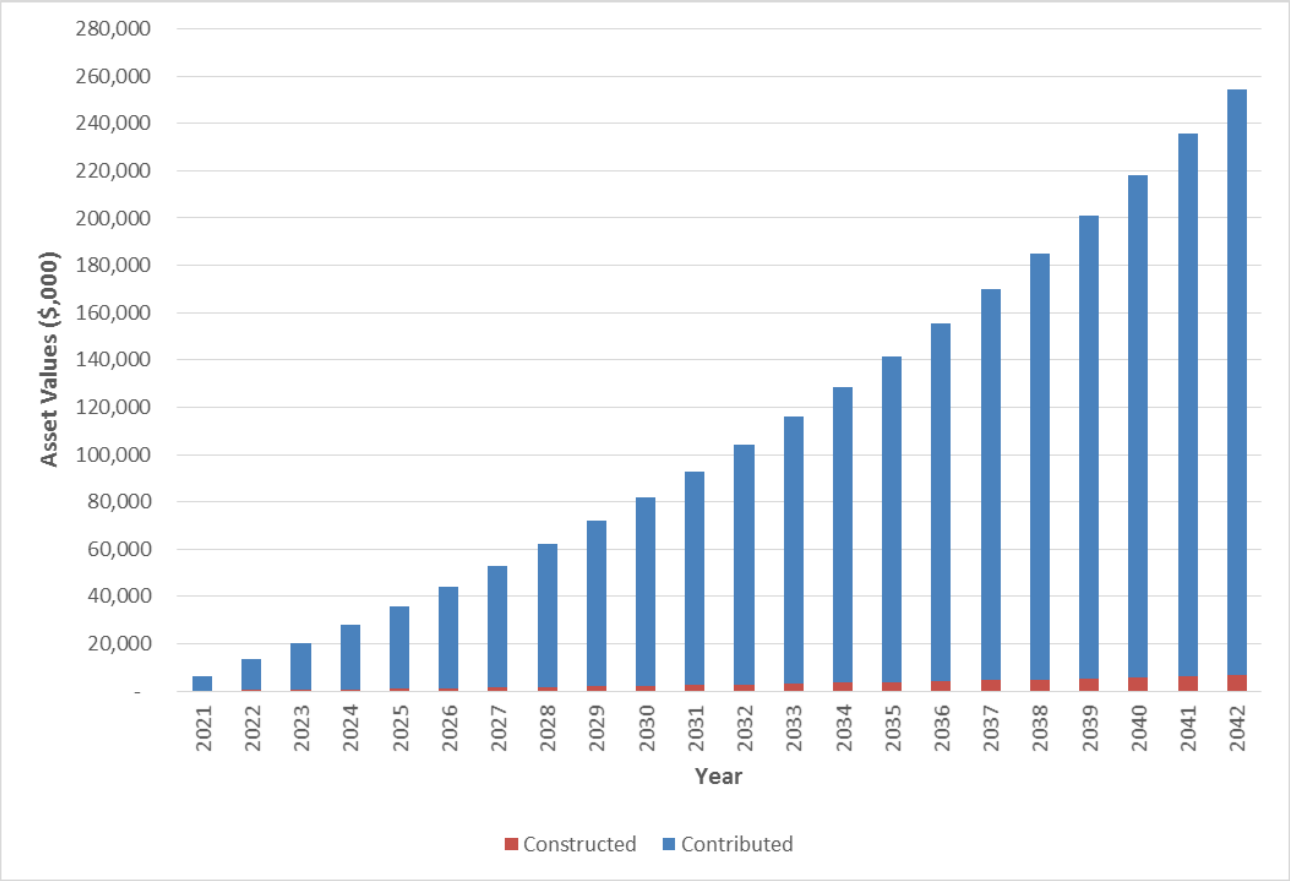

Figure Values are in current (real) dollars.

The cumulative results shown in Figure 1 demonstrate an increasing asset base due to contributed assets from development to meet population growth. The average increase of assets has tracked at 5.2% per annum over the past 5 years.

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

5. LIFECYCLE MANAGEMENT PLAN

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

5.1 Background Data

5.1.1 Physical parameters

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

In general, the drainage asset class comprises the following elements:

- Pipelines
- Pits
- Retarding Basins
- Open Drains

The age profile of the assets included in this AM Plan range between 1950's through to 2021 and are shown in Figure 2.

