

Inner West Council

Stormwater & Drainage Asset Management Plan 2022-2032



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Document Control

Document History

Version	Date	Status	Author	Summary of changes
0.1	15/5/2022	Draft	T. Blefari	Initial draft SDAMP.
0.2	26/5/2022	Final	T. Blefari	Updates following internal feedback.

Definitions

Explanation of definitions and acronyms used in this plan.

Term/Acronym	Definition
AASB	Australian Accounting Standards Board
AM Strategy	Asset Management Strategy
Backlog	<p>The quantum of assets that meet the levels of service reflected in the modelling rule base and hence due for a capital treatment, however, funding is not enough to treat these assets.</p> <p>The current hypothetical cost of recouping this backlog (i.e. SDAMP funding required to bring every asset in condition state 5, Very Poor, back to a condition state 1, being Very Good) by immediate capital renewal.</p>
Condition or Service State	The service state involves the use of a single integer between 1 and 5 to describe the ability of the asset in question to fulfill its function; where 1 is very good and 5 is very poor.
GPT	Gross Pollutant Trap
IIMM	International Infrastructure Management Manual
ISO55000	55000 Series, International Suite of Asset Management Standards
LTFP	Long-Term Financial Plan
Net Strategy Cost	Total cost lifecycle scenario strategy. Calculation; Total Capital Cost over 20 Years + Total Maintenance & Operational Cost over 10 Years – Backlog Movement Over 20 Years.
Non-current assets	Physical and intangible infrastructure assets, including information and communication technology (ICT) assets, controlled by the organisation
SAM	Strategic Asset Management
SQID	Stormwater Quality Improvement Device
SDAMP	Stormwater & Drainage Asset Management Plan
WSUD	Water Sensitive Urban Design

Stormwater & Drainage Asset Management Plan 2022-2032

1 Executive Summary

1.1 The purpose of the Plan

The purpose of this Stormwater & Drainage Asset Management Plan (SDAMP) is to inform Inner West Council’s (Council) commitment to best practice asset management and provide principles for sound stormwater drainage asset investment decision making.

The SDAMP documents the overall integrated planning framework to guide and improve Council’s long-term strategic management of its stormwater drainage assets in order to cater for the community’s required levels of service into the future as detailed in Section 3.5 Level of Service. The SDAMP defines the state of Council’s stormwater assets as at the 2022 Financial Year, the 10-year funding required to achieve Council’s adopted asset performance targets and planned asset management activities over a 10-year planning period.

This SDAMP is to be read in conjunction with Council’s Asset Management Strategy.

1.2 Current State of Council’s Assets

The value of stormwater drainage assets covered by this SDAMP is estimated at \$178.2M, as of 30th June 2021 and summarised in Table 1 below:

Asset Type	Quantity (Number)	Replacement Cost (,000s)	Accumulated Depreciation (,000s)	Fair Value (,000s)	Annual Depreciation (,000s)
Stormwater & Drainage	19,366	\$178,177	\$57,910	\$120,267	\$1,471
Grand Total	19,366	\$178,177	\$57,910	\$120,267	\$1,471

Table 1 - Assets Valuations as of 30th June 2021¹

¹ Source: Inner West Council | Annual Report 2020-21 | Notes to the Financial Statements 30 June 2021

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The following dashboard provides a high-level overview of the current condition (service state) of all stormwater drainage assets owned and maintained by Council. The service state is a numerical score assigned to each major stormwater asset to represent its current performance (i.e., where is the asset on its lifecycle path).

Utilising predictive modelling software and techniques, Council can simulate each asset's degradation (the way it moves from one condition state to another throughout its lifecycle) to predict when assets will fail and require future treatment intervention.

Refer to Table 5 – Asset Condition Rating Guidelines for condition definitions.

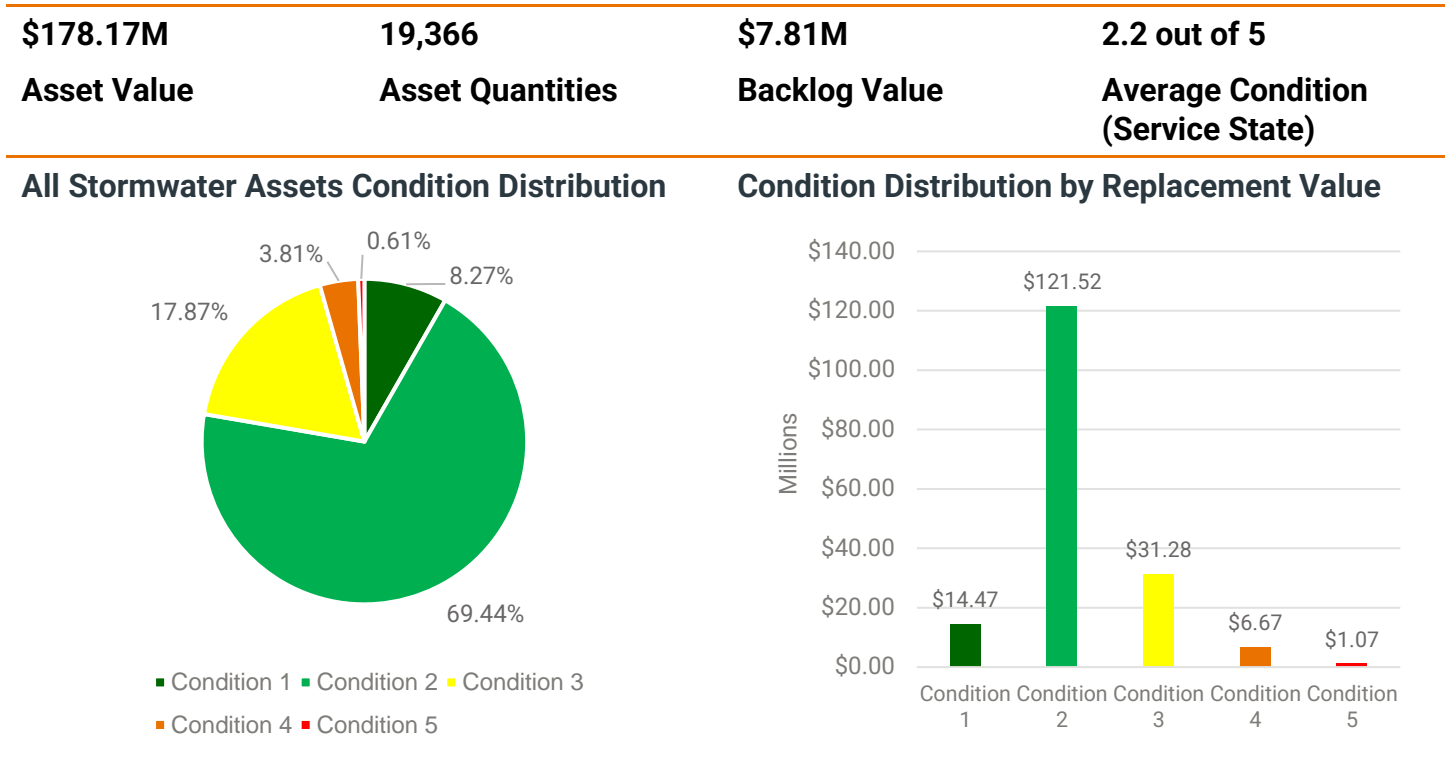


Figure 1 – State of Assets Snapshot as at FY2022

Stormwater & Drainage Asset Management Plan 2022-2032

The diagram below provides a condition snapshot of Council’s stormwater drainage assets by asset function.

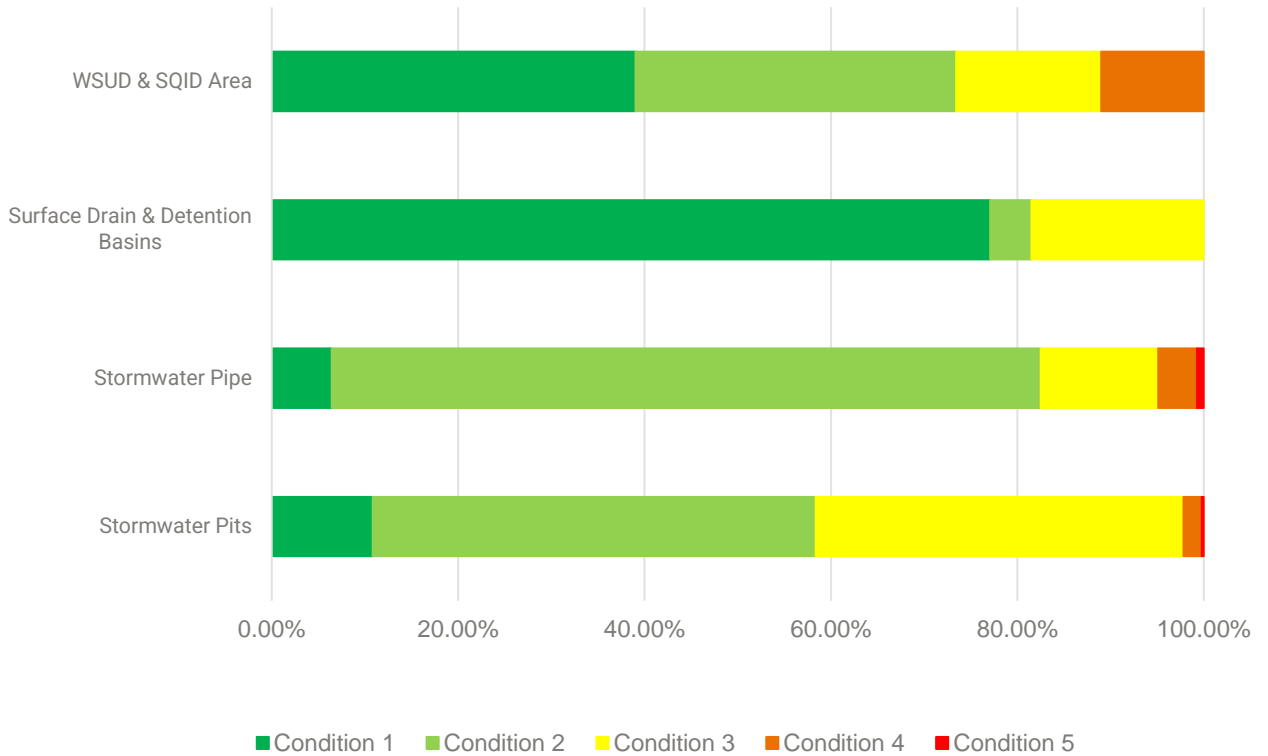


Figure 2 – Component Condition Distribution by Asset Function & Replacement Cost as at FY2022

1.3 Asset Funding Levels

The Financial Summary in this SDAMP recognises that Council has considered multiple strategic predictive modelling scenarios in the process of deriving its 10-year long-term financial budget, in line with the guiding principles of best practice asset management.

Presently, there are plans to spend approximately \$14.17M over the following 10 years to upgrade Council’s stormwater drainage and these have been documented in Council’s current 10-Year Works Program.

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In addition to the stormwater funding in relation to upgrade works, the current levels of funding reflected in Council’s Long-Term Financial Plan (LTFP), relative to Council’s existing stormwater drainage asset portfolio, have been determined as follows:

- Capital Renewal: \$15.25M over 10-years; and
- Maintenance & Operations: \$14.81M over 10-years or \$1.48M on average per annum.

The total capital funding (including renewals and upgrades) is \$29.42M. This funding option is expected to be sufficient to enable the stormwater portfolio to achieve its current useful lives through capital and maintenance activities, thereby achieving the level of service targets.

