CITY OF PARRAMATTA

ASSET MANAGEMENT PLAN

Stormwater & Catchment

2026-2035

Draft for public exhibition, April 2025

cityofparramatta.nsw.gov.au

Contents

0.1

Recognition and Commitment to the Dharug People

Wadyiman Barramada gulbanga naadyi Barramadagal Dharug Ngurrayin, badu, burra barramadagal dharug yurayin.

City of Parramatta recognises the Dharug People as First Australians, peoples of the oldest continuous living culture in the world.

For more than 60,000 years, Parramatta has been home to the Baramadagal and other Dharug peoples, the Traditional Owners of the land we call the City of Parramatta today. The Baramadagal and other Dharug Peoples have cared for and nurtured the habitat, land, and waters for thousands of generations, and maintain an ongoing connection to Parramatta and its surrounding areas.

As a community, we can learn from the resilience and community spirit of First Nations People to best ensure a sustainable city for all. Parramatta has always been an important meeting place for the First Nations People, particularly the Parramatta River, which has provided life and vitality since the beginning of time (The Dreaming).

The name Parramatta is derived from the word Baramada/Burramatta or 'place where the eels lie down' (breeding location for eels within the Parramatta River). City of Parramatta recognises the significance of this area for all First Nations People as a site of early contact between the First Australians and European colonists, and Parramatta remains an important meeting place for the First Nations community.

First Nations People continue to play a vital role in the ecological, economic, social and cultural life of Parramatta, while maintaining a distinct culture built on the principles of Caring for Country, the primacy of family, and the dignity and governance of Elders.

At City of Parramatta, we aspire to a future where the cultures, histories and rights of all First Nations People are understood, recognised, and respected by all Australians. City of Parramatta is committed to playing an active role in making this future a reality. City of Parramatta is proud to acknowledge the ongoing stewardship of Country by Dharug and other First Nations People and to celebrate their enduring wisdom, strength, and resilience.

Always Was, Always Will Be, Aboriginal Land.

Photo credit: Ken Leanfore

0.2

CoPC Photos & Document Control Sheet

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1.0

EXECUTIVE SUMMARY

1.1 THE PURPOSE OF THE PLAN

Stormwater Asset management planning (SW AMP) is a comprehensive process to ensure that delivery of services from infrastructure is provided in a financially sustainable manner.

This Asset Management Plan details information about stormwater 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.

1.2 ASSET DESCRIPTION

Council provides stormwater drainage systems within its Local Government Area to manage the quantity and quality of stormwater runoff to protect downstream environments, limit flooding of public and private property, and ensure stormwater generated from developed catchments causes minimal nuisance, danger, and damage to people property and the environment.

City of Parramatta Council is responsible for the care and maintenance of a stormwater drainage portfolio with a replacement value of $888,440,195 (as at 30/06/2024).

1.3 LIFECYCLE MANAGEMENT PLAN

1.3.1 What does it Cost

The projected outlays necessary to provide the services covered by this Stormwater Asset Management Plan (SW- AMP) include operations, maintenance, renewal, and upgrade of existing assets over the 10-year planning period is $**266,**931,437 or $27M on average per year excluding major new and upgrade assets. Council has several large projects in the next 3 years including the completion of several major infrastructure upgrades. Council has a relatively small new stormwater asset development pipeline in the next 3 years, which does not materially affect the stormwater portfolio.

1.3.2 What we will do

Council plan to provide the following stormwater drainage services:

- Undertake a proactive condition rating program of our underground stormwater drainage network in accordance with City of Parramatta's stormwater pipe condition inspection program.
- Continue proactive and reactive pipe and pit cleaning of the stormwater drainage network so it can operate at maximum capacity.
- Renew pipes where condition inspections reveal any deficiency in the network.
- Inspect all council declared dams (as per relevant Operation & Maintenance Plan), non-declared flood detention systems, and levees at minimum specified internals (6 months).
- Explore all avenues for grants and subsidies to increase expenditure on the stormwater assets.
- Review capital works programmes annually and prioritise works accordingly.
- Ensure new works are planned for and receive renewal and maintenance at required intervals to ensure projected useful lives of the asset are achieved.
- Improve the underlying information with an annual review of service level trends.
- Approximately $56m in renewal spending on existing stormwater assets within the 10-year planning period.

1.3.3 What we cannot do

The limited funding allocation for new asset creations, program level funding and operational budgets compromises the desired level of service. Works and services that cannot be provided under present funding levels are:

- Replace and upgrade all pipes and pits within the network.
- Retro-fit properties with rear-of-allotment drainage networks.

1.3.4 Plans for Future

Council plans to operate and maintain stormwater assets to achieve the following strategic objectives:

- Ensure the network is maintained at a safe and functional standard as set out in this AMP.
- Maximise the asset's useful life whilst minimising life cycle expenditure.
- Maintain the asset's functionality to ensure that it remains 'fit for purpose' and compliant with statutory requirements.
- Allow for future expansion of the network as demand increases over time.