Figure 2: Asset Age Profile

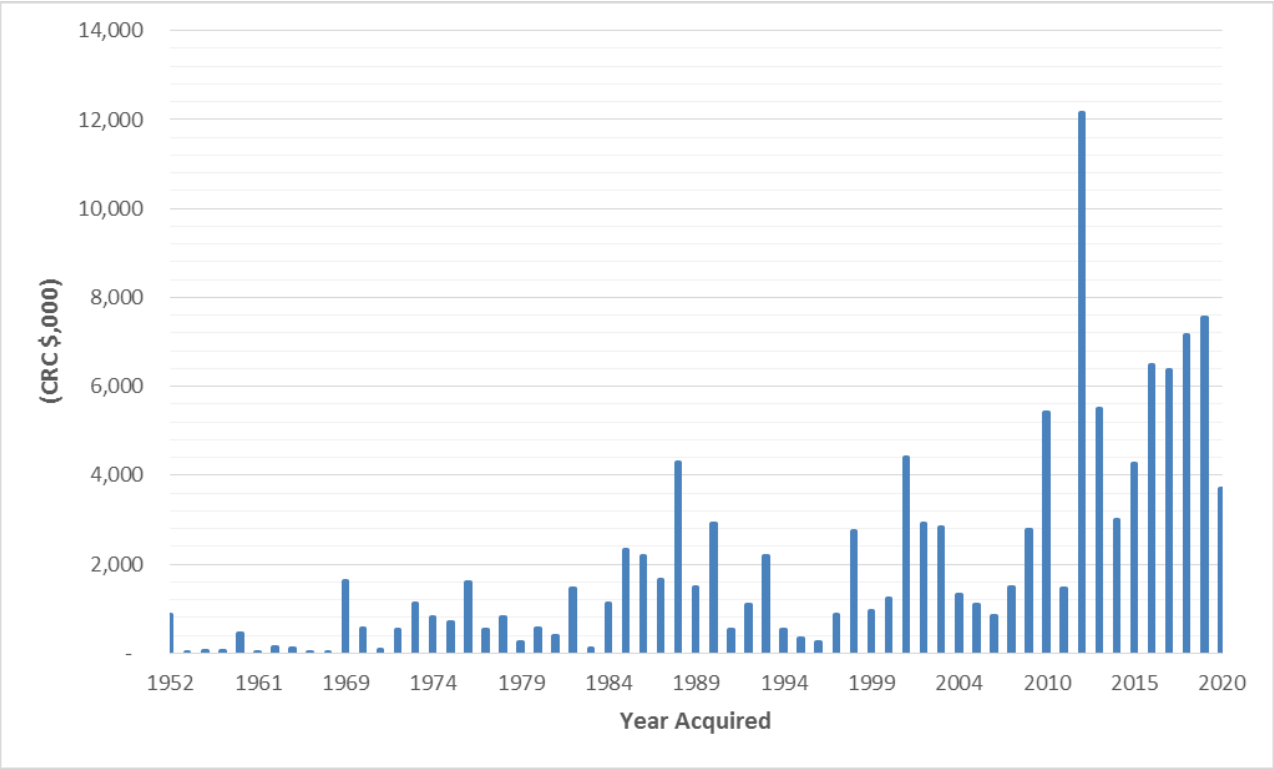

Figure Values are in current (real) dollars.

The age profile for recent contributed and constructed assets is generally more reliable and accurate than those older assets. It is highly likely that in the older townships more assets exist than have been recorded in the asset register, and these go back before the first date shown in this table (being 1952). Our age profile informs us that the majority of our assets are relatively new or reaching the half way point of standard life; most assets have a useful life of 80

years. In time Council will condition audit parts of the storm water network to ascertain condition against age; in the meantime however, age is our best information for likely network condition.

5.1.2 Asset capacity and performance

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

Specific location areas of deficiency are not documented however areas of concern would include the Township of Seymour which is subject to inundation due to its proximity to the Goulburn River. Council does need to maintain a register of known drainage 'hot spots' where localised inundation or more significant flooding is known to occur. These areas should be prioritised for CCTV inspections to determine whether problems are caused by failing condition, or under capacity assets. A problem areas register can be used to inform future capital works planning; and be included in the 10 year capital works budget. General drainage asset issues are detailed in Table 5.1.2.

Table 5.1.2: Known Service Performance Deficiencies

Asset category Issue	Service Deficiency
Budget	Maintenance budget allocations are not increasing in line with expansion of network resulting from subdivision development
Budget	Council is presently underfunding the renewal of its drainage assets which, if unaddressed, will result in declining asset condition and service levels.
Levels of Service	Without clearly defined levels of service it is not possible to understand extent of performance deficiencies.
Lack of condition and capacity data	Condition and capacity is unknown limiting Council's ability to respond to issue more proactively.

5.1.3 Asset condition

Condition is currently monitored using age based modelling.

The condition profile of our assets is shown in Figure 3. While age based modelling is useful, it is not as reliable as condition or capacity based information. We are assuming that assets will deteriorate in a standard uniform way over time. In reality stormwater assets are impacted by factors such as poor maintenance, encroachment by vegetation, poor installation, vehicular movements, debris/blockages, reactive soils, and soil acidity. Without any form of inspection Council does not know if any of these factors are potentially shortening the design life of assets.

Developing better condition related information is a key element of the improvement program.

Figure 3 shows the condition profile of the asset category using a standardised 0 to 10 grading system. Council's condition grading system follows good practice guidance as provided by various industry standards including the International Infrastructure Management Manual. All values are current values.

The majority of assets are rated within a range of 0-2 which is questionable given that most townships within the Shire are around 100 years old. While underground storm water has been developed over time, it can be assumed the older townships may have assets dating back to the early 1900's. New developments are occurring fast, but not at a rate that would see our overall asset network condition have such a weighting toward "very good". This conflicting information supports our need for an improved data collection process through 'sample' condition surveys.

Fig 3: Asset Condition Profile

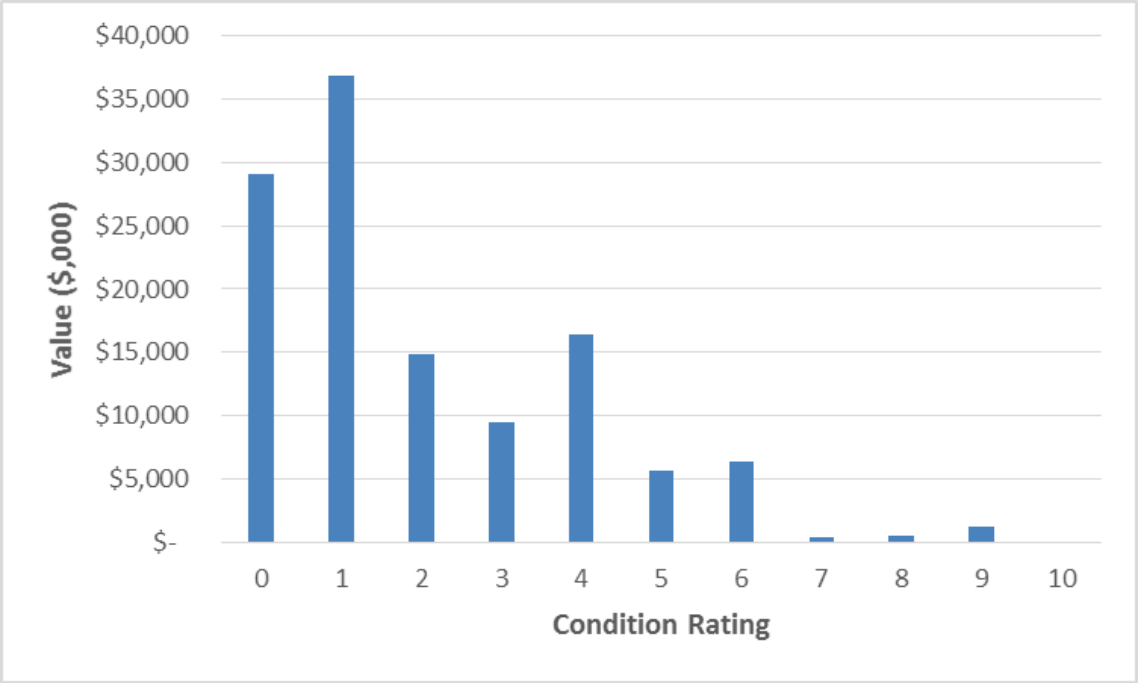

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Table 5.1.3: Simple Condition Grading Model

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.
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

5.2 Operations and Maintenance Plan

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

Routine maintenance is the regular on-going work that is necessary to keep assets operating, including instances where portions of the asset fail and need immediate repair to make the asset operational again, e.g. jetting blocked drains or cutting tree routes that have grown into drain pipes..