Further financial options are detailed in the Financial Summary Section. It is envisaged the financial projections will be improved as further information becomes available on the condition, future desired levels of service, asset inventory and asset performance.

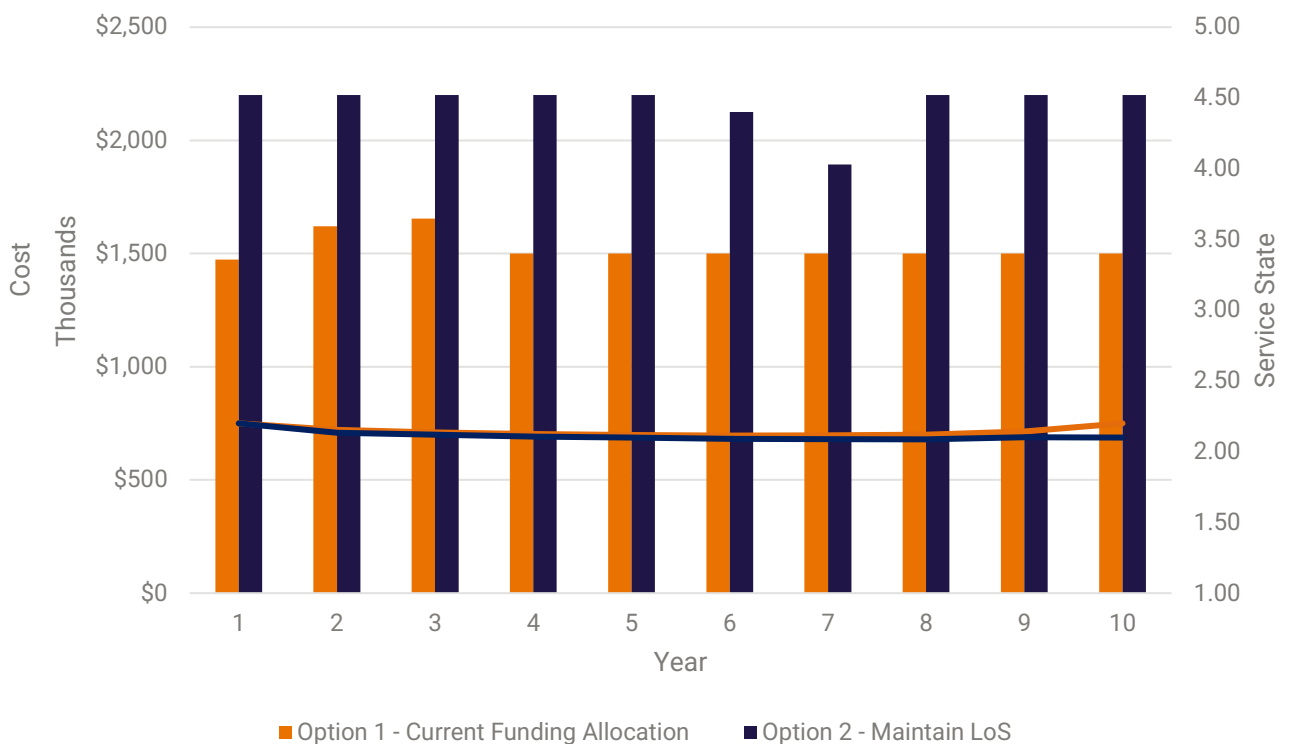


Figure 3 – Total Capital Renewal Cost and Service State (Condition) by Year

Stormwater & Drainage Asset Management Plan 2022-2032

\$29.42M	\$7.81M	2.2
Total Capital Cost	Initial Backlog	Initial Condition
\$ 14.81M	\$ 12.77M	2.2
Total Maintenance & Operational Cost	Backlog at Yr 10	Condition at Yr 10
\$ 44.23M	\$4.95M	\$ 49.18M
Total Lifecycle Cost	Change in Backlog	Net Strategy Cost

Table 2 –10-Year Funding & Strategy Results - Recommended Funding Option

1.4 Monitoring and Improvement Program

The improvement action items identified can be found in the Plan Improvement and Monitoring Section.

2 Asset Class Information

2.1 Background

Any rain that falls on roofs or is collected via paved areas like driveways, roads or footpaths is called stormwater. Inner West Council (Council) is bounded by three primary water bodies – Parramatta River to the north, Cooks River to the South and Sydney Harbour to the east – and contains 5 tributary creek systems – Dobroyd Canal, Hawthorne Canal, Whites Creek, Johnstons Creek and Alexandra Canal. Council has nine primary catchments².

The stormwater drainage system within Council is a combination of pits, pipes, box culverts, open channels, natural waterways, and road reserves, which collect and carry the stormwater and dispose of it in rivers, creeks and/or other catchments. It also includes detention basins and quality protection devices (Gross Pollutant Traps - GPTs) that contribute to maintaining water quality.

Council's stormwater asset portfolio provides a vital service to the community. These stormwater assets represent a significant investment by Council and are of vital importance to providing Council with a stormwater drainage system. The function of the stormwater drainage system is to protect people, property, and public health, by safely and efficiently collecting, transporting, and disposing of stormwater runoff.

To date Council has completed Overland Flood Studies for 8 of its 9 catchments, a tide and storm levels study along the Parramatta River and Sydney Harbour foreshore, as well as contributing to the Cooks River Flood Study and the Parramatta River Estuary Coastal Zone Management Study and Plan³.

Council has also completed flood risk management studies and plans for all areas within the former Leichhardt LGA, Marrickville Valley and Eastern Channel East. Council is currently finalising its Flood Risk Management Study and Plan for the Hawthorne Canal and Dobroyd Canal, as well as undertaking further planning for Alexandra Canal, Johnstons Creek and Whites Creek.

² A catchment is an area of land where water collects when it rains.

³ Studies are available on Council's website - <https://www.innerwest.nsw.gov.au/live/environment-and-sustainability/in-your-neighbourhood/rivers-and-waterways/flooding>

Floodplain management plans and studies define the existing flooding behaviour and associated hazards and investigate possible mitigation options to reduce flood damage and risk within catchment areas. These plans and studies are also used to establish a program for implementation and mechanism for stormwater drainage funding requirements which includes priorities, staging, funding, responsibilities, constraints, and monitoring.

New and upgrade stormwater drainage needs, and project candidates are identified from these studies, which detail specific project level description of works, costs and a priority ranking of the identified projects using a high, medium and low priority ranking assessment.

Changing weather patterns and design standards, have resulted in a complex network of stormwater drainage in varying conditions. Common findings of the Floodplain management studies recognise that flooding in each catchment is of a flash flooding nature, flooding of existing developed areas results in economic and social impacts and can impact and damage critical infrastructure. Climate change-related increases in rainfall intensity are predicted to exacerbate current flooding levels.

As the responsible authority for the provision and maintenance of this infrastructure asset base, Council recognises the need to ensure the management of this valuable asset portfolio, to ensure that the current and future benefit to the community is delivered at a cost that the community can afford.

2.1.1 Stormwater Drainage Included in this AM Plan

The stormwater drainage assets considered in this SDAMP, are described as including all assets directly associated with Council's stormwater drainage system, for which Council is the responsible authority.

In all, this SDAMP covers 19,366 stormwater assets as classified by their asset subclass and set out in Table 3 – Stormwater Asset Quantity by Asset Subclass.

Stormwater & Drainage Asset Management Plan 2022-2032

Asset Subclass (Function)	Length (m)	Quantity (Each)
Stormwater Pipes	180,070 ⁴	9,533
Stormwater Pits	-	9,780
Surface Drain & Detention Basins	-	7
WSUD & SQID Area	-	46
Total Stormwater Drainage	180,070	19,366

Table 3 – Stormwater Asset Quantity by Asset Subclass

A detailed list of all stormwater drainage assets for which Council has included in this SDAMP are recorded in Council’s Asset Register.

2.1.2 Stormwater Drainage Exclusions

The SDAMP excludes all stormwater assets owned and maintained by other authorities such as Sydney Water and Roads and Maritime Services. Creeks, rivers and unlined channels are also not considered in this SDAMP.

It should also be noted that household drainage systems from within private properties up until the drainage discharge point, are not maintained by Council. These systems are maintained by the property owners.

⁴ Some pipe lengths held as a quantity of 1 in the asset register and lengths have been assumed. Will require validation and improvement of data.

Stormwater & Drainage Asset Management Plan 2022-2032

2.2 Current State of the Assets

The distribution count of Council stormwater drainage asset portfolio by quantities is illustrated in Figure 4.

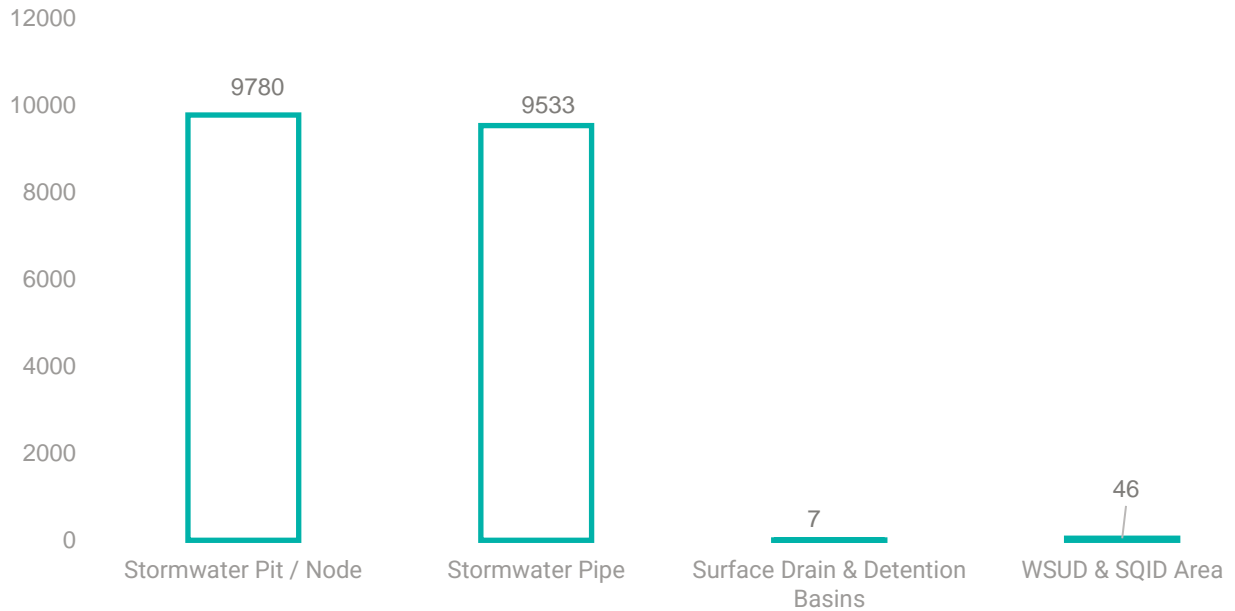


Figure 4 – Distribution Count of Stormwater Assets by Function

2.2.1 Current Replacement Costs

The value of stormwater drainage assets covered by this SDAMP is estimated at \$178.2M, as of 30th June 2021. The break-up of the asset subclass by replacement value is illustrated in Figure 5.