1.3.5 How Council measure performance

a) **Quality** - Stormwater drainage assets will be maintained to an acceptable physical condition. The acceptable condition for most stormwater assets is condition 3 (Fair condition) on Council's 1-5 rating scale, and the current average is 2.5 by stormwater replacement value. Refer to table for the description of the condition grading.

As asset management practices become more advanced, the acceptable condition has been refined to consider data based on stormwater catchment criticality and priority, function and risk hierarchy. Stormwater assets categorised as 'high risk' will be maintained to a higher standard due to their organisational and community importance and/or consequences of failure. Further information regarding the hierarchy and functional classification of the assets can be found in the main body of this asset management plan.

b) **Function** - Council's stormwater assets are essential in providing drainage to property in the area and ensure quantity and quality of stormwater is managed appropriately. The key functional objectives that will be met are:

- To ensure that all stormwater drainage assets are maintained at a safe and functional standard.
- To investigate improvement requests and, if considered appropriate, make safe and repair in a timely manner as defined in Council's maintenance response target levels of service.

The main functional consequence of failures in any stormwater asset varies based on the risk, location and criticality of the asset.

c) **Safety** – Stormwater assets are inspected by CCTV through numerous inspection programs within council. Frequency of inspections and routine maintenance may vary depending on the functional classification or risk of the asset.

Council's SW maintenance level of service target is under review. Defects are prioritised and repaired in accordance with Council's documented response times in the customer service charter and the maintenance levels of service.

Councils non-declared dams and levees are generally inspected on a 6 monthly basis. Declared Dams are inspected at varying rates such as monthly, quarterly and multiple times a week in addition to inspections following major storm events.

1.4 MANAGING THE RISKS

There are risks associated with providing the stormwater drainage service and not being able to complete all identified activities and projects. The major risks identified are:

- Blockages within the network.
- Failures of high-risk pipelines.
- Flow capacity of the underground pipe network.
- Critical asset failure and flooding.

Council will manage these risks, within available funding, in the following ways:

- Proactive CCTV inspections of underground pipe network.
- Proactive cleaning of inlet structures and pipes within the network.
- Hydraulic modelling of problems areas of the network updated as required.
- Proactive inspection regimes of all declared dams, non-declared flood detention systems, and levees.

1.5 ASSET MANAGEMENT PRACTICES

CoPC has developed schedules for infrastructure assets condition survey of the entire LGA. This involves condition survey, assessments, condition rating and evaluation to identify the performance of the stormwater portfolio over the next 10 years. It has been identified that to maintain the levels of service desired by the community, funding levels need to be maintained for the next 10 years. A decrease in funds to carry out a combination of renewal and new works will cause the levels of service to decrease, and certain Council assets may become unfit for purpose.

1.6 MONITORING AND IMPROVEMENT PROGRAM

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

- Continue to improve asset information and knowledge.
- Continue to develop the 10 years forward programme of stormwater maintenance and renewal activities necessary to achieve a satisfactory level of service.
- Monitor the provision and capacity of stormwater infrastructure alongside the risks of flooding and growth due to development.
- Conduct a pro-active CCTV inspection program commencing with the high risk assets in high priority and critical catchments and working down though other assets.

INTRODUCTION

2.1 Background

Parramatta is experiencing a changing demographic profile from a suburban community with an employment centre into a diverse, urban location with major employment, residential, recreation and education facilities.

The City of Parramatta Council (CoPC) provides a range of services to its local community as well as the wider community. To deliver these services it operates and maintains a range of stormwater assets throughout the Local Government Area (LGA). Council has acquired these assets through a variety of means, such as construction or by contribution from developers, state government and others.

The CoPC Stormwater & Asset Management Plan (AMP) documents the current management, financial and technical practices by Council for its existing stormwater portfolio, as well as provides information on strategies and programs that will affect future asset outcomes. The fundamental purpose of this SW AMP is to improve Council's long-term strategic management of its SW assets to cater for services into the future.

Council's stormwater portfolio currently encompasses:

- 543 km of underground pipes of various sizes and materials including a small number of open channels and culverts.
- 23,292 pits of various sizes including headwalls and converter structures.
- 74 Gross pollutant traps. Numerous "Other Structures" within the stormwater network including dams, levees, Gross pollutant traps, spillways, swales and other related assets such as fish ladders and sea walls.
- 1 Declared Dam Structure with a High A critical consequence Category – Lake Parramatta Dam.

Stormwater Gross Replacement Cost is $888,440,195 (as at 30 June 2024). Council's stormwater portfolio is classed broadly into stormwater conduits, stormwater structures, and stormwater other assets.