Maintenance includes all actions necessary for retaining an asset as near as practicable to an appropriate service condition including regular ongoing day-to-day work necessary to keep assets operating.

Maintenance expenditure is shown in Table 5.2.1.

Table 5.2.1: Maintenance Expenditure Trends

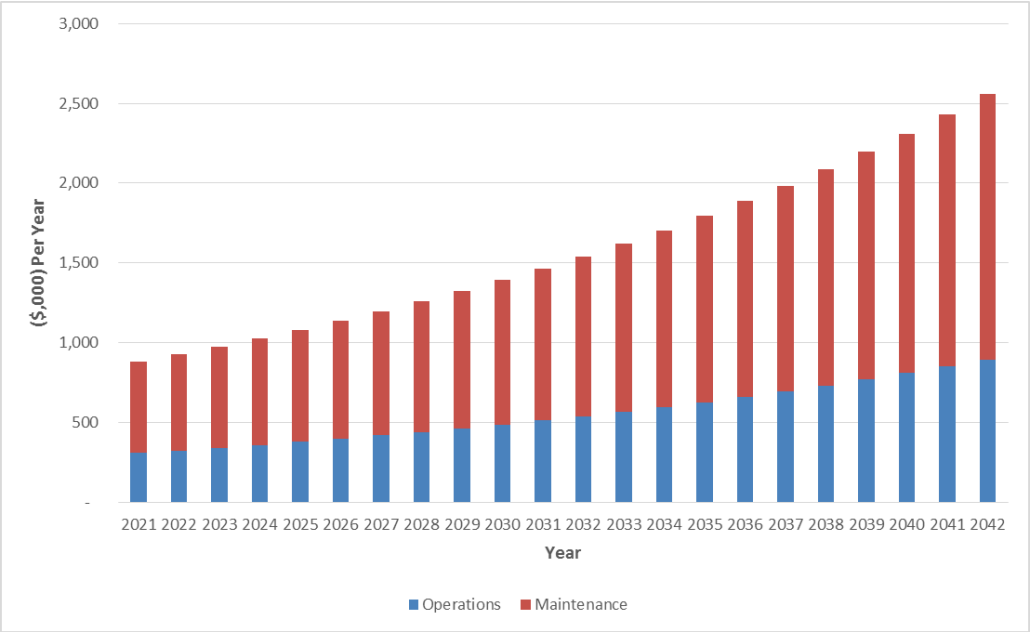
Year	Maintenance $'000
2020/2021 Actuals	$823
2021/2022 Budget	$882

Maintenance expenditure levels are considered to be low when compared against the overall stormwater asset value of $120M. It is acceptable in infrastructure to allocate between 1.5% and 3% of asset value on maintenance. Figure 4 below has been developed suggesting Council may be underfunding maintenance by a factor of 50%. The current funding level is only 0.73% of capital value. If this funding level is proving successful in delivering maintenance across the network each year, and the community is happy with service levels, then further investigation should be done on condition, as it is likely the overall good condition is reducing maintenance costs. However, if there is a funding shortfall year on year, then this demonstrates that insufficient funding is being provided for a network the size of Council's, and unattended maintenance may lead to accelerated poor condition and dissatisfied customers.

Summary of future operations and maintenance expenditures

Future operations and maintenance expenditure is forecast to trend in line with the value of the asset stock as shown in Figure 4. Note that all costs are shown in current 2021/2022 dollar values (i.e. real values).

Figure 4: Projected Operations and Maintenance Expenditure



The Financial System at present does not identify the difference in operations and maintenance costs and the separation of these areas is a future improvement objective. In developing the above funding split between operations and maintenance, all costs associated with administration and management of stormwater has been assigned to operations; all expenditure linked to the direct repair of assets has been assigned to maintenance.

It is worth noting again that the current funding levels are likely insufficient to keep on top of maintenance requirements. This will compound in time with an increasing network as new assets are gifted to Council. It would be prudent for Council to undertake some further detailed analysis of current levels of expenditure, maintenance shortfalls/works not completed, and factor in future growth to better establish a management program capable of ensuring continued services, to meet community expectations over the long-term horizon.

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

5.3 Renewal/Replacement Plan

Renewal and replacement expenditure is major work which does not increase the asset's design capacity but restores, rehabilitates, replaces or renews an existing asset to its original service potential. Work over and above restoring an asset to original service potential is considered to be an upgrade/expansion or new work expenditure resulting in additional future operations and maintenance costs.

Assets requiring renewal/replacement are identified through a combination of methods including using Asset Register data and informal inspections.

5.3.1 Renewal ranking criteria

Asset renewal and replacement is typically undertaken to either:

- Ensure the reliability of the existing infrastructure to deliver the service it was constructed to facilitate (e.g. replacing a bridge that has a 5 t load limit), or
- To ensure the infrastructure is of sufficient quality to meet the service requirements (e.g. roughness of a road).[4]

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 risk consequences in the event of failure
- Have high use and subsequent impact on users would be greatest,
- Have a total value representing the greatest net value,
- Have the highest average age relative to their expected lives,
- Are identified in the AM Plan as key cost factors,
- Have high operational or maintenance costs, and
- Have replacement with a modern equivalent asset that would provide the equivalent service at a savings.[5]

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

[4] IPWEA, 2015, IIMM, Sec 3.4.4, p 3|91.
[5] Based on IPWEA, 2015, IIMM, Sec 3.4.5, p 3|97.