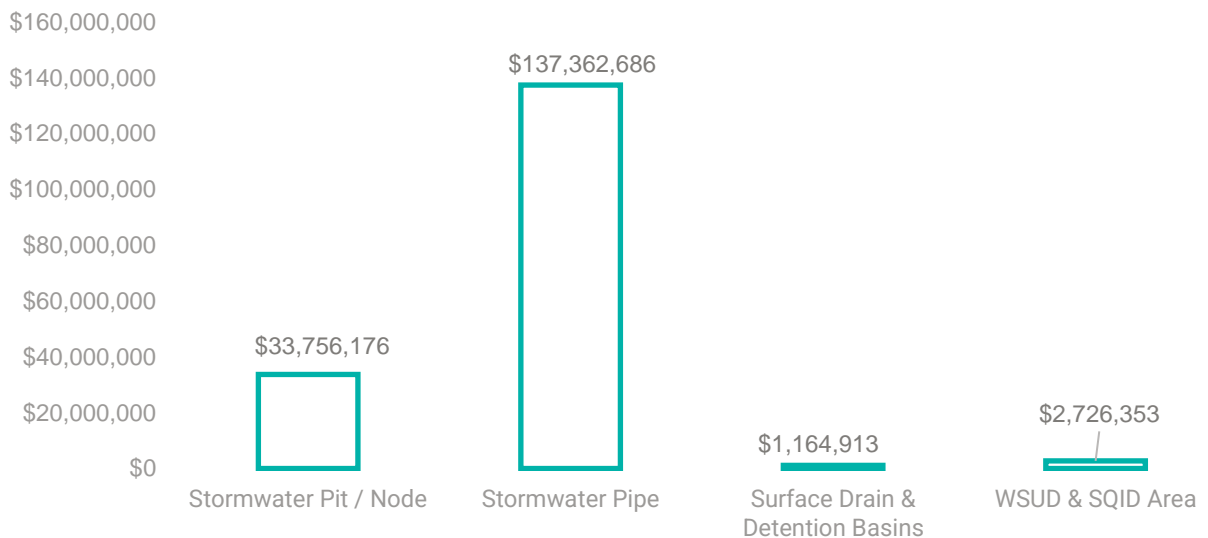


Figure 5 – Distribution of Stormwater Asset Replacement Values by Function

Stormwater & Drainage Asset Management Plan 2022-2032

Asset Type	Quantity (Number)	Replacement Cost (,000s)	Accumulated Depreciation (,000s)	Fair Value (,000s)	Annual Depreciation (,000s)
Stormwater & Drainage	19,366	\$178,177	\$57,910	\$120,267	\$1,471
Grand Total	19,366	\$178,177	\$57,910	\$120,267	\$1,471

Table 4 - Assets Valuations as of 30th June 2021⁵

Table 4 identifies the annual asset depreciation of Council’s stormwater drainage assets to be in the order of \$1.47M per annum. The average annual depreciation (asset consumption) is considered a measure of the wearing out or other loss of value of the asset that is systematically accounted for over a standard useful life for accounting purposes – the wearing arises from its use, passing of time or obsolescence or environmental changes.

It should be acknowledged that depreciation is not an ideal measure of asset renewal needs or sustainability from a future funding perspective and is seldom recommended now in modern practice. The focus is now more on sustainability-based analysis of asset service level (long term financial plans based on strategic lifecycle modelling & planning). This method is based on analysing multiple scenarios of funding vs service levels and is the correct method chosen by Council to determine its Long-Term Financial Plan.

2.2.2 Stormwater Information Management

All information pertaining to asset type and function, location, constructed year and condition of these stormwater drainage assets are recorded and stored in Council’s Asset Register which is a module of the Finance System. At the time of preparing this SDAMP, it is estimated that Council’s Asset Register is 70% up to date. The Improvement Plan identifies actions to further enhance and improve Council’s Asset Register information, by verifying and improving the current asset dataset attributes.

2.2.3 Current Asset Performance

The following dashboard provides a high-level overview of the current condition (service state) of all stormwater drainage assets owned and maintained by Council.

⁵ Source: Inner West Council | Annual Report 2020-21 | Notes to the Financial Statements 30 June 2021

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The condition state is a numerical score assigned to each major stormwater component (asset) to represent its current performance (i.e. where is the asset on its lifecycle path), with condition state 1 representing an excellent condition and condition state 5 representing a very poor condition.

Refer to Table 5 – Asset Condition Rating Guidelines for condition definitions.

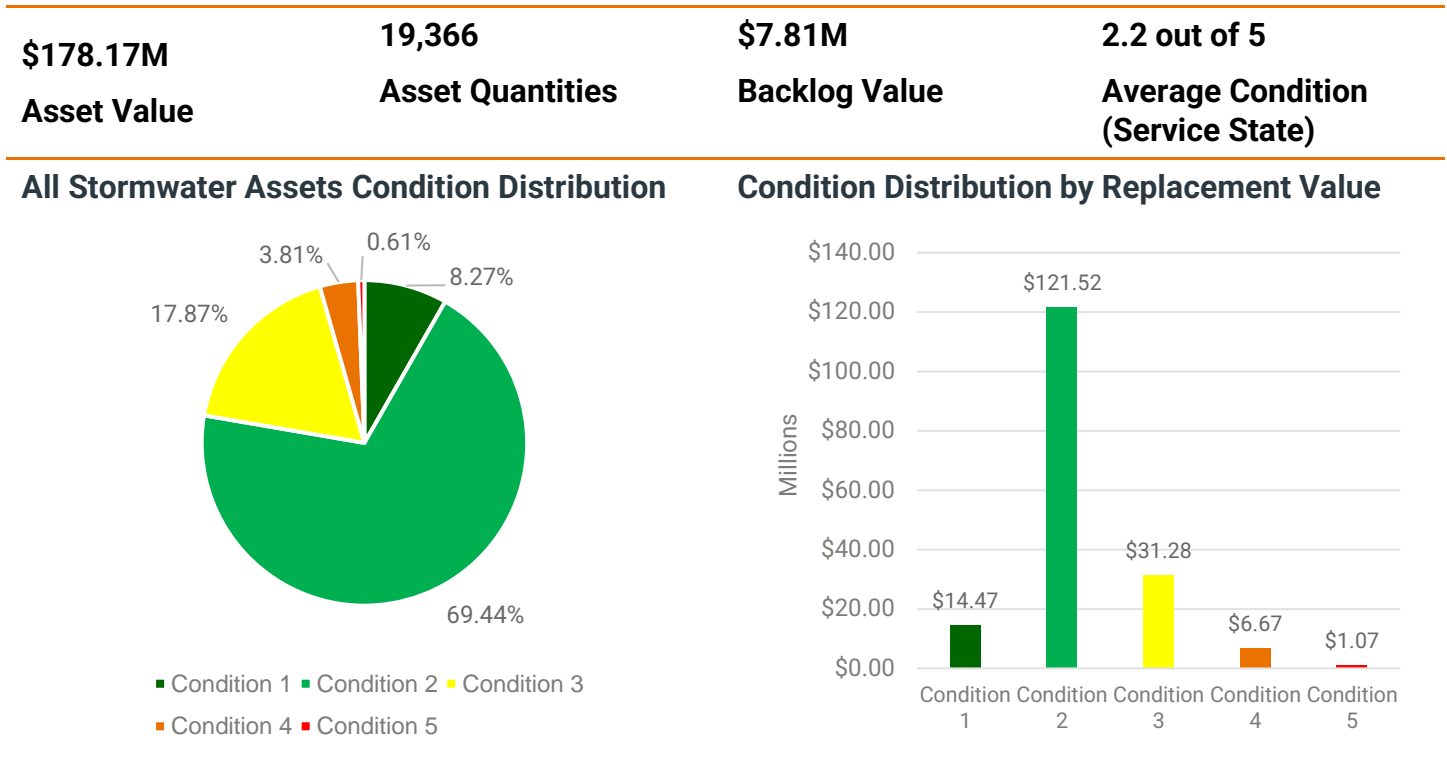


Figure 6 – State of Assets Snapshot as at FY2022

Figure 7 provides a condition snapshot of Council’s stormwater drainage assets by asset function.

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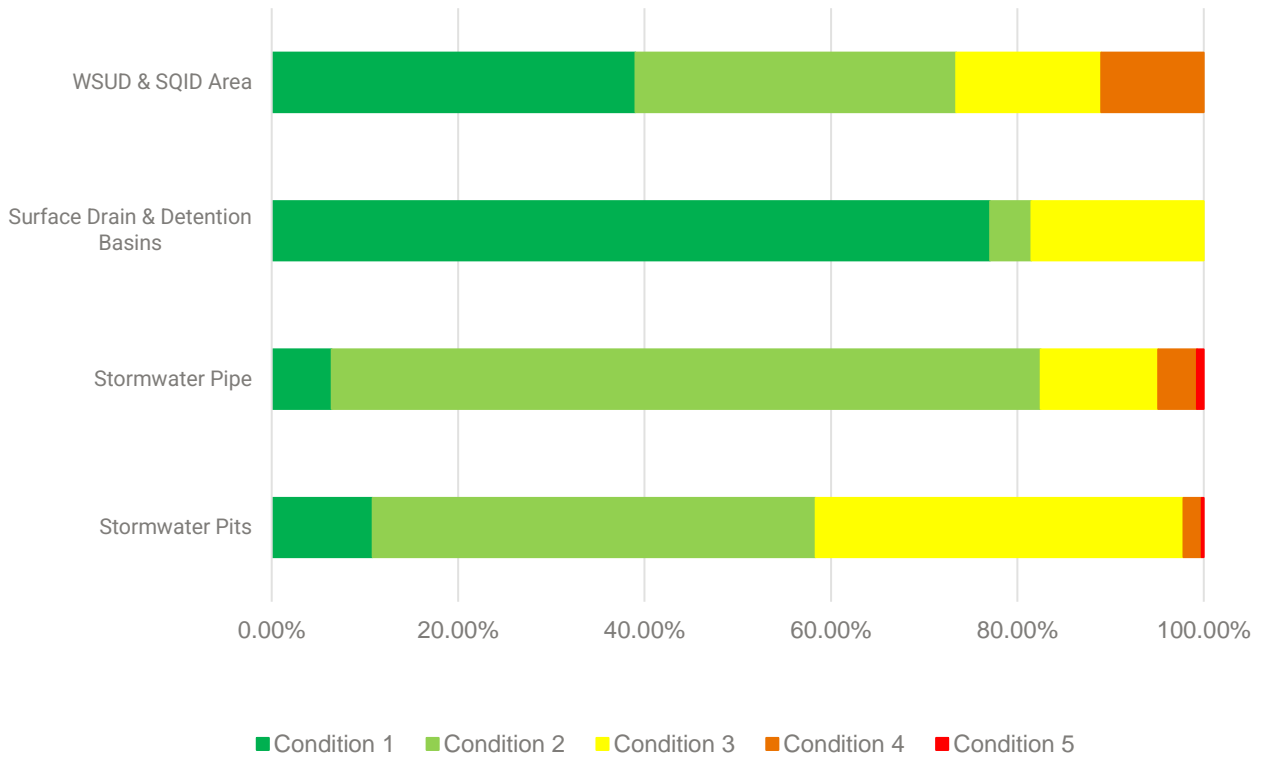


Figure 7 – Component Condition Distribution by Asset Function & Replacement Cost as at FY2022

Best practice asset management with regards to stormwater assets utilises statistical sampling of the underground pipes using Closed Circuit TV (CCTV) methods to determine the structural condition and serviceability of pipes, whilst Floodplain management studies determine the drainage network's fitness for purpose in regard to meeting the required drainage design standards. Other stormwater drainage assets such as pits, GPTs and basins are visually inspected.