CoPC engaged an independent contractor in 2019/20 to perform a condition assessment of a 5% sample of the stormwater portfolio. This condition data has been extrapolated to represent the overall health of the stormwater network assets. The condition assessment of the stormwater assets is undertaken on a five-year cycle. A new condition assessment of survey sample of 5% is currently being undertaken by an independent contractor. The result will be updated in the next update of this Asset Management Plan.

Key issues for the Stormwater Network Assets include:

- Delivering on our customer's requirements as detailed in the Community Strategic Plan, Community Infrastructure Strategy and water quality plans.
- Coordinating a diverse stormwater network that is continually ageing and evolving from the delivery of new stormwater assets from both internal and external sources.
- Maintaining asset renewal metrics and ensuring capital works are optimised to maintain service levels.
- Understanding the future capacity required from the increase of development and associated stormwater runoff due to the increase in impermeable surfaces within the Council area.

This AMP communicates the actions required for the effective 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.

2.2 PURPOSE OF ASSET MANAGEMENT PLANS

Asset Management Plans are a means for documenting the management, financial, engineering, and technical practices to ensure that the level of service required by the community from a class of infrastructure assets is provided at the lowest life cycle cost.

The identification of future needs, management options and cash flows provide the ability to even out peak funding demands. In this way, AMP's assist the Council and Executive team in making informed decisions in relation to the allocation of resources and to communicate this information to the public.

This AMP provides the framework to ensure that City of Parramatta Council's Stormwater assets are operated, maintained, renewed, and upgraded to ensure that Council's Stormwater related levels of service are achieved in the most cost effective and sustainable way.

2.3 SCOPE OF THIS ASSET MANAGEMENT PLAN

The plan provides a rational and controlled framework for asset lifecycle management, risk management and financial management to be conducted effectively and to the satisfaction of stakeholders. By providing a framework to detail and examine existing management practices for Stormwater assets, City of Parramatta Council is better equipped to meet community service expectations and can form the basis of an improvement program to progressively meet identified gaps in asset management.

This plan has been developed considering available information, input from Council Officers, Asset Owners, and in association with asset data collection, condition assessment, and maintenance and operational costs for stormwater network across the Council area.

The AMP follows the format for AMP's recommended in Section 4 of the International Infrastructure Management Manual[1].

The AMP is to be read with the City of Parramatta Asset Management Strategy and Integrated Planning and Reporting Framework documents. This includes the Asset Management Policy, Asset Management Strategy, Delivery Program, Operational Plan, and Resourcing Strategy, which work together to translate the overarching vision of the Community Strategic Plan.

The scope of this asset management plan covers the following asset types:

- Drainage Pipe, Pit and Culverts – Pipes range in size and material type. Culverts in minor drainage networks generally similar in size to pipes. Pits comprise of grated inlet and junction access types.
- Trunk and Major Drainage – Large box culverts and concrete lined open drainage channels.
- Gross Pollutant Traps – These include litter traps (below ground), and above ground - pit baskets, end of pipe nets, trash racks and floating litter booms.
- Water Sensitive Urban Design – These include swales, rain gardens, bio-filtration beds.

[1] IPWEA, 2015, Sec 4.2, Example of an Asset Management Plan Structure, pp 4|37 – 39.

- Flood Mitigation Structure – These include both declared and non- declared detention basins and levees.
- Dams, e.g. Lake Parramatta Dam and weirs e.g. Charles Street weir.

The above assets may cross public road and reserves or private owned land.

These assets service Council's needs in addressing the management of water quality, local drainage, major drainage, and flood mitigation actions to comply with local and State Government requirements.

Figure 1: View of Council's Stormwater Assets over the Local Government Area.

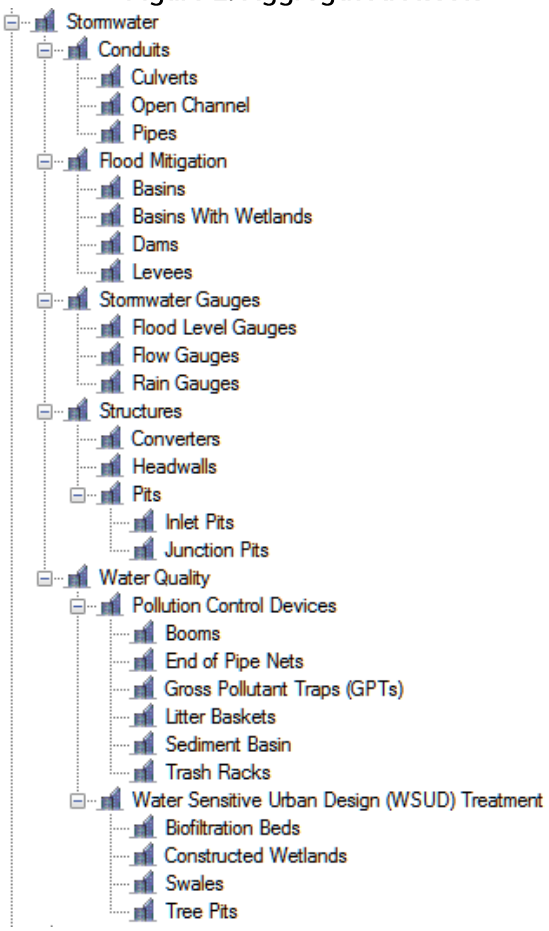
Items of Exclusion in Plan

The assets excluded from this plan are those:

- Owned and maintained by other authorities such Road and Maritime Service (RMS), Sydney Water etc. An example of this would be stormwater drainage pits and pipes located on State Government Roads and Sydney Water trunk drainage channels.
- Represented in other asset plans, for example large culvert road crossings (greater than 6m span along centreline) that may be classified as a bridge.
- Within the Sydney Olympic Precinct Area (SOPA).
- Within the Parramatta Park Trust area.
- Within private residential and commercial precinct areas such as Wentworth Point Precinct and Newington Precinct.

These drainage assets may also appear in Council's Technology One asset management system and on Council's GIS system with asset ownership assigned to the appropriate authority. The aggregated assets in Council's formal asset management system are set out in the Figure 2 below.

Figure 2. Aggregated Assets



The stormwater and catchment assets covered by this asset management plan are shown in Table 1 below.

Table 1: Assets covered by this Plan.

Asset Component/Class	Replacement Value	Depreciation Expense	Accumulated Depreciation	Written Down Value
Conduits	$726,777,061	$5,852,431	$226,830,027	$499,947,034
Structures	$144,086,463	$1,219,288	$36,841,205	$107,245,258
Other Assets	$17,576,671	$171,956	$5,646,047	$11,930,624
Total	**$888,440,195**	**$7,243,675**	**$269,317,279**	**$619,122,916**

2.3.1 How does the stormwater Drainage System work?

The City of Parramatta is divided into 31 catchments as per Table 2

Table 2: City of Parramatta Council Catchments

	Catchment Priority	Catchment Criticality	Catchment Name	Pipe Length (m) (Approx)	No. of Structures (Approx)
1	Low	Non Critical	Model Farms Creek	5284	188
2	Low	Non Critical	Quary Branch Creek/Northmead Gully	16943	723
3	High	Critical	Toongabbie Creek	44136	1767
4	Low	Non Critical	Girraween Creek & Blacktown	1856	60
5	High	Critical	Pendle Hill Creek	14214	475
6	Medium	Non Critical	Bogalara Creek	13427	500
7	Low	Non Critical	Coopers Creek	11951	430
8	Low	Non Critical	Finlaysons Creek	3401	136
9	High	Critical	Milsons Creek	3073	125
10	Low	Non Critical	Domain Creek	9765	375
11	Low	Non Critical	Darling Mills Creek	21286	919
12	Medium	Non Critical	Hunts Creek	39643	1778
13	Medium	Critical	Brickfield Creek	26414	1041
14	High	Critical	Upper Parramatta River	17844	835
15	High	Critical	Clay Cliff Creek	28814	1212
16	Medium	Critical	Vineyard Creek	27807	1154
17	Low	Non Critical	Ponds Creek	30930	1341
18	High	Critical	Devlins Creek	59627	2596
19	Medium	Critical	Terrys Creek	25589	1239
20	Medium	Critical	Subiaco Creek	22749	976
21	High	Critical	Parramatta River	31484	1227
22	Medium	Non Critical	A'Becketts Creek	30881	1306
23	High	Critical	Duck Creek	37684	1459
25	High	Critical	Duck River	30770	1365
28	Medium	Critical	Blue Gum Creek – New	13611	548
29	High	Critical	Haslams Creek – New	24793	1118
30	Low	Non Critical	Rifle Range Creek – New	6211	244

31	Low	Non Critical	Stevensons Creek – New	79	9

The catchment area of any point is defined by the limits from where surface runoff will make its way, either by natural or manmade paths, to this point.

2.3.2 Drainage Principles

The drainage catchment network within the City of Parramatta is a combination of roof drainage, pipes, open channels, natural waterways and road reserves. The main objective of a drainage network is to safely collect and convey stormwater to receiving waters with minimal nuisance, property damage or personal injury.

Drainage systems are usually designed as two separate elements. The underground pipe network (minor system) transports flows up to a nominated storm event. The pipe network is often referred to as the minor drainage system and has sufficient capacity to contain normal expected flows, below ground. These pipes prevent stormwater damage to properties and limit the frequency and quantity of storm water runoff above ground, which can cause nuisance to motorists, pedestrians and cyclists. The minor drainage system is designed to cater for a 5% Annual Exceedance Probability (AEP) storm event.

The major drainage system caters for flows in excess of the pipe network and usually consists of overland flow paths, road reserves and natural waterways, which contain the storm water unable to enter the piped system above ground. The frequency at which the overland drainage system operates will be determined by the design criteria of the pipe network. Major drainage systems are usually designed to cater for a 1 % AEP storm event.