Table 5.3.1: Renewal and Replacement Priority Ranking Criteria

Criteria	Weighting
Condition	40%
Fit for purpose	20%
Risk	10%
Level of maintenance investment	10%
Community complaints	10%
Future strategic use	10%
	100%

5.3.2 Summary of future renewal and replacement expenditure

Referring to Council's condition profile for stormwater assets in figure 3, it can be noted that there are no assets in condition 10. The sum total of assets in condition 8 and 9 (intervention level and above) is $1.77M. This is just 1.5% of the overall network value. Long life assets can remain in condition 4 for many years.

The majority of the network is in 'Very Good' condition, indicating that there has been renewal work and significant contributed assets over the past two decades.

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.

Criteria such as age, material, type of asset, used to determine the useful/ remaining lives and subsequently the 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.

Note that all amounts are shown in current (real) dollars.

Fig 5: Projected Capital Renewal and Replacement Expenditure

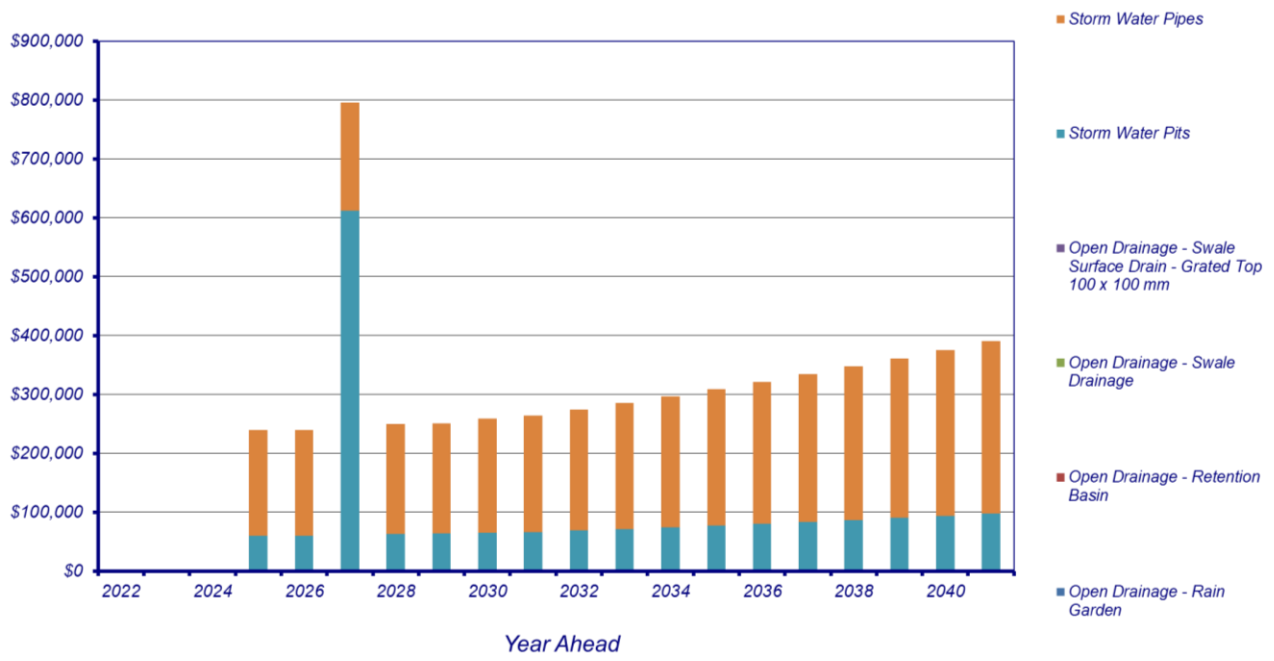
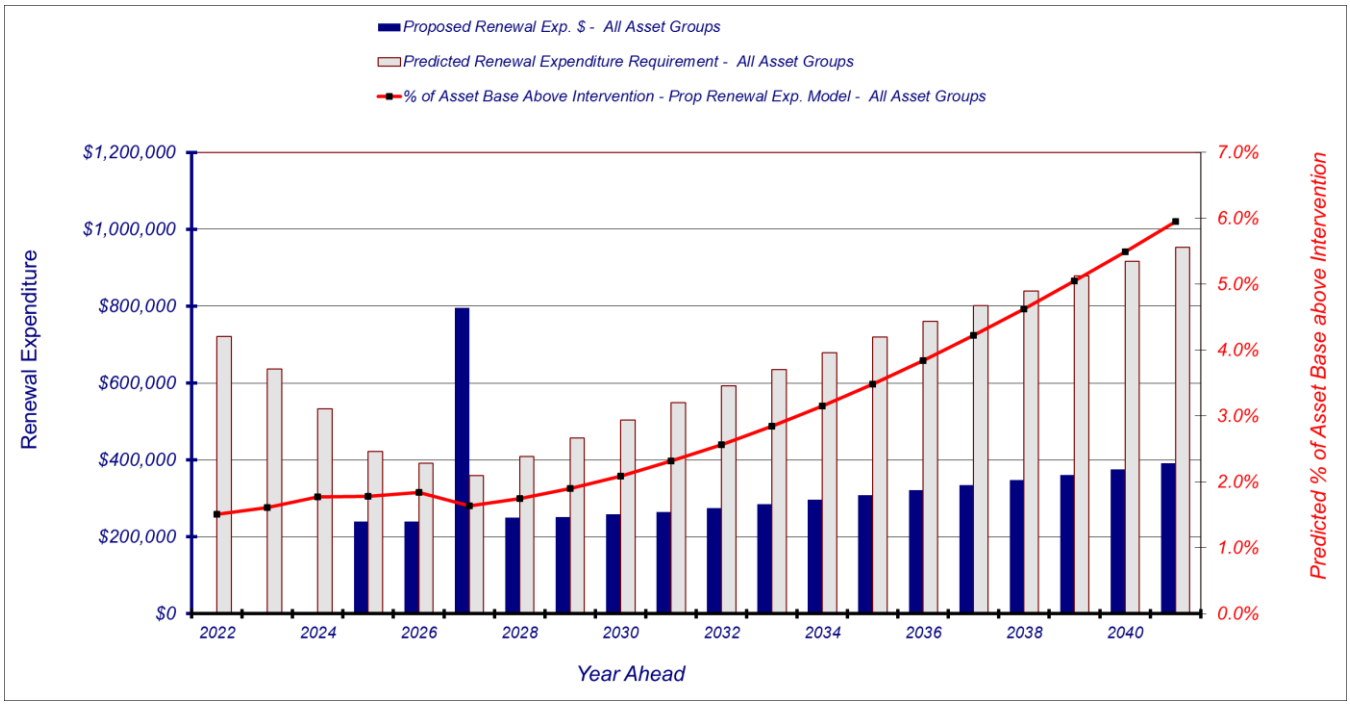


Figure Values are in current (real) dollars.