Locations where deficiencies in service performance exist are currently and progressively being identified by Council officers from the Floodplain management studies and resident requests⁶. The Improvement Plan recognises that further work is required to develop a Master List of all stormwater drainage projects necessary to alleviate known flooding issues and to prioritise these works to develop a long-term rolling program of capital new and upgrade works. This is particularly relevant where locations coincide with major road rehabilitation projects. It is estimated that at present, approximately \$240M of new and upgrade works are required to address the

⁶ Council officers record nuisance flows and flooding incidents as reported by residents, maintaining a register of these locations.

known Floodplain management issues identified in each completed study and resident requests.

The framework documented in Council’s Asset Management Policy, and the Strategies documented in the Asset Management Strategy and supported by this SDAMP will place Council in a good position to address the asset issues currently faced.

2.2.4 Condition Assessment

Council will formally document a detailed stormwater condition assessment manual that will be used to assess the stormwater drainage network condition. The Stormwater Service Framework will provide further information on the methodology for rating and assessing the condition/performance of these assets.

Typically, network wide condition assessments are undertaken on a three-to-four-year cycle (coinciding with the financial revaluations) and used to identify where assets are within their defined useful lives at any given point in time.

To date, Council has not undertaken proactive condition assessments of the underground drainage system, except for locations where required to investigate resident request flooding complaints⁷. Condition has typically been applied to the assets within the register, using either known construction dates or the age of the various locations across the Council area, in conjunction with limited CCTV including areas where known defects have been reported.

Statistical sampling is a recognised and widely used method since the drainage pipes are buried below the ground and a visual assessment of the drainage pipe network is difficult to determine without the assistance of CCTV technology. However, for the sampling to provide effective results, the CCTV inspection needs to be undertaken as random sampling. Work has not commenced on statistically sampling these assets.

Due to the extensive network of Council owned drainage pipes the exercise of undertaking CCTV inspections is a costly one and Council does not have the available financial resources required to undertake extensive CCTV visual condition assessments for the entire drainage network.

⁷ Estimated between 30-40% of the pipe network surveyed over the past 10-years.

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Future iterations of this SDAMP will have improved condition analysis undertaken to provide an indication of condition and location deficiencies mapped to identify capacity issues. At present, this is difficult to ascertain and hence will be revised at a later stage.

The condition rating system is summarised in Table 5 – Asset Condition Rating .

Condition	Condition Score	Description
Good	1	Very Good: free of defects, only planned and/or routine maintenance. Only Normal Maintenance Required
	2	Good: minor defects, increasing maintenance required plus planned maintenance. Minor Maintenance Required.
Fair	3	Fair: defects requiring regular and/or significant maintenance to reinstate service. Significant Maintenance Required to Return to Acceptable Service Level.
Poor	4	Poor: significant defects, higher order cost intervention likely. Significant Renewal/Upgrade Required.
	5	Very Poor: physically unsound and/or beyond rehabilitation, immediate action required. Asset / Component Requires Replacement.

Table 5 – Asset Condition Rating Guidelines

2.3 Lifecycle Management

Life Cycle Management is an essential component of any good asset management plan. This section of the SDAMP identifies the processes required to effectively manage, maintain, renew and upgrade Council’s stormwater assets.

2.3.1 Operations & Maintenance Plan

Operations activities can be described as activities that are delivered on a day-to-day basis necessary to meet levels of service delivery requirements. Operational activities can include service delivery items such as clearing debris from pits and pipes. Operational activities also include proactive and reactive inspections, undertaken by in-house technical staff and/or specialist contractors. Operations activities do not improve the condition of assets.

Over time, minor faults can occur within the stormwater drainage portfolio. Council addresses the repairs and maintenance of these faults (i.e. broken pit lid, collapsed section of pipe) based on defined intervention levels and response times. The

intervention level defines the condition, state or risk level associated with an asset/component, i.e. the point in time at which the asset is considered to be below an acceptable level of service. Maintenance is scheduled as soon as the asset reaches this point.

Operations and maintenance activities do not improve the condition of the stormwater assets, but rather enables the stormwater assets to deliver their service levels as related to their function.

For the Levels of Service delivered on a day-to-day basis (i.e. responding to customer requests for maintenance faults and responding to localised asset failures), these intervention levels⁸ are currently documented in Council's maintenance management system. At present, Council considers that these current operations and maintenance service levels meet the community's needs and expectations.

The Improvement Plan identifies that Council will undertake a formal review of these operations and maintenance activities which will be formally documented in a Stormwater Service Framework.

2.3.2 Renewal/Replacement Plan

Activities such as renewal, rehabilitation, reconstruction, and replacement will return the degraded service of the asset back to its original condition. The extent of service improvement depends on the nature and type of treatment.

The nature of Council, being a mature urban environment means that the Council area is generally considered to be fully serviced by the existing stormwater drainage system. However, as previously mentioned, due to the nature of changing weather patterns and design standards, there are parts of the Council area that will benefit from upgrading the stormwater drainage network (which typically will have a renewal cost element to the project).

At present, the program of major renewal works on Council's drainage network is progressively developed from the CCTV inspection results of requests and known localised flooding locations.

⁸ Intervention level define the activity or defect and response time to attendance or repair.

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In future, this program will include renewal works identified from proactive CCTV surveys and take into consideration known localised flooding locations.

The Improvement Plan recognises that Council will develop a Service Framework that documents the rule bases which reflect the policy decisions that Council will employ to determine when they will select assets for inclusion in their capital works program.

The built nature of new stormwater assets will always be provided in accordance with Council's Development Control Plan, relevant Australian Standards, Australian Rainfall and Runoff Guidelines and Council's design standards.

2.3.3 Upgrade/Expansion Plan

Upgrade and expansion works are associated with improving service levels beyond the original design capability or modern-day equivalent. Additionally, expansion works include activities that extend the capacity of an existing asset, to provide higher levels of service and/or meet changes in asset resilience requirements. Upgrade/expansion is different to renewal/replacement which only improves the degraded service capability within the boundaries of the original design capability.

Upgrade/expansion of existing assets will be identified from various sources such as the Floodplain management studies, Councillor or community requests, proposals identified by strategic plans or partnerships with other organisations or utilising Council's prediction modelling software (to be undertaken in future iterations). Candidate proposals are inspected to verify the need and to develop a preliminary capital cost estimate. The Floodplain management studies typically have a project description, along with an estimated project cost and priority ranking (which utilises a multi-criteria analysis approach).

The Improvement Plan recognises that Council will need to formally document and adopt a prioritisation ranking methodology utilising the current multi-criteria analysis (MCA) approach as documented in the existing Floodplain studies, which should be standardised across all catchments and stormwater drainage assets.

Standardising and adopting a common MCA approach for this asset class will enable the comparative assessment of all identified new and upgrade projects.

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Presently, it is estimated that there is approximately \$240M⁹ of new and upgrade projects identified combined from all the Floodplain management studies to address drainage issues across the entire Council area. Annualised over 20 years, this would require a \$12M investment by Council. Hence it is important that Council review existing implementation plans from these studies and develop and endorse an MCA framework that will help rank and prioritise projects that will return the highest economic, social and environmental benefit.

2.3.4 Creation/Acquisition Plan

New works are those works that create a new asset that did not previously exist. New stormwater assets are typically acquired from developers. New assets required to meet population growth demands will be typically acquired from land developments and constructed by private developers who then gift these assets to Council.

Council can also acquire new stormwater infrastructure by constructing new assets to alleviate drainage capacity issues, construct new pipes or lined open channels to replace creeks or unformed watercourses, construct new pits to improve inlet capacity or construct new GPTs to improve water quality outcomes of water entering localised creeks/ivers.

2.3.5 Disposal Plan

Disposal includes any activity associated with the disposal of a decommissioned asset including sale, demolition, relocation or transfer of ownership. At present, there are no plans to dispose of any stormwater drainage assets.

2.4 Leadership and Accountability

Council’s Asset Management Policy adopted in 2022 defines the roles and responsibilities within Council for asset management.

In addition, an Asset Management Steering Committee (AMSC) has been drawn from across Council administration to coordinate asset management related matters. Meetings are held regularly and chaired by the Engineering Services Manager. The

⁹ The upgrade funding plan will be reviewed in conjunction with the next SDAMP update in 2026. As new information becomes available on growth demand needs, developing and endorsing an MCA and asset lifecycle, these will be reflected in the 10-Year Funding Strategy.

development of an Asset Management Responsibility Assignment Matrix which details the organisational relationships and lines of responsibility regarding asset management over the asset lifecycle has been included in the Improvement Plan.

3 Levels of Service

3.1 Customer Research and Expectations

Council undertakes customer surveys to understand and identify community priorities for the Inner West LGA and identify the community's overall level of satisfaction. The most recent customer satisfaction survey¹⁰, which was conducted in 2021 offers Council a long-term measure of how they are performing.

The results of the survey indicate that generally, the provision of stormwater management and flood mitigation is of importance to the community. The community is generally somewhat satisfied to satisfied with the provision of this service. However, it should be noted that when compared to prior years, the satisfaction rating has slightly dropped, from a mean of 3.61 to 3.41¹¹.

When assessing flood management, the results of the survey indicate that generally, the provision of this service is of somewhat importance to the community. The community is generally somewhat satisfied with the provision of this service. When compared to prior years, the satisfaction rating has slightly dropped, from a mean of 3.47 to 3.33 and has been slightly progressively dropping since 2017.

Figure 8 below illustrates the importance and satisfaction with Council's overall performance between 2017 to 2021. It is likely that there is a correlation between community satisfaction survey results and the amount of average annual rainfall (weather patterns) in the survey year. Analysis of the satisfaction scores indicates that they were slightly higher in 2018 when compared to 2021. It is also interesting to note that in 2018 the average annual rainfall was 880mm compared to 2021 which experienced 1,260mm of rainfall.

¹⁰ 2021 Community Satisfaction Survey – Conducted by Micromax Research July 2021

¹¹ 1 is Not Important or Not Satisfied and 5 Very Import or Very Satisfied

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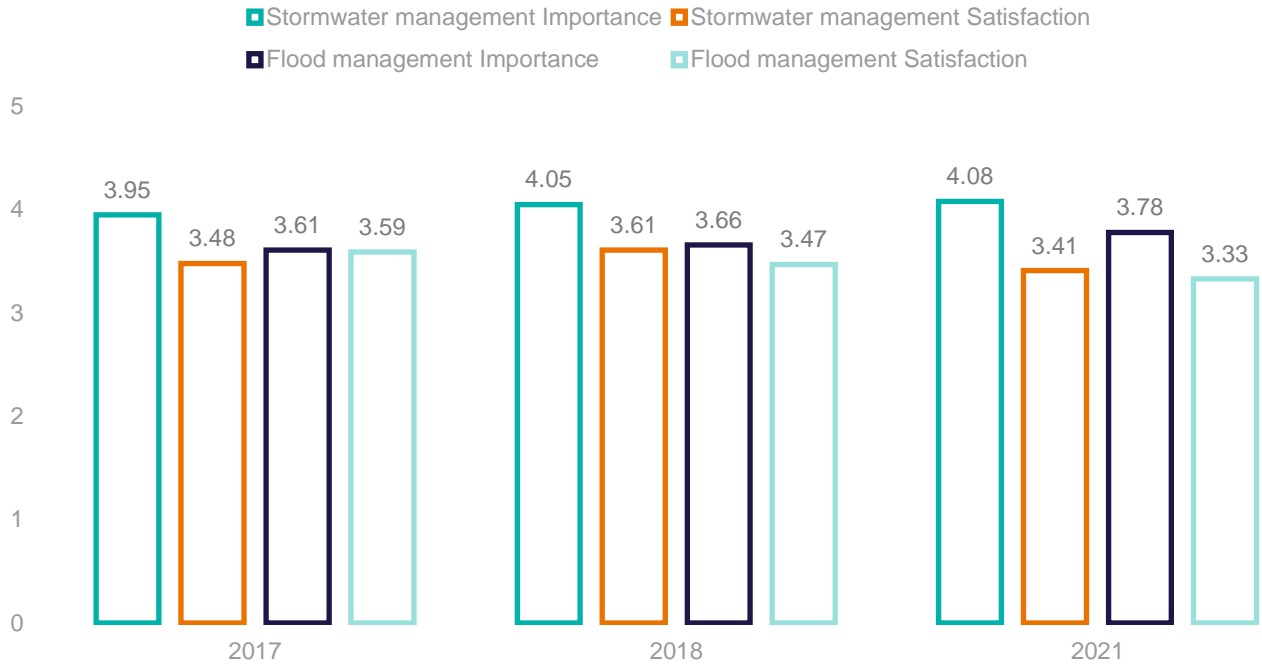


Figure 8 – Inner West Community Survey Satisfaction Overall Performance

Residents want to be better informed and consulted on key local issues with the ability to influence Council’s decision making. Good communication and transparency with residents about decisions Council has made in the community’s interest is of importance, however the community is on average not very satisfied. Improvement in this area provides the greatest opportunity to drive up the overall opinion of Council’s performance.