2.3.3 Drainage Asset Types

The following types of drainage assets comprise of the City of Parramatta Council drainage system.

<u>Underground Drainage</u>
Pipes which are located underground within the roadway or nature strip generally range in size from 225mm in diameter to 1,200mm in diameter (or larger). On the basis of the capacity of the stormwater they have been designed to cater for underground.

Pits provide points of entry for stormwater from the above ground drainage system to the underground drainage system. Pits generally fall into two main categories being entry pits and junction pits. The entry pits are typically located as part of the kerb and channel, spoon drain or roadway (i.e. in the centre of the road) and are strategically constructed at the lowest point of the roadway to allow for water to take its natural course so that it may freely enter the underground drainage system on its own accord by gravity. Junction pits are constructed to provide for changes in the direction of the pipe and/or depth, provide for connection of the pipe and/or to allow for a point of entry to inspect and clean the underground drainage system.

<u>Above Ground Drainage</u>
Open channels (such as kerb and channel, spoon drains and swale drains) acts as a drainage channel, directing road surface flows into the underground stormwater drainage network via drainage pits.

<u>Water Quality Devices</u>
Gross Pollutant Traps (GPT) capture litter and other rubbish left in the streets that can be washed down stormwater drains prior to entering the receiving waterways

Wetlands are an area that is regularly wet or flooded and has a water table that stands at or above the land surface for at least part of the year.

Sedimentation ponds are constructed to provide for treating the stormwater prior to its disposal into receiving waterways.

Flood mitigation

Prescribed dams, Flood Detention and Levees generally to store and control water, prevent the overflow of a river or water body, and protect against flooding.

Retarding basins are constructed to provide temporary stormwater storage and thus ease stormwater runoff peaks that are generated by significant storm events for flood protection of downstream urban areas. Retarding basins can also provide additional purposes such as water quality treatment and landscape amenity.

2.4 KEY STAKEHOLDERS

Key stakeholders in the preparation and implementation of this asset management plan are shown in Table 3.

Table 3 Key Stakeholders in the AMP

Key Stakeholder	Roles	Responsibility
Councillors	• Represent needs of community/shareholders. • Allocate resources to meet planning objectives in providing services while managing risks. • Ensure service is sustainable. • Provide stewardship by ensuring the protection of assets for current and future generations. • Approve Council's Asset Management Policy, Strategy and Plans.	• Adoption of Asset Management Policy, Asset Management Strategy and Asset Management Plans. • Approval of budget allocations that ensure appropriate non-discretionary funding provision for renewal, maintenance and operation of Council assets in the Long Term Financial Plan (LTFP) and Long Term Infrastructure Plan (LTIP).
Strategic Asset Management	• Have a broad understanding of asset management issues and the continuous improvement approach being adopted. • Support the delivery of the Asset Management Policy, Strategy and Plans. • Monitor, evaluate and assist in the delivery of asset management improvement projects/actions. • Review and implement, where possible, external audit recommendations relating to asset management. • Raises awareness throughout the organisation of the benefits of committing to a strategic asset management approach. • Identify opportunities and support development for improvement in relation	• Provide strategic direction, knowledge sharing and monitor the progress of the Asset Management Strategy Improvement Plan. • Supports and monitors the implementation progress of the Asset Management Strategy and performance. • Facilitates the rollout of the CoPC Asset Management Information System and ongoing enhancements. • Increase awareness of the importance of integrated service planning and asset management across all levels

Key Stakeholder	Roles	Responsibility
	to the planning, development and management of assets. • Advocate for improved strategic asset management outcomes. • Recommends budget allocations for renewal expenditure as per Council's LTFP & LTIP. • Approves forward schedule of asset audits and AMP reviews.	of the organisation and Council's Risk & Audit Committee. • Oversee Council assets are proactively inspected to monitor condition, levels of service and ensure Council assets are fit for purpose.
Asset Management Coordinator	• Ensure the development and implementation of Council's Asset Management Policy, Plans and Processes and for their integration with Council's Integrated Planning and Reporting Framework under the Local Government Act. • Report on the status and effectiveness of Asset Management within Council. • Development and implementation of Council's Asset Management Plans and Processes and for their integration with Council's Integrated Planning and Reporting Framework under the Local Government Act. • Ensure integration and compliance of the Asset Management Policy and Strategy with other policies and business processes of Council. • Ensure compliance with legal obligations. • Ensure sound business principles are reflected in the Asset Management strategies and plans that are developed. • Receipt of fair value valuations at end of financial year, provision of budgets from the long term financial plan, receipt of projections relating to expenditure gaps. • Management of this Asset Management Plan including periodic updates and revisions to maintain its relevance with internal and external changes and ensure alignment with the relevant Service Plan.	• Works very closely with asset owners, Information Technology and Finance team to provide high level oversight for the routine asset condition survey, revaluation and statutory reporting. • Provide oversight and work closely with other parts of council for the implementation of the corporate asset management system. • Provide specialist technical advice and guidance on asset management matters to the organization and external customers. • Actively participate in Council's strategic initiatives such as Community Strategic Plan and Strategic Infrastructure Plan for Council. • Ensure compliance with relevant Acts and Regulations as they relate to civil assets, with regard to the NSW Local Govt. Act, the NSW Planning and Environment Act and the NSW Roads Act and the Civil Liabilities Act.
Asset Owner	• Conduct network level planning and investigations to facilitate development of upgrade, new programs, projects, and maintenance program. • Responsible for scheduling of asset inspection for the entire LGA. • Auditing inspection and taking appropriate action to ensure LOS is maintained at a satisfactory level.	• Sustainable asset management and planning (including asset systems, asset data and information management). • Planning and investigation to develop New, Upgrade, Expansion programs. • Renewal modelling and program development.