The Moloney model factors in intervention as soon as the condition point is reached. It is a network model (it does not work of each unique asset) that factors in total cost of network, average ages, average condition and replacement cost, and spreads investment requirement to avoid sharp peaks and troughs.



The renewal requirements in this AMP are potentially understated and improvement in data collection is required to improve the accuracy of future forecasts.

Renewals and replacement expenditure in the capital works program will be accommodated in the long term financial plan. This is further discussed in Section 7.

5.4 Creation/Acquisition/Upgrade Plan

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

5.4.1 Selection criteria

New assets and upgrade/expansion of existing assets are identified from various sources such as the ICSIP report, community requests, proposals identified by strategic plans or partnerships with others. Candidate proposals are inspected to verify need and to develop a preliminary cost estimate. Proposals are ranked by priority and are considered by a Capital Works Control Group, and Capital Works Board.

The capital Works Board will use its established prioritisation matrix developed for assessment of candidate capital works projects as shown below.

Table 5.4.1: Capital Works Prioritisation Model

CAPEX Project Prioritisation Model - Version 1.3								
Assesment Criteria	Risks to Council if project is not undertaken	Alignment to Plans and Strategies of Council	Asset Renewal Projects	Projects that support growing communities	Organisational Business Improvement	Economic Sustainability	Social and/or Cultural Impacts	Environmental Impact
Criteria Weighting	15%	15%	15%	15%	10%	10%	10%	10%
Criteria Description	A meassure of the direct risks to the Mitchell Shire organisation if the project is not delivered. These risks may be financial, reputational, compliance, operational, strategic, breaches of corporate duties or legislated obligations. Risks may also include damage to Council property or risks to health & safety of Council employees.	A meassure of the specific alignment to key adopted strategies and action plans of Council. The project is specifically identified as key actions in these plans, strategies or masterplans.	Projects that contribute to a reduction in asset renewal demand or 'The Renewal Gap' These projects deliver a 'like for like' asset outcome for assets approaching the end of their useful lives. Based on the calculated renewal demand and informed by asset condition assessments or adopted standards.	A project that supports the delivery of an essential service or essential piece of infrastructure to a community in a new or emerging growth area. These projects are specifically identified within adopted Precinct or Township Structure Plans. These projects may include development of new assets or the expansion of existing assets to support new or expanded service delivery.	Projects that support business functions and the business growth of the organisation. These projects are typically (but not always) internally focussed to improve the efficientcy or quality of service delivery, systems efficiency and business growth.	A meassure of the direct economic benefits to the Mitchell Shire organisation that the project will deliver. Benefit may be a meassure of decreased operational or maintenance costs or the ability for the project to create new or increased income to the organisation.	A meassure of the positive Social and/or Cultural Impact that a project will have on the Mitchell Shire Community. It may also be a meassure of impacts to accessibility, mobility, connectivity or safety of the community	A meassure of the positive impact that a project will have on the natural environment and/or the sustainable use of natural or reclaimed resources.
5	Catastrophic. Unacceptable risk to Council	Specific alignment to the Council Plan	100% of project value is targetted at renewal of above intervention assets	Project has significant benefit to new or emerging communities	Project has the ability to dramaically transform the quality or efficentcy of the way Council conducts its	Cost vs Benefit Ratio delivers exceptional value	Significant positive impacts	Significant positive impacts
4	Very High. Difficult to manage.	Specific alignment to a Shirewide strategy or plan	80% of project value is targetted at renewal of above intervention assets	Very High	Very High	Very High	Very High	Very High
3	High	Specific alignment to a township wide strategy or plan	60% of project value is targetted at renewal of above intervention assets	High	High	High	High	High
2	Medium risk. Can be managed.	Specific alignment to a local or precinct strategy	40% of project value is targetted at renewal of above intervention assets	Medium	Medium	Medium	Medium	Medium
1	Low	Specific alignment to a local or precinct masterplan	20% of project value is targetted at renewal of above intervention assets	Low	Low	Low	Low	Low
0	Insignificant risk	No notable alignment to any strategy or plan of Council	Minimal asset renewal benefit	No notable benefit to new or emerging communities	Insignificant	Insignificant	Insignificant	Insignificant

5.4.2 Summary of future upgrade/new assets expenditure

Projected upgrade/new asset expenditures are summarised in Fig 6. All amounts are shown in real values.