3.2 Strategic and Corporate Goals Alignment

This SDAMP is prepared and aligned with Council’s vision, mission, goals and objectives and has been aligned to deliver cost-effective, transparent, realistic and affordable service levels in accordance with community expectations.

Relevant Council goals and objectives and how these are addressed in this SDAMP are detailed in Table 6.

Strategic Direction (SD)	Outcome	How Goals and Objectives are addressed in SDAMP
SD1.3 – The community is water sensitive, with clean, swimmable waterways.	Deliver water-sensitive plans, decisions and infrastructure.	Provision of design for capital works, built assets management, civil and landscape infrastructure planning.

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Strategic Direction (SD)	Outcome	How Goals and Objectives are addressed in SDAMP
		Provision of stormwater assets (i.e. drainage, culverts, pits, etc.) that are fit for purpose and well maintained.
SD2.1 – Development is designed for sustainability and makes life better.	Improve the quality and investigate better access and use of existing community assets.	Stormwater drainage assets are fit for purpose and use where design standards allow.
SD3.5 – Urban hubs and main streets are distinct and enjoyable places to shop, eat, socialise and be entertained.	Promote unique, lively, safe and accessible urban hubs and main streets – day and night.	Progressively upgrade stormwater drainage network to alleviate known high risk flooding issues.
SD5.3 – Government makes responsible decisions to manage finite resources in the best interest of current and future communities.	Undertake visionary, integrated, long-term planning and decision making, reflective of community needs and aspirations.	Provision of 10-year capital improvement programs to reduce asset renewal gap and to ensure that assets are fit for the purpose they were intended for.

Table 6 - Council's Goals and how these are addressed in this Plan

3.3 Key Stakeholders

Assets controlled by Council are utilised by a broad cross-section of the community. It is critical that assets are maintained and renewed based on need and fit for purpose. Asset users are key stakeholders of this SDAMP.

Table 7 identifies stakeholders where consultation is necessary when Council seeks input in relation to the determination of Levels of Service and intervention levels.

Stakeholder Group	Role or Involvement
Internal Stakeholders	
Elected Council	Custodian of the asset, with Councillors representing the residents and setting strategic direction as per the Corporate & Operational Plans.
Executive Team	To ensure that the Asset Management Policy and Strategy are being implemented as adopted, and to ensure that long-term financial needs to sustain the assets for the services they deliver are advised to Council for its strategic & financial planning processes.
Engineering Services Department	Maintaining Council's asset registers and performing strategic predictive modelling analysis works to inform Council's Long Term Financial Plans and Capital Works Program. Responsible for coordinating the development

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Stakeholder Group	Role or Involvement
	and implementation of asset management processes, GIS support, administration and frameworks within the Council.
Finance Department	Ensuring that the asset valuations are accurate. Development of supporting policies such as capitalisation and depreciation. Preparation of asset sustainability and financial reports incorporating asset depreciation in compliance with current Australian accounting standards.
Maintenance Department (Internal)	To ensure provision of the required/agreed level of maintenance services for asset components.
Information Technology Managers	To ensure that the relevant IT systems are functioning and that any data within the systems are secure, and its integrity is not compromised.
Risk Managers	To ensure that risk management practices are conducted as per Council policy and assist operations managers with advice on risk issues.
Internal Auditors	To ensure that appropriate policy practices are carried out and to advise and assist in improvements
External Stakeholders	
Community	General users of the water and drainage network.
Service Providers	Those external bodies or agencies that provide services to the community utilising council owned stormwater drainage & facilities.
Maintenance Personnel (contractors)	To ensure provision of the required/agreed level of maintenance services for asset components.
Utility Service Providers	Agencies that provide utility services such as electricity, gas, water, sewerage and telecommunications necessary to facilitate services from stormwater.
State & Federal Government Depts	Periodic provision of advice, instruction and support funding to assist with management of the drainage network.
Council's Insurer	Insurance and risk management issues.

Table 7 – Key Stakeholders

3.4 Legislative Requirements

There are many legislative requirements relating to the management of Council assets. Legislative requirements that impact the delivery of Council stormwater services include:

Legislation	Requirement
Local Government Act 1993	Sets out the role, purpose, responsibilities and powers of local governments. The purposes of this Act are as follows: (a) to provide the legal framework for an effective, efficient, environmentally responsible and open system of local government in New South Wales,

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Legislation	Requirement
	<p>(b) to regulate the relationships between the people and bodies comprising the system of local government in New South Wales,</p> <p>(c) to encourage and assist the effective participation of local communities in the affairs of local government,</p> <p>(d) to give councils:</p> <ul style="list-style-type: none"> • the ability to provide goods, services and facilities, and to carry out activities, appropriate to the current and future needs of local communities and the wider public • the responsibility for administering some regulatory systems under this Act • a role in the management, improvement and development of the resources of their areas, <p>(e) to require councils, councillors and council employees to have regard to the principles of ecologically sustainable development in carrying out their responsibilities.</p> <p>The land management provisions of the Act require that Council prepare plans of management for all community land. The plan of management identifies the management objectives for the land category, performance indicators and performance measures to meet the objectives identified.</p>
<p>Local Government Amendment (Planning and Reporting) Act 2009</p>	<p>Local Government Amendment (Planning and Reporting) Act 2009 includes the preparation of a long-term financial plan supported by asset management plans for sustainable service delivery.</p>
<p>Local Government Act – Annual Reporting Section 428(2)(d)</p>	<p>A report of the condition of the public works (including public stormwater drainage, public roads and water sewerage and drainage works) under the control of Council as at the end of that year; together with</p> <ul style="list-style-type: none"> • An estimate (at current values) of the amount of money required to bring the works up to a satisfactory standard; and • An estimate (at current values) of the annual expense of maintaining the works at that standard; and • The Council’s programme for maintenance for that year in respect of the works.
<p>Crown Lands Act, 1989</p>	<p>An Act to provide for the administration and management of Crown land in the Eastern and Central Division of the State of NSW. Council has large holdings of Crown land under its care, control and management.</p>
<p>Roads Act 1993</p>	<p>Sets out the rights of members of the public to pass along public roads, establishes procedures for opening and closing a public road, and provides for the classification of roads. It also provides for declaration of the RTA and other public authorities as roads authorities for both classified and unclassified roads, and confers certain functions (in particular, the function of carrying out roadwork) on the RTA and other road authorities. Finally, it provides for distribution of functions conferred by this Act between the RTA and other roads authorities, and regulates the carrying out of various</p>

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Legislation	Requirement
	activities on public roads.
Work Health & Safety Act 2011	Sets out roles and responsibilities to secure the health, safety and welfare of persons at work and covering injury management, emphasising the rehabilitation of workers particularly for return to work. Council is to provide a safe working environment and supply equipment to ensure safety.
Environmental Planning and Assessment Act 1979	An Act to institute a system of environmental planning and assessment for the State of New South Wales. Among other requirements the Act outlines the requirement for the preparation of Local Environmental Plans (LEP), Development Control Plans (DCP), Environmental Impact Assessments (EIA) and Environmental Impact Statements.
Environmental Protection Act 1994	This act sets out requirements with respect to environmental protection.
Public Works and Procurement Act 1912	Sets out the role of Council in the planning and construction of new assets.
Inner West Development Control Plans	The primary purpose of a Development Control Plan (DCP) is to guide development according to the aims of the corresponding Local Environmental Plan (LEP).
Inner West Local Environmental Plan 2020	The LEP is a legal document that provides controls and guidelines for development in an area. It determines what can be built, where it can be built, and what activities can occur on land.
Plant Protection Act 1989	Sets out requirements with respect to Flora Protection.
Threatened Species Conservation Act, 1995	An Act to conserve threatened species, populations and ecological communities of animals and plants. Under the terms of this Act Council is required to ensure the long term survival of the species identified.

Table 8: Legislation Relevant to Management of Stormwater Assets

Regulations, Standards & Guideline requirements that impact the delivery of Council’s stormwater services are outlined below.

Regulation / Standard / Guide	Requirement
Integrated Planning and Reporting (IP&R) framework	All councils in NSW are required to work within the IP&R framework to guide their planning and reporting activities. IP&R provides a pathway for elected representatives to: <ul style="list-style-type: none"> work directly with their community to identify long-term priorities for local identity, growth and lifestyle; understand the range of services the community wants, the service standards they expect and the infrastructure that will be required; report to the community on their success in achieving these goals; and

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Regulation / Standard / Guide	Requirement
	<ul style="list-style-type: none"> • be assured that their council is meeting planning, consulting and reporting requirements under other laws.
Environmental Planning and Assessment Regulation 2000	<p>Fire safety systems are required in commercial, industrial & public stormwater drainage to ensure the safety of occupants in the event of a fire or emergency. The Act includes provisions relating to fire safety and matters concerning the Stormwater Code of Australia (Part 9).</p>
Australian Rainfall and Runoff	A national guideline document for the estimation of flood flows in Australia.
Blue Green Algae Protocol	Provides information to councils on how to address the various issues arising from blue-green algae outbreaks.
NSW Government (2005) NSW Floodplain Development Manual: The Management of Flood Liable Land	The manual relates to the development of flood liable land for the purposes of section 733 of the Local Government Act 1993.
NSW Government (2007) Floodplain Risk Management Guideline: Practical Consideration of Climate Change	The risk management guidelines provide extra support for councils to prepare and implement floodplain risk management plans.
NSW Government (2007) S117 Directive - Guideline on development controls on low flood risk areas – floodplain development manual, January	This circular provides advice on a package of changes concerning flood-related development controls on residential development on land above the 1-in-100-year flood and up to the Probable Maximum Flood (PMF).
ISO 55000 Suite, 2014	<p>The International Organization for Standardization's <i>ISO 55000:2014 Asset Management</i> (ISO 55000) provides a global guide to better practice in asset management, including asset information management.</p> <p>ISO 55000 specifies that entities should align information requirements to asset management needs and risks, along with requirements for collecting, managing, evaluating, and ensuring consistency and availability of information for asset management decision-making.</p>
Australian Accounting Standards Board (AASB)	<p>Provides direction and guidance on the financial and reporting expectations of entities, to ensure a consistent approach to accounting records. The following regulations apply to Council:</p> <p>AASB 116 Property, Plant & Equipment – prescribes requirements for recognition and depreciation of property, plant and equipment assets.</p>

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Regulation / Standard / Guide	Requirement
	<p>AASB 136 Impairment of Assets – aims to ensure that assets are carried at amounts that are not more than their recoverable amounts.</p> <p>AASB 1021 Depreciation of Non-Current Assets – specifies how depreciation is to be calculated.</p> <p>AAS 1001 Accounting Policies – specifies the policies that an organisation is to have for recognition of assets and depreciation.</p> <p>AASB 1041 Accounting for the reduction of Non-Current Assets – specifies the frequency and basis of calculating depreciation and revaluation basis used for assets; and</p> <p>AAS 1015 Accounting for the acquisition of assets – method of allocating the value to new assets on acquisition.</p>
All other relevant Australian Standards	AS/NZ Standards such as Risk Management Standard.
All Local Laws and relevant policies of the Organisation	Construction standards, Maintenance contracts, etc.
International Infrastructure Management Manual, Sixth Edition, IPWEA, V6.0, 2020	The IIMM has been developed with public and private sector industry input from Australia, New Zealand, the United States Canada, South Africa and the United Kingdom to promote best asset management practice for all infrastructure assets.