Key Stakeholder	Roles	Responsibility
	• Recording keeping on usage, demands, asset capacity and functionality. • Ensure condition survey, inspections records are recorded in Council's corporate system. • The condition report is updated and readily available for reporting purposes. • Develop 4yr and 10yr programs for all classes of assets. • Renewal and maintenance modelling to produce economical treatment for different asset classes. • Participate in the review and update of the Service Plan and Asset Management Plan and the development of Key Performance Indicators. • Prepare Council report for specified assets as and when requested by Councillors/Executive team.	• Ensure compliance with design and construction standards. • Develop, monitor, and review the Service Plan including service performance indicators.
Group Manager Capital Projects Delivery	• Responsible for scheduling and delivery of the capital works program for the asset class.	• Asset delivery according to the annual capital works program.
Supervisor Catchment Management	• Responsible for provision of the agreed maintenance and operational levels and standards for the assets in consideration of long-term sustainability. • Participate in the review and update of the Service Plan and Asset Management Plan and the development of Key Performance Indicators to measure performance.	• Asset maintenance, inspection, and repairs. • Develop and deliver asset maintenance plans.
Finance Business Partner	• Ensure financial resourcing is available to deliver Council Plan, Strategic Resource Plan, and Community Plan. • Prepare and deliver Council annual budget and reporting outlining Council performance against Council Plan and Budget.	• Ensure financial resourcing is available to deliver Council Plan, Strategic Resource Plan, and Community Plan. • Prepare and deliver Council annual budget and reporting outlining Council performance against Council Plan and Budget.
Ratepayers/ Community Present & Future residents and community	• Will ultimately provide input into the services required and the cost the community is prepared to pay. • Primary users of transport infrastructure assets.	

2.5 PARRAMATTA LOCAL GOVERNMENT AREA

The City of Parramatta is located at the head of the Parramatta River 24km west of Sydney Harbour and covers an area of 84 square kilometres. Parramatta takes its name from the Burramatta Clan, the traditional owners of this area. Parramatta was the first self-sustaining European settlement and the local community of today reflects the diversity of the broader Australian people. Parramatta is the gateway to Western Sydney, an area that is home to 1 in 10 Australians. It is the fastest growing region of NSW with the population projected to grow by another 600,000 by 2036. The Parramatta City population is estimated to be 256,729 as of the 30th June 2021 and is forecast to grow to 446,021 by 2041.

Parramatta is home to Sydney's second CBD which contributes to the economic, social, cultural, health and educational sectors of the local area, as well as to Western and the Greater Sydney areas. The Parramatta LGA is a provider of medical, legal, educational, and professional services, being the largest concentration of financial and business services institutions outside the Sydney CBD and home to over 60 government departments.

These functions will strengthen over the next twenty years as NSW government and Council plans for the city's future development. Through a combination of urban renewal, rezoning and reuse of government land, up-zoning within the CBD as the residential and worker population significantly increases.

These changes will also be accompanied by changes to the demographic and cultural composition of the city's populations. The City of Parramatta is now planning to ensure there will be sufficient community facilities and necessary infrastructure within proximity to Parramatta's CBD to support the wellbeing of these new populations.

Council currently is a significant provider of community and recreational facilities, within the Parramatta LGA, as well as providing regional services and transport network to Western Sydney residents. It is anticipated that the LGA will continue to provide significant community services (both government and non-government) to local and regional residents, reflecting its significance as a key regional centre in Greater Western Sydney.

Designated as the premier Regional City in the Government's Metropolitan Plan for Sydney 2036, Parramatta is uniquely positioned to support the need to establish 280,000 additional jobs in Western Sydney by 2036. Parramatta is the cultural and commercial capital of one of Australia's most significant economic regions. The recent Parramatta Square development is one of the biggest urban redevelopments in Australia, which provides additional central business facilities, office space for up to 13,000 workers, a new public domain and more retail and dining options.