Fig 6: Projected Capital Upgrade/New Asset Expenditure

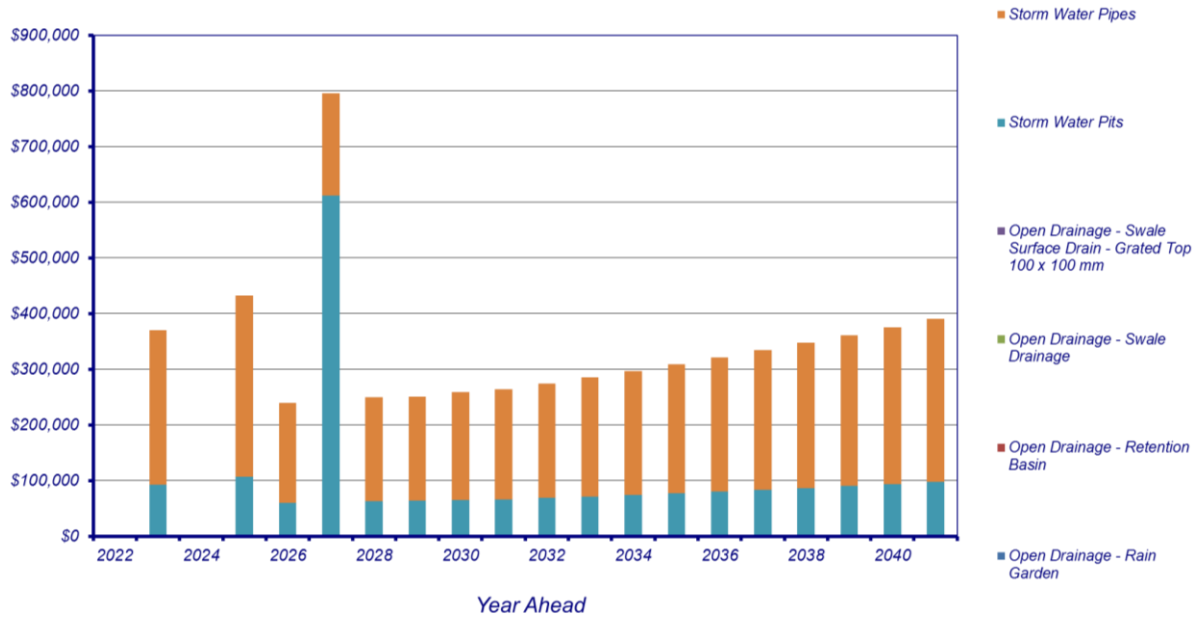


Figure Values are in current (real) dollars.

The figures presented in figure 6 for years 2021 to 2031 have been taken from the LTFP capital works program and may be subject to correction depending on funding needs across the organisation.

5.4.3 Summary of asset expenditure requirements

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

The bars in the graphs represent the anticipated budget presented in the LTFP, the predicted annual renewal requirements is the unbudgeted renewal expenditure required to achieve lowest lifecycle costs. The gap between these informs the discussion on achieving the balance between services, costs and risk to achieve the best value outcome. The average renewal gap over a ten year planning period is $497K and increases to $637K over twenty years as presented in Fig 7.

Fig 7: Projected Operating and Capital Expenditure

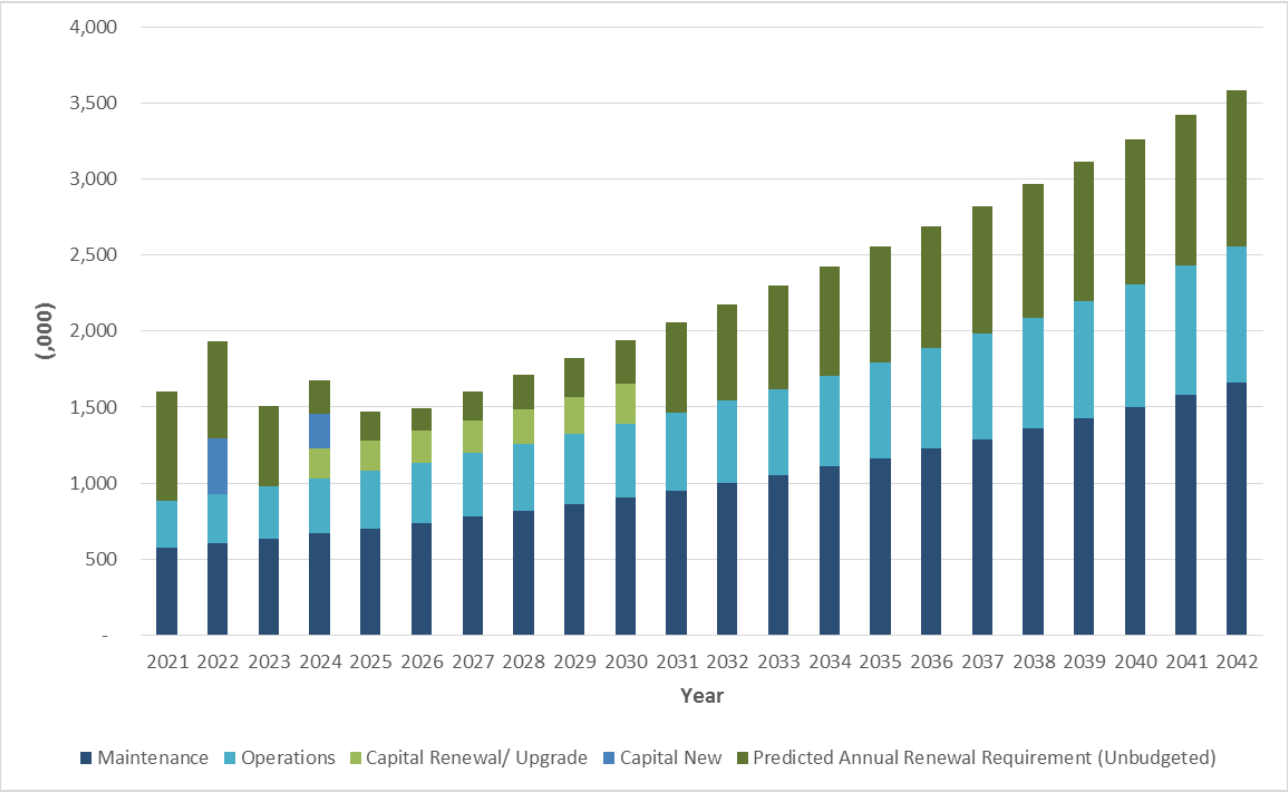


Figure Values are in current (real) dollars.

The information in figure 7 suggest Council must start to increase funding levels for stormwater, however this is based on a desktop assessment of likely asset condition derived from asset age. A more thorough analysis of maintenance demand is required as there is no clear understanding of actual maintenance backlogs. Maintenance in particular is low compared industry standards for infrastructure funding which will be compounded by a stormwater asset base growing at over 5.2% per annum.

5.5 Disposal Plan

Disposal includes any activity associated with the disposal of a decommissioned asset including sale, demolition or relocation. No assets are identified for possible decommissioning and disposal at this time.

6. RISK MANAGEMENT PLAN

The purpose of this section is to describe the basis of Council's strategic risk and investment policies and the manner in which it will manage risk associated with its drainage assets.

6.1 Critical Assets

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

Mitchell Shire has not yet documented its critical stormwater assets, however a criticality criteria has been developed to guide Council in this process, below in Figure 6.1. The higher the score the higher the criticality rating.