Table 9: Regulations & Standards Relevant to Management of Stormwater Assets

The following is a summary of policies relevant to this asset class. Many of these policies are available from Council.

Policy	Requirement
Infrastructure, Plant, Property and Equipment Determination Protocol 2019	To define Inner West Council's asset classes and associated methodologies in capturing and recording asset related information, guided by relevant accounting and industry standards as well as legislation.
Asset Management Policy 2022	The Policy acknowledges Council's commitment to asset management and provides a consistent asset management approach with clear principles and guidelines to manage Council's assets for the current and future community. It establishes a framework to ensure a structured, coordinated, cost effective and financially sustainable approach to asset management across the organisation.

Table 10: Policies Relevant to Management of Stormwater Assets

3.5 Level of Service

It is considered that this SDAMP has improved the level of sophistication in the documentation of the levels of service that will be delivered by Council’s stormwater drainage assets. The levels of service delivered by Council’s stormwater drainage network have been documented considering the expectations of Council’s residents. This has required a clear understanding of resident needs, expectations and preferences that will be explored in this Section and continually reviewed and updated as required in future SDAMP iterations.

The levels of service defined are intended:

- to inform customers and Council of the proposed type and level of service to be offered.
- to enable customers and Council to assess suitability, affordability and equity of the services offered.
- to measure the effectiveness of the services provided by Council.
- to identify the costs and benefits of the services offered.

Council has defined two tiers of levels of service, which are based on:

Community Levels of Service – what Council expects to provide in terms of key customer outcomes based on perceptions of expected quality and future financial allocations:

- Appropriateness of service.
- Accessibility to users 24 hours a day, 7 days a week.
- Affordability – acknowledging that Council can only deliver what it can afford.
- Relevance of the service being provided – in terms of demand characteristics, future demographics, current backlogs and where the pressure points are.

Technical Levels of Service – which relates to the outputs the customer receives:

- What Council will do in real terms, i.e. reliability, functionality and adequacy of the services provided. Typically, this SDAMP has documented Council’s standards – i.e. at what point will Council repair, renew or upgrade to meet the customer outcomes listed in the strategic levels.
- Technical Levels of Service have been defined for each of the following:

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- New Asset – If Council provides new stormwater assets, then what design and maintainability standards shall apply to make them meet Council’s strategic outcomes.
- Upgraded or Reconstructed Asset to original standard - If Council upgrades or reconstructs stormwater drainage, what design and maintainability standards shall apply to make them meet Council’s strategic outcomes.
- Maintenance – When will Council intervene with a maintenance repair and what will be Council’s responsiveness in terms of customer requests for maintenance faults.

The levels of service that have been adopted are considered reasonable as demonstrated by industry standards and benchmarks.

3.5.1 Customer Levels of Service

Council’s Customer Levels of Service that have been adopted for this SDAMP are detailed as follows:

Key Performance Measure	Level of Service	Performance Measure	2021 Performance
COMMUNITY LEVELS OF SERVICE			
Customer Satisfaction	Stormwater assets meet community needs	>=3.5 community survey satisfaction	3.41
Quality	Performance in providing and maintaining stormwater drainage services	<900 requests per annum in relation to maintenance requests	812 ¹²
Quality	Protect the quality of receiving waters	Installation of GPTs as appropriate at strategic locations across the municipality	Data to be collected.
Responsiveness	Response time to customer requests	> 80% of all maintenance requests adequately responded to within target.	Data to be collected.

Table 11 - Customer Levels of Service

¹² Data from July 2020 to April 2021

3.5.2 Technical Levels of Service

Supporting the community service levels are technical measures of performance.

Technical service measures are linked to annual budgets covering operations, maintenance, renewal and upgrade activities as defined in the Lifecycle Management Section.

Key Performance Measure	Level of Service	Performance Measure	2021 Performance
TECHNICAL LEVELS OF SERVICE			
Condition	Annual proactive condition sampling assessment of stormwater assets.	Overall Condition Index to be in condition 2.5 (out of 5) or better.	2.2
	Stormwater assets maintained to an acceptable level.	Lesser than 5% of the total network in condition above score 4 out of 5.	4.42%

Table 12 - Technical Levels of Service

4 Future Demand

This section identifies the effect of expected growth and consequent demand on Council’s stormwater drainage network. Forecasting future demand is essential in determining lifecycle management for assets. The management of stormwater drainage within the Council area is directly affected growth in the number of developments and by growth in the number of assets due to areas of the catchment which have flood management issues and therefore require upgrading of existing infrastructure to mitigate flooding.

4.1 Demand Drivers

The main drivers affecting demand include demographic changes in population, historical design standards and environmental factors such as changing weather patterns influencing infrastructure capacity and design requirements, and technological change and improvements in maintenance and management of infrastructure.

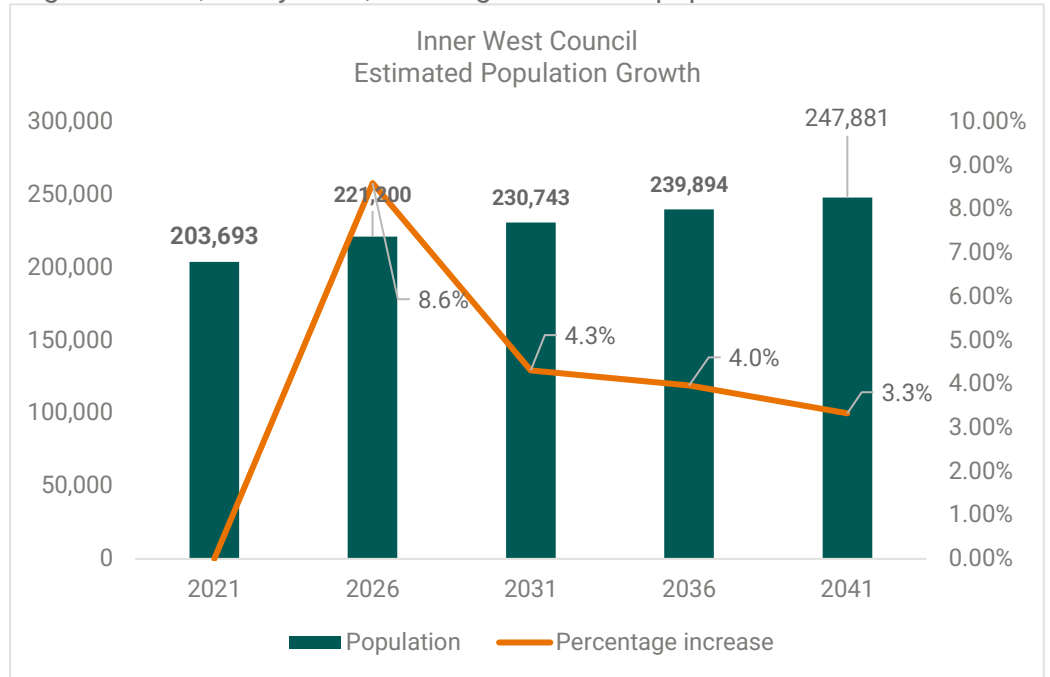
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4.2 Demand Forecasts

The present position and projection for demand drivers due to population growth that may impact future service delivery and utilisation of assets are identified and documented in Table 13 - Demand Factors, Projections and Impact on Services.

Demand Factor	Present position	Projection
---------------	------------------	------------

Population Growth The Inner West Council population forecast for 2022 is 207,294, and is forecast to grow to 247,881 by 2041, resulting in a 19.58% population increase.



Source: Population and household forecasts, 2016 to 2041, prepared by Forecast.Id, December 2020.

Table 13 - Demand Factors, Projections and Impact on Services

As Council is well urbanised, the emerging needs of the population growth suggests that stormwater assets (pipes, drains, water sensitive urban structures) will need to address how Council will upgrade its stormwater assets over the following 10 to 20 years.

4.3 Changes in Technology

Council is continuously monitoring new asset treatments that may be available to increase the life of its assets. Over past years, Council has employed several changes in technology that have affected the functional levels of service of Council’s drainage system, including the use of rubber ring jointed pipes to allow for movement of the pipe, improvement in bedding and backfill standards and the installation of gross

pollutant traps (GPTs), to improve the quality of stormwater before reaching the receiving waterways.

Utilising advanced trenchless technology when renewing pipes, will minimise the disturbance of the road reserve in highly populated areas, while implementing water sensitive urban design features, will reduce the flow rates from new developments and provides for higher quality water runoff and opportunities to re-use the stormwater. These will be explored in future revisions of the SDAMP.

4.4 New Assets from Growth

Council does not envisage acquiring substantial lengths of new stormwater assets from developers in the near future. There may be occasions where a developer will need to construct new pipes and pits (and gift these to Council) to ensure that their development is connected to the nearest stormwater underground discharge point as opposed to allowing increased stormwater flows to discharge directly to the roadway.

Over the following 10-years, Council is planning to construct 3 new raingardens and 3 new GPTs at a total cost of \$1.47M. In addition, Council plans to allocate approximately \$12.7M over the following 10-years to upgrade existing under capacity drainage assets to help alleviate known floodplain management issues.

It is important to note that when new assets are acquired, or assets are expanded or upgraded, this results in an increase in commitment of annual operational and maintenance funding to ensure continued service delivery of the asset over its lifecycle.

4.5 Demand Management Plan

Demand for new services will be managed through a combination of managing existing assets, upgrading 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. Opportunities identified to date for demand management are shown in Table 14. Further opportunities will be developed in future revisions of this BAMP.