2.6 GOALS AND OBJECTIVES OF ASSET MANAGEMENT

City of Parramatta Council exists to provide services to its community. Some of these services are provided by infrastructure assets. We have acquired infrastructure assets by works delivered under contract, construction, projects delivered by our staff and assets constructed by developers and others to meet increased levels of service.

Council's goal in managing infrastructure assets is to meet the defined level of service (as amended from time to time) in the most cost-effective manner for present and future consumers. The key elements of infrastructure asset management are:

- Providing a defined level of service and monitoring performance.

- Managing the impact of growth through demand management and infrastructure investment.
- Taking a lifecycle approach to developing cost-effective management strategies for the long-term that meet the defined level of service.
- Identifying, assessing, and appropriately controlling risks.
- Linking to a long-term financial plan which identifies required, affordable expenditure and how it will be financed.[2]

Key elements of the planning framework are:

- Levels of service – specifies the services and levels of service to be provided.
- Future demand – how this will impact on future service delivery and how this is to be met.
- Life cycle management – how to manage its existing and future assets to provide defined levels of service.
- Financial summary – what funds are required to provide the defined services.
- Asset management practices – how we manage provision of the services.
- Monitoring – how the plan will be monitored to ensure objectives are met.
- Asset management improvement plan – how we increase asset management maturity.

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

- International Infrastructure Management Manual 2015[3]
- ISO 55000[4]

2.7 WHAT WILL THIS ASSET MANAGEMENT PLAN ACHIEVE

The focus of this SW AMP is to provide guidance in managing Council's assets and pro-actively manage existing resources. It will enable Council to:

- Have precise knowledge of what Council owns or has responsibility or legal liability for.
- Record and extract information on all assets in a register down to an identifiable level.
- Report on annual depreciation and asset consumption at an asset component level.
- Measure and monitor the condition, performance, utilisation and costs of assets down to the managed component level and aggregate this data up to give outputs of cost and performance at the portfolio level.
- Understand and record the current levels of service in terms of responsiveness and performance.
- Understand the likely future levels of service required based on population growth, demographic changes, community expectations and changing climatic conditions including the frequency and intensity of extreme weather events and potential sea level rise.
- Understand the long term (10 years) funding needs of Council's stormwater asset portfolio to meet strategic expectations in both capital and maintenance expenditure.
- Measure, monitor and report on the condition, performance and functionality of Council assets against prescribed service levels and regulatory requirements.
- Develop and maintain uniform processes across the whole organisation for the evaluation of any investment in:
    a. Renewal, upgrades and expansions of existing assets.
    b. Creation of new assets.
    c. Maintenance of existing assets.
    d. Operational expenditure to deliver services.

[2] Based on IPWEA 2015 IIMM, Sec 1.3, p 1| 8
[3] Based on IPWEA 2015 IIMM, Sec 2.1.3, p 2| 13
[4] ISO 55000 Overview, principles and terminology

2.8 PLAN FRAMEWORK

In the application of this AMP, Council has developed a whole of life approach to the management of its SW assets. Council has focused on providing an interdisciplinary view of asset management with the development of an Asset Management Policy and framework for the organisation.

The specific elements considered in this AMP are to:

- Demonstrate accountability and responsible stewardship of SW assets.
- Identify least-cost options to provide agreed levels of service.
- Assess existing SW asset stocks and their capacity, condition and functional adequacy.
- Document the Levels of Service that will be provided to the community.
- Identify future demand for SW assets.
- Manage the risks of SW assets structures and network failures and risks of capacity failures.
- Undertake Life Cycle Management.
- Provide the basis for long-term financial planning.
- Monitor the plan to ascertain if it is meeting Council's objectives.

2.9 PARRAMATTA STRATEGIC OBJECTIVES

City of Parramatta is the cultural and geographical heart of Greater Sydney and is fast emerging as a leader in our region and a booming and innovative global city with a view to the year 2050. Our city's ambitious and forward-thinking aspirations for the future are outlined in the community's vision statement within our draft Community Strategic Plan 2025-2050 (CSP).
Our Vision is: *"AT Parramatta: Local Heart, Global Outlook"*.
Underpinning the Vision are 5 long-term Strategic Pillars that provide the big picture results, which the community would like Council and its many partners to focus on achieving. These Pillars are:

- We all belong - *An equitable and socially connected city.*
- We put people first - *A regenerative and resilient city.*
- We are an economic powerhouse - *A prosperous, productive and ambitious city.*
- We nurture our environment - *A regenerative and resilient city.*
- We are future focused - *A leading and forward-looking city.*

This AMP is prepared under the direction of the City of Parramatta's vision, mission, goals and objectives. These strategic objectives will be included within the long-term planning when considering Building assets both current and into the future, as well as during any renewal programs.
The table below demonstrates the Pillars and Strategic Actions of the CSP that this Asset Management Plan will support Council to deliver.