Fig 6.1 Stormwater Criticality Criteria

Asset Criteria	Score		
Flow / Volume	Heavy = 10	Medium = 7	Light = 3
Environmental Sensitivity	High = 9	Medium = 6	Low = 3
Vegetation Incursion	High = 9	Medium = 6	Low = 3
Location	Commercial = 9	Residential = 6	Industrial = 3
Accessibility	Easement = 9	Street = 6	Parks & Reserve = 3
External Loadings	Road Reserve = 9	Non Road Reserve = 3	
Pipe Diameter	900+ mm = 9	450 - 825 mm = 6	150 - 375 mm = 3
Alternative Route	No = 9	Yes = 0	
Flood History	Low = 3	Med = 6	High = 9
Criticality Score Total			

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

Stormwater service has the objective of getting stormwater away from roads, public spaces and private property. There are several levels of risk where asset failure could result in localised flooding. Worse would be a major failure of trunk pipes that could cause flooding on a significant scale.

One strategy Council will explore is identifying and prioritising inspections and maintenance work on assets where the consequence of failure is extreme; where it may cause severe public health and safety concerns, cause significant infrastructure damage, or lead to major environmental harm.

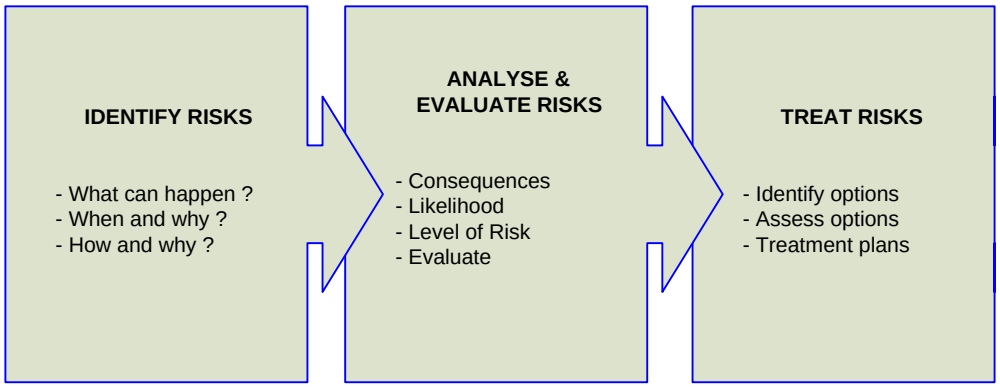
6.2 Risk Assessment

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

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

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

Fig 6.2 Risk Management Process – Abridged



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

Critical risks are those assessed with 'Very High' (requiring immediate corrective action) and 'High' (requiring corrective action) risk ratings. As critical assets are yet to be formally identified a treatment plan has not yet been developed, however the below table provides for some standard stormwater risks.

General risk categories would include Flooding of several residential properties, industrial, commercial and retail properties causing damage to buildings and stock, erosion of land and a potential loss of revenue. Temporary loss of access to properties or places of convenience through road closures as well as floodwaters disrupting utilities causing a loss of service to the broader community.

Service or Asset at Risk	What can Happen	Risk Rating (VH, H)	Risk Treatment Plan	Residual Risk *	Treatment Costs
Future Stormwater funding	Unable to renew maintain asset network at current level of service	VH	Ensure completed LTFP allows for future investment in Stormwater assets to meet demand	The nature of stormwater being underground makes it extremely difficult to inspect and predict future demand	Unknown
Using age as Councils determinant for condition.	Council underestimates overall network condition	VH	Undertake a comprehensive exercise to reassess asset condition taking account of construction standards, geography, rainfall and impact of traffic or other environmental factors.	Useful life predictions are not a perfect science and some assets will still not meet expected UL.	Unknown
Major trunk failure	Significant flood event	VH	Develop a regime to monitor sections of the network where failure can have a high, extreme, catastrophic, consequence.	If failure occurs between inspections, the risk remains	Unknown
Significant rainfall/flooding events	Stormwater network cannot handle extreme weather	VH	Utilise information from stormwater modelling to identify weaknesses in current network	Cannot always construct for worst case scenario 1:500	Unknown

	events		and make plans to upgrade.		
Damage to property and other assets	Stormwater network failure impacts business, commerce, private property and public facilities	VH	Maintain adequate insurance where Council assets are the cause of stormwater network failure.	Insurance premiums will go up if Council relies on insurance without fixing/upgrading the network	Unknown

7. FINANCIAL SUMMARY

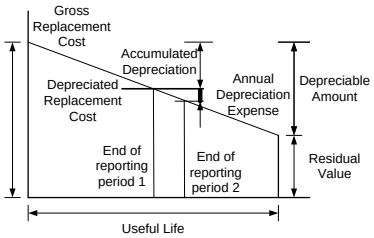
This section contains the financial requirements resulting from all the information presented in the previous sections of this asset management plan. The financial projections will be improved as further information becomes available on desired levels of service and current and projected future asset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

7.1 Financial Statements and Projections

7.1.1 Asset valuations

The best available estimate of the value of assets included in this Asset Management Plan are shown below. Assets are valued at fair value.

Gross Replacement Cost	$120.8M
Depreciable Amount	$25.2M
Depreciated Replacement Cost[6]	$95.3M
Annual Average Asset Consumption	$1.4M



7.1.1 Sustainability of service delivery

Two key indicators for service delivery sustainability that have been considered in the analysis of the services provided by this asset category, these being the:

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

Asset Renewal Funding Ratio

Asset Renewal Funding Ratio 11.5%

The Asset Renewal Funding Ratio (ARFR) is the most important indicator and indicates that over the next 10 years of the forecasting that we expect to require $497K annually for the optimal renewal and replacement of assets based on the renewal modelling. The ARFR is 11.5%, meaning Council has only allocated 11.5% of asset consumption based on depreciation. Most of the portfolio is new assets, and are yet to reach its intervention level in the short term. This result is driven by data used to compile figure 3, the condition profile. $112M of our $120M replacement value is in condition 1 - 5 and only 1.5% is at intervention level 8 and above. There are no condition 10 stormwater assets.