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Service Activity	Demand Management Plan
<p>Increase in demand to upgrade localised areas that flood</p>	<ul style="list-style-type: none"> Review all Floodplain management plans and studies and develop a master upgrade list, which details high level project descriptions, project costs and a criticality ranking which considers economic, social and environmental benefits. Develop a criticality rating for locations that are most likely to be affected by storms and implement a proactive capacity upgrade program. Not all properties discharge to a drainage system – this leads to a higher level of nuisance flows. As properties are identified, ensure that stormwater discharge complies with Council’s current local laws and standards. Review road design standards to ensure that all roads when reconstructed meet the current criteria to be able to act as overland flow paths during storm events of 1 in 100 years ARI. When undertaking road reconstruction works, explore options of increasing permeable surfaces.
<p>High level of development - the high level of development within many parts of the municipality increases the demand on many sections of the already under capacity drainage network.</p>	<ul style="list-style-type: none"> Ensure that stormwater discharge complies with Council’s current local laws and standards when approving development applications.
<p>Increased need for maintenance and renewal costs</p>	<ul style="list-style-type: none"> Review and document levels of services after consultation with the Service Managers and the community. Incorporate total asset lifecycle costings into asset management. Procure large services contracts to get better economies of scale to minimise costs.
<p>Changing property owner habits - As a result of house extensions, renovations, building of new and/or bigger garages and covered outdoor entertaining areas, permeable surface areas have decreased which in turn has increased the amount of stormwater runoff, generated by each property</p>	<ul style="list-style-type: none"> Implement an education campaign to inform the residents in the flood affected areas of Council as to the various drainage issues that Council faces and what actions they can take to alleviate the risk and/or consequence of potential flooding events. Council encourages the use and/or implementation of rainwater tanks and water sensitive urban design, particularly in flood affected areas. Ensure all new and upgraded council facilities include stormwater retention devices.
<p>Community expectations</p>	<ul style="list-style-type: none"> Monitor community expectations through annual and targeted community surveys or deliberative engagement.

Service Activity	Demand Management Plan
Limited capacity of downstream Sydney Water drains – hence limiting the capacity of Council’s drainage system.	<ul style="list-style-type: none"> • Work closely with Sydney Water to identify problem areas and solutions to mitigate. • Explore possible options with Sydney Water for joint projects such as wetlands and retarding basins.

Table 14 - Demand Management Plan Summary

5 Risk Management Planning

5.1 Asset Criticality / Hierarchy

No Authority can deliver everything, all the time. In fact, in line with good practice and affordable service delivery, it may not be practical or cost-effective to deliver the same level of service across the entire asset portfolio. Therefore, Council has documented a stormwater drainage asset hierarchy that classifies the drainage system/network into appropriate groups based on the appropriate levels of service.

The Stormwater drainage hierarchy adopted by Council considers the varying risk and service levels associated with the stormwater asset portfolio and is summarised as follows:

Criticality / Hierarchy	Description
High	<ul style="list-style-type: none"> • Pipes, minor culverts designed as main trunk lines • Pits located on main trunk lines • All surface drains and detention basins • All Pits and Pipes located within known locations with drainage capacity issues and rated as a higher priority by the Floodplain management plan/study
Moderate	<ul style="list-style-type: none"> • All Pits, Pipes and minor culverts located within Industrial / Commercial areas • All Water Sensitive Urban Design assets • All Pits and Pipes located within known locations with drainage capacity issues and rated as a medium priority by the Floodplain management plan/study
Low	<ul style="list-style-type: none"> • All Pits, Pipes and minor culverts located within Residential areas other than main trunk lines • All Pits and Pipes located within known locations with drainage capacity issues and rated as a lower priority by the Floodplain management plan/study

Table 15 - Asset Criticality / Hierarchy for Stormwater drainage

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5.2 Risk Management Plan

Council has identified the need to develop a corporate Risk Management Policy which will set the overall framework for addressing risk within the context of International Standard ISO31000-2018, Risk management – Principles and Guidelines.

Risk Management is defined in ISO31000:2018 as: ‘coordinated activities to direct and control regarding risk’.

The development and adoption of this Policy will outline Council’s commitment to manage its resources and responsibilities in a manner which is intended to minimise harm or loss. The elements of this framework are illustrated in Figure 9.

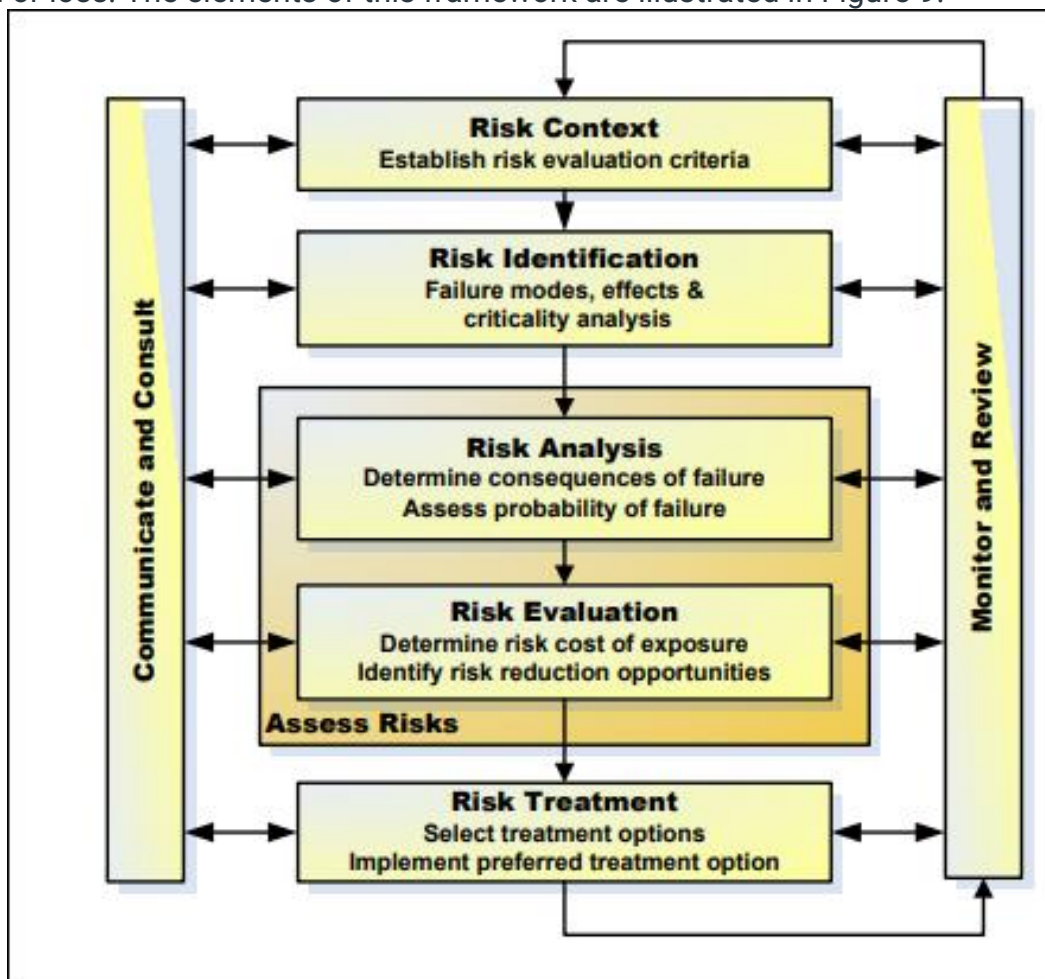


Figure 9 – Risk Management Process, Source: ISO31000:2018

5.3 Risks Assessment

Council has developed an asset criticality matrix, giving higher importance to risk assessment and the appropriate levels of inspection and maintenance for each classification.

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Critical assets are 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. By identifying critical assets and failure modes, investigative activities, condition inspection programs, maintenance and capital expenditure plans can be targeted at the critical areas. Activities may include items such as increased inspection frequency and higher maintenance intervention levels.

5.3.1 Risk Plan

As a result of this SDAMP revision, an assessment of risks associated with service delivery from Council’s stormwater assets has identified the critical risks that will result in significant loss, ‘financial shock ‘or a reduction in service.

Critical risks are those assessed with ‘Very High’ (requiring immediate corrective action), and ‘High’ (requiring corrective action) risk ratings identified in the Infrastructure Risk Management Plan. The residual risk and treatment cost after the selected treatment plan are implemented is shown in Table 16.

Service or Asset at Risk	What Can Happen	Risk Rating	Risk Treatment Plan	Residual Risk	Treatment / Costs
Pipes & Pits	Exceed capacity	High	Continue undertaking/reviewing Floodplain management studies/plans and develop a master Implementation Plan List that is prioritised. Plan for funding higher priority projects. Undertake regular & routine proactive cleansing to ensure pits and pipes in higher and medium risk areas are free of debris.	Medium	Costs to be determined.
WSUD & SQUID	Blockages and pollutants entering waterways	High	Identify the location and cleaning frequencies of all WSUD & SQUID as per the manufacturer’s instructions. Allocate resources to the task.	Medium	Costs to be determined.

Table 16 – Critical Risks and Treatment Plan

6 Financial Summary

The provision of adequate financial resources ensures that Council’s stormwater drainage assets are appropriately managed and preserved. Financial provisions below requirements impact directly on community development and if prolonged, results in substantial needs for “catch up” expenditure imposed on the community in the future. Additionally, deferred renewal results in increased and escalating reactive maintenance as aged assets deteriorate at increasing rates.

6.1 Forecasted Funding Requirements

The objective of this Section has been to model the deterioration of Council’s stormwater assets portfolio, by developing a simulation model using the Brightly Software Predictor© modelling software.

This process typically involves setting up life cycle paths for each stormwater asset / component, along with their inspected condition, identifying the appropriate treatments and unit rates to deliver these treatments and configuring the treatment rule base (matrices based on selected condition criteria that when matching will drive a treatment based on the condition).

By utilising the above process and setting up the criteria and logic within the predictive modelling software, it is possible to model the future costs of Council’s stormwater asset portfolio renewal requirements and to predict the future condition of these assets under varying funding scenarios.

6.2 Funding Scenarios

The 2022 strategic modelling analysis predicts the deterioration of Council’s existing stormwater asset portfolio by calculating the results of different funding options, utilising a core dataset that is current as of 2022. The length of time predicted for each funding option is for a period of 10 years until the year 2032. The results of the analysis have been graphed in Figure 10.

The condition graphs in Figure 10, illustrates the predicted results of the stormwater asset portfolio modelling analysis for each of the different funding options. These funding options are described in Table 17 – Predictive Modelling Funding Options.

The current average condition¹³ as of 2022 for the entire stormwater asset portfolio is an average condition of 2.2 out of 5. Refer to Table 5 – Asset Condition Rating Guidelines for condition descriptions.

¹³ The sum average of every stormwater asset within Council’s stormwater drainage portfolio.

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Financial Option	Description
Option 1	This funding option models the impact on condition and associated service levels of stormwater drainage assets, if Council were to fund the current proposed capital works financial allocation over the following 10 years. Note that this funding option only assesses renewal funding needs and excludes upgrade works identified via the Floodplain management plans/studies.
Option 2	This funding option identifies and models the current stormwater asset portfolio at the necessary funding levels each year to maintain current levels of service at the end of 10 years. Note that this funding option only assesses renewal funding needs and excludes upgrade works identified via the Floodplain management plans/studies.

Table 17 – Predictive Modelling Funding Options

The net strategy comparison outcomes of the financial options that have been modelled are detailed in Table 18 – Predictive Modelling Renewal Funding Options - Net Strategy Comparison.

Financial Option	Treatment Cost (\$,000) ¹⁴	Backlog Value (\$,000)	Change in Backlog Value (\$,000)	Net Strategy Cost (\$,000)	Final OSI
Option 1	\$15,247	\$12,768	\$4,955	\$20,202	2.2
Option 2	\$21,617	\$1,693	-\$6,120	\$15,498	2.1

Table 18 – Predictive Modelling Renewal Funding Options - Net Strategy Comparison

6.3 Forecast 10-Year Capital Renewal Funding

Renewal funding at current levels detailed in the current LTFP (Option 1) will result in Council delivering current levels of service into the future when looking at the average network condition. The model does predict however, that there will be a \$4.96M increase in assets considered to be in backlog (rated as condition state 5).