Strategic Pillars in the Draft Community Strategic Plan 2025-2050 (CSP)	Outcome	Draft CSP Strategic Actions that the Stormwater Asset Management Plan will support
We put people first	An equitable and socially connected city.	2.3.2 Prioritise community health in the design of our city and services, to ensure that people can live well throughout their lives. 2.4.1 Plan and deliver an accessible City and services with universal design principles, so they can be enjoyed by all. 2.4.2 Create and facilitate places and activities that support community safety.

		2.5.1 Deliver and maintain quality public open spaces and community facilities, providing shared spaces for people to play and connect.
We nurture our environment	A regenerative and resilient city.	4.1.1 Deliver a climate positive and resilient City through the planning, design, construction and operation/management of our city. 4.1.2 Partner and plan to support our communities as they adapt to key shocks and stresses such a flooding, urban heat and bushfires. 4.2.1 Protect, manage and regenerate our natural areas and ecological corridors both for their benefit, the community's enjoyment and the City's identity. 4.2.2 Improve the health of waterways through integrated water management and water sensitive urban design. 4.3.1 Ensure our streets, public spaces and waterways are clean and tidy, instilling a sense of civic pride. 4.5.2 Deliver and advocate for a healthy, liveable and sustainable Parramatta River catchment to make the river swimmable again.
We are future focused	A leading and forward-looking city.	5.2.2 Leverage opportunities for continuous improvement, data, technology and innovative solutions for how we plan and manage our city. 5.3.1 Deliver ethical city leadership and responsible financial management that reflects community needs and aspirations. 5.3.2 Collaborate with all levels of government and non-government agencies to support sound strategic planning for the city 5.4.1 Provide high-quality customer service and effective communication to our community

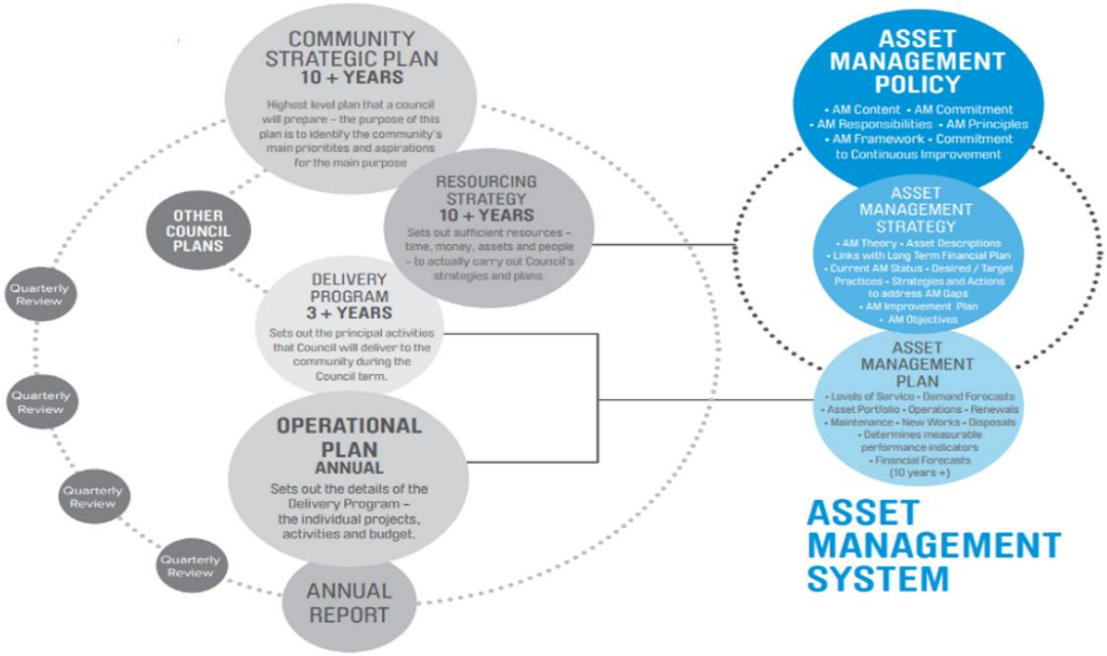
2.10 LINK TO CORPORATE STRATEGIES

The Asset Management Strategy provides guidance to Council's Long Term Financial Plan and to the Community Strategic Plan. Council's role is to locally govern for all residents, visitors and ratepayers, and provide a range of programs and services that meet the needs of our community. This role is encapsulated through the Council's Community Strategic Plan.

The SW Asset Management Plan in turn provides input to the Financial Plan and the Annual Budget. From this the Capital Works Program for infrastructure maintenance and renewals programs are developed.

The diagram below outlines the linkages between Council's Community Strategic Plan and the process for the development of AMP's.

Figure 3 Linkages between AMP and Key Strategic Documents and Activities