It is not recommended Council rely solely on this data. It is not practicable for Council inspect its full stormwater network for asset condition given 10km will cost around $50K (or $1.6M to inspect all pipes). Instead Council should focus on critical assets (high risk) and use sample data to understand if underground assets are being consumed over time as expected and will meet the allocated standard life.

Medium term – 10 year financial planning period

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

[6] Also reported as Written Down Value, Carrying or Net Book Value.

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

The projected operations, maintenance and capital renewal expenditure required over the 10 year planning period is $2.5M on average per year.

Estimated (budget) operations, maintenance and capital renewal funding is $2.2M on average per year giving a 10 year funding shortfall of $341K per year. This indicates 86% of the projected expenditures needed to provide the services documented in the asset management plan is currently accounted for. This excludes new assets and assumes maintenance and operation costs will be assessed and allocated accordingly.

Providing services from infrastructure in a sustainable manner requires the matching and managing of service levels, risks, projected expenditures and financing to achieve a financial indicator of approximately 1.0 for the first years of the asset management plan and ideally over the 10-year life of the Long Term Financial Plan.

7.1.2 Projected expenditures for long term financial plan

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

Expenditure projections are in 2018/2019 real values.

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

Year	Operations ($000)	Maintenance ($000)	Projected Capital Renewal/Upgrade ($000)	Capital New ($000)
2021	$309	$573	$0	$0
2022	$325	$603	$0	$370
2023	$342	$634	$	$
2024	$359	$667	$200	$0
2025	$378	$702	$240	$0
2026	$398	$739	$245	$0
2027	$418	$777	$250	$0
2028	$440	$818	$254	$0
2029	$463	$860	$259	$0
2030	$487	$905	$264	$0

7.2 Funding Strategy

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

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

7.3 Valuation Forecasts

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

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

Our asset base is growing by 5.2% per year in contributed assets. Ensuring our valuations are reliable will be critical in understanding future financial demand.

7.4 Key Assumptions Made in Financial Forecasts

This section details the key assumptions made in presenting the information contained in this asset management plan. It is presented to enable readers to gain an understanding of the levels of confidence in the data behind the financial forecasts.

Key assumptions made in this asset management plan are:4.

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

- Asset acquisition dates are reliable
- Asset useful lives are generally accurate
- Age driven condition scores reflect how assets deteriorate
- Unit rates for assets, which have been used to generate replacement value, are current
- That current figures in the 4 year capital works program and LTFP are reliable to use for future forecasting

- That current figures in the 4 year capital works program and LTFP are reliable to use for future renewal and upgrade forecasting
- That asset upgrades should actually be attributed to renewal of the asset (hence the replication of renewal and upgrade figures)
- That maintenance is underfunded at .9% of replacement value of asset category
- All figures are forecasted on present day dollars
- Staffing needs are adequate for the current budget allocation
- No significant changes in legislation
- Average growth in the asset base of 5.2% per annum over the period of this plan
- Future funding allocations based on the 2021/22 Budget for operations and maintenance

7.5 Forecast Reliability and Confidence

The expenditure and valuations projections in this AM Plan are based on best available data. Currency and accuracy of data is critical to effective asset and financial management. Data confidence is classified on a 5 level scale[7] in accordance with Table 7.5.

Table 7.5: Data Confidence Grading System

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

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

8. PLAN IMPROVEMENT AND MONITORING

8.1 Status of Asset Management Practices[8]

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

8.1.1 Accounting and financial data sources

Accounting and financial data sources will be extracted from multiple sources, including Technology One, Conquest III and Moloney Asset Management System.

[7] IPWEA, 2015, IIMM, Table 2.4.6, p 2|71.
[8] ISO 55000 Refers to this the Asset Management System

8.1.2 Asset management data sources

Asset management data sources are extracted from Conquest III, Technology One Customer Request Management, Grace Records, HPE TRIM, Exponare, Mapinfo, Rapid Maps.

8.2 Improvement Plan

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

Table 8.1: Improvement Plan

Task No	Task	Responsibility	Resources Required	Timeline
1	Document the existing levels of service being delivered	Manager Engineering and Major Projects	Engineering / Assets Staff Time	
2	Identify Critical Assets and development a treatment plan.	Manager Engineering and Major Projects	Engineering / Assets Staff Time	
3	Identify extent of missing asset attribute data through desktop review as an initial phase.	Strategic Assets Coordinator	Assets / GIS Staff Time	
4	Develop a comprehensive drainage capital works plan to target priority renewal/upgrade tasks.	Manager Engineering and Major Projects	Engineering / Assets Staff Time	
5	Review current funding allocations made to drainage maintenance to ensure it is sufficient to deliver current levels of service.	Strategic Assets Coordinator	Assets / GIS Staff Time	
6	Develop an inspection plan including use of CCTV, electronic recording processes and condition audits.	Strategic Assets Coordinator	Assets / GIS Staff Time	
7	Document our known service deficiencies.	Manager Engineering and Major Projects	Engineering / Assets Staff Time	
8	Ensure all assets within the data set have a current replacement cost and year acquired	Strategic Assets Coordinator	Assets / GIS Staff Time	
10	Identifying Operational versus Maintenance Costs	Management Accounting Coordinator	Finance Staff Time	
11	Complete data capture of gross pollutant traps, stormwater pumping infrastructure, and open drainage system.	Strategic Assets Coordinator	Engineering / Assets Staff Time	
12	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.	Strategic Assets Coordinator	Engineering / Assets Staff Time	
13	Align customer service request categorisation with customer level of service.	Strategic Assets Coordinator/	Customer service Coordinator	
14	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 Engineering and Major Projects	Engineering / Assets Staff Time	

8.3 Monitoring and Review Procedures

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

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

The AM Plan has a life of 4 years and is due for complete revision and updating within four years of the date of endorsement or earlier as needed.

8.4 Performance Measures

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

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

9. REFERENCES

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- IPWEA, 2012 LTFP Practice Note 6 PN Long Term Financial Plan, Institute of Public Works Engineering Australasia, Sydney
- Council Plan 2017 – 2021
- Long Term Financial Plan
- Strategic Resource Plan
- Annual Budget
- Asset Management Policy
- Asset Management Strategy

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