The funding strategy (Option 2) predicts that to maintain existing average condition into the future and reduce current asset backlog, that current renewal funding levels could be increased by an additional \$6.46M over the following 10 years. Whilst the average condition is predicted to be like current levels (2.1 in 2032 compared to 2.2 in 2022), the predictive modelling predicts that the quantum of assets considered to be in backlog (i.e. in condition state 5 being very poor) would decrease from the current \$7.81M to \$1.69M, resulting in a \$6.12M decrease.

The preferred renewal funding option for this SDAMP is Option 2, however maintaining current funding levels (Option 1), is considered adequate to maintain current

¹⁴ The current capital works list of project candidates is currently being reviewed and revised by Council officers. It is envisaged that as new condition data is collected and available, that the strategic models will be re-run and calibrated.

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conditions over the following 10-years, noting that this option predicts that the current asset backlog will increase from \$7.81M to \$12.77M (an increase of \$4.96M).

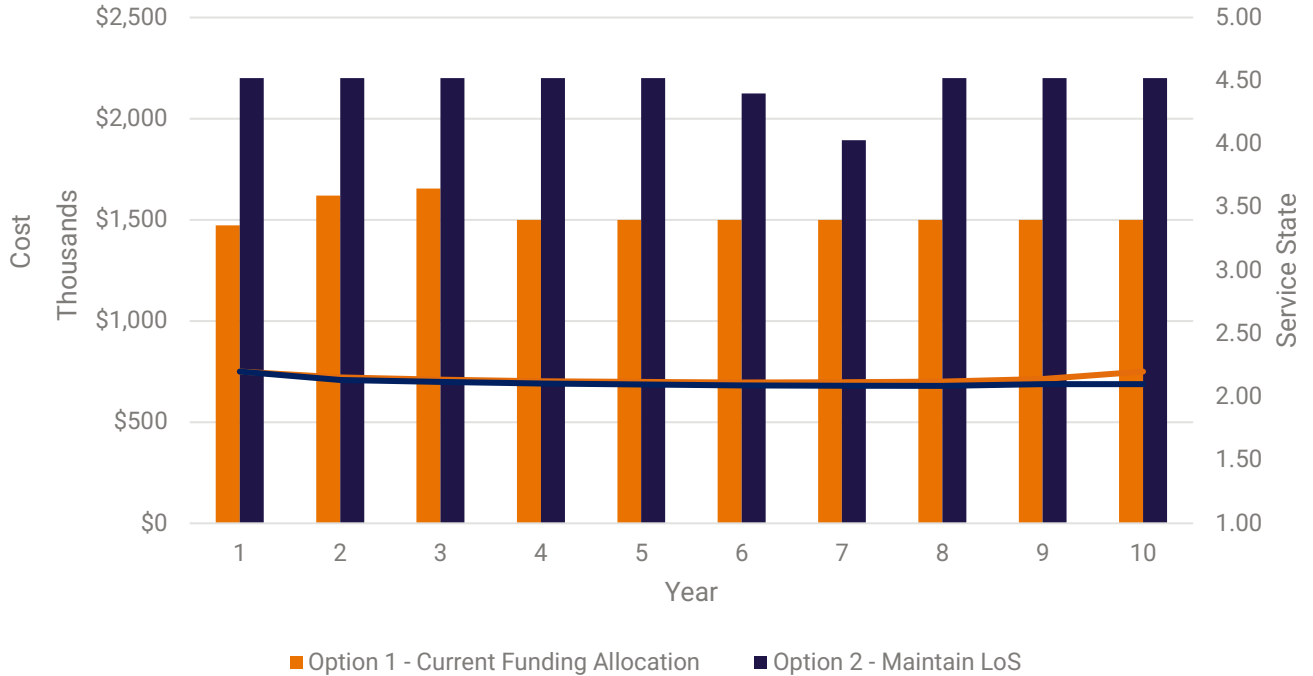


Figure 10 – Forecast 10-Year Capital Renewal Funding Analysis and Average Condition by Year

	2022-23 (\$,000)	2023-24 (\$,000)	2024-25 (\$,000)	2025-26 (\$,000)	2026-27 (\$,000)	2027-28 (\$,000)	2028-29 (\$,000)	2029-30 (\$,000)	2030-31 (\$,000)	2031-32 (\$,000)
New/Upgrade¹⁵	1,474	1,450	1,425	1,400	1,425	1,400	1,400	1,400	1,400	1,400
Renewal	1,473	1,620	1,655	1,500	1,500	1,500	1,500	1,500	1,500	1,500
Total Capital	2,947	3,070	3,080	2,900	2,925	2,900	2,900	2,900	2,900	2,900
Maintenance & Operational	1,380	1,402	1,424	1,447	1,469	1,493	1,517	1,542	1,567	1,567

Table 19 – Minimum 10-Year Funding Strategy (Option 1)

Council acknowledges that additional work is required to improve its understanding of the future new and upgrade funding requirements, and this has been identified as

¹⁵ This funding plan will be reviewed in conjunction with the next SDAMP update in 2026. As new information becomes available on new and upgrade needs and CCTV inspection data, these will be reflected in the 10-Year Funding Strategy.

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an improvement item in this SDAMP. In the interim, current renewal and upgrade expenditure documented in the current LTFP is considered adequate over the following 4 years, assuming that upgrade funding levels are increased post 2026.

6.4 Financial Ratios

Asset management ratios provide insight into an organisation’s performance and success in managing its assets. Council’s asset management ratios for its asset portfolio calculated as of 30 June 2021 are shown in Table 20 – Key Asset Management Ratios.

Ratio	Description	Calculation	Target	2021 Performance
Asset Renewal Funding Ratio	The extent with regards to how the organisation is funding their capital works program when comparing allocated capital works expenditure with the desired expenditure which has been derived from prediction modelling and/or service level agreements.	Funded capital expenditure on renewals divided by the planned/desired capital expenditure.	>75%	100%
Remaining Service Index Ratio	The overall health of the organisation’s asset stock in terms of measuring past asset consumption, via the amount of accumulated depreciation. The lower this ratio is, the more the asset stock has been consumed, which also indicates that not enough capital expenditure has been allocated to the asset.	Written down value (fair value of the portfolio) divided by the total current replacement value.	>70%	67.5%
Maintenance Sustainability Ratio	Measures the level of maintenance funding spent per annum, as a % of asset replacement value on the asset portfolio.	Total maintenance funding per annum / Total Replacement Value expressed as a percentage.	2-5%	0.9%

Table 20 – Key Asset Management Ratios

7 Plan Improvement and Monitoring

This section outlines how Council will measure its asset management performance. The identified action items in Table 22 will enable Council to improve its asset management capability, enhance asset value and deliver more for stakeholders while balancing cost, risk, and performance.

7.1 Assumptions

The key assumptions made in this SDAMP and risks that these may change are shown below.

Key Assumption	Risk of Change to Assumption / Impact to Model
Stormwater asset and component conditions reflect the assets' current condition as of 2022.	Medium to High
The allocation of renewal funds has been based on the asset replacement costs developed as part of the valuations in June 2021.	Medium
Maintenance funding levels will be progressively increased to represent as a minimum, 2% of the asset base replacement value.	Medium
The funding needs for new &/or upgrade stormwater assets will be identified via Floodplain management studies/plans and funding sought from grants and/or developer contributions. As identified, these will be incorporated into future SDAMP revisions.	Medium
Capital renewal treatments are like for like and do not account for additional costs to upgrade and/or utilise new technologies and materials.	Medium to Low
Current Levels of Service are considered appropriate and meet community needs.	Medium
Asset register currency pertaining to asset quantities.	Medium
Network strategic sampling condition inspections will be funded on a cyclic basis and incorporated into the Operational budget.	Low
Current human resource plan will not change in the near future.	Low

Table 21 – Key Assumptions made in SDAMP and Risks of Change

Stormwater & Drainage Asset Management Plan 2022-2032

7.2 Improvement Plan

The Asset Management Improvement Plan which is set out in Table 22 below details the key improvement tasks. Completion of these tasks will improve Council’s asset management capabilities for this asset class.

Task No	Improvement Items	Responsibility	Timeline
1.	Develop a Stormwater responsibility matrix with a view to identify and streamline roles and responsibilities.	Engineering Services Manager & Senior Manager Operations	June 2023
2.	Formally document the rule bases which reflect the policy decisions that Council employs to determine when they will select stormwater assets for inclusion in their capital works program.	Engineering Services Manager & Senior Manager Capital Works	June 2023
3.	Formally document and adopt a prioritisation raking methodology utilising the current multi-criteria analysis (MCA) approach as documented in the existing Floodplain studies, which should be standardised across all catchments and stormwater drainage assets. Develop a Master List of all stormwater drainage projects necessary to alleviate known flooding issues and prioritise these works to develop a long-term rolling program of capital new and upgrade works	Engineering Services Manager	June 2023
4.	Review current Asset register for completeness and accuracy, especially pertaining to asset hierarchy, dimensions, and materials.	Engineering Services Manager	December 2023
5.	Review and formally document the current operations and maintenance Levels of Service regarding all stormwater assets owned or maintained by Council. These activities should consider the stormwater function, legislative requirements and utilisation needs when documenting activities and response times.	Engineering Services Manager & Senior Manager Operations	December 2023
6.	Review and update activities within the Customer Request Management System following the development of maintenance service levels and develop reports to measure performance in accordance with the levels of service documented in Section 3.5.1.	Engineering Services Manager & Senior Manager Operations	December 2023

Stormwater & Drainage Asset Management Plan 2022-2032

Task No	Improvement Items	Responsibility	Timeline
7.	Review and formally document Council’s stormwater condition assessment manual methodology framework.	Engineering Services Manager	December 2023
8.	Develop and implement an asset handover process to enable 100% asset data capture of new stormwater assets gifted or constructed by others and those renewed, to be captured in Council’s asset register on an annual basis.	Engineering Services Manager	December 2023
9.	Develop and document a criticality framework which will be incorporated into the asset register and second-generation prediction models.	Engineering Services Manager	June 2024
10.	Formally document a Risk Management Policy which will set the overall framework for addressing infrastructure asset risk within the context of International Standard ISO31000-2018.	Director Infrastructure	June 2024
11.	Ensure that new asset needs identified from the Floodplain management studies/plans are reflected in future SDAMP and the LTFP.	Engineering Services Manager & Financial Partnering and Analytics Manager	June 2026
12.	Implement and schedule proactive network wide stormwater condition assessments on an annual basis, commencing in 2023 to coincide with Council’s stormwater revaluation requirements. CCTV underground drainage and visually inspect pits and WSUD, SQID and detention basins.	Engineering Services Manager	On-going
13.	Explore opportunities for future community surveys to incorporate additional specific questions to the community regarding stormwater assets, to identify and measure the importance and performance in delivering this service to the community.	Engineering Services Manager	On-going
14.	Review financial forecasts annually as better data becomes available, update and submit any supporting budget bids.	Financial Partnering and Analytics Manager, & Engineering Services Manager & Senior Manager Operations	On-going
15.	Review resourcing plan to ensure adequate human resources are available to deliver this SDAMP.	Director Infrastructure	On-going

Table 22 – Improvement Actions

7.3 Monitoring and Review Procedures

The SDAMP has a planning horizon of 10 years, and it is based on details documented within the Asset Management Strategy. The SDAMP will be reviewed and updated in the year following Council Local Government elections.

This SDAMP will be reviewed and amended to recognise any changes in service levels, needs arising from Floodplain management studies/plans and/or resources available to provide those services because of the budget decision process.

7.4 Performance Measures

The effectiveness of this SDAMP will be measured and monitored based on annual strategic Council indicators as follows:

- The performance of Council against the Levels of Service documented in this SDAMP; and
- Performance against the Asset Management Ratios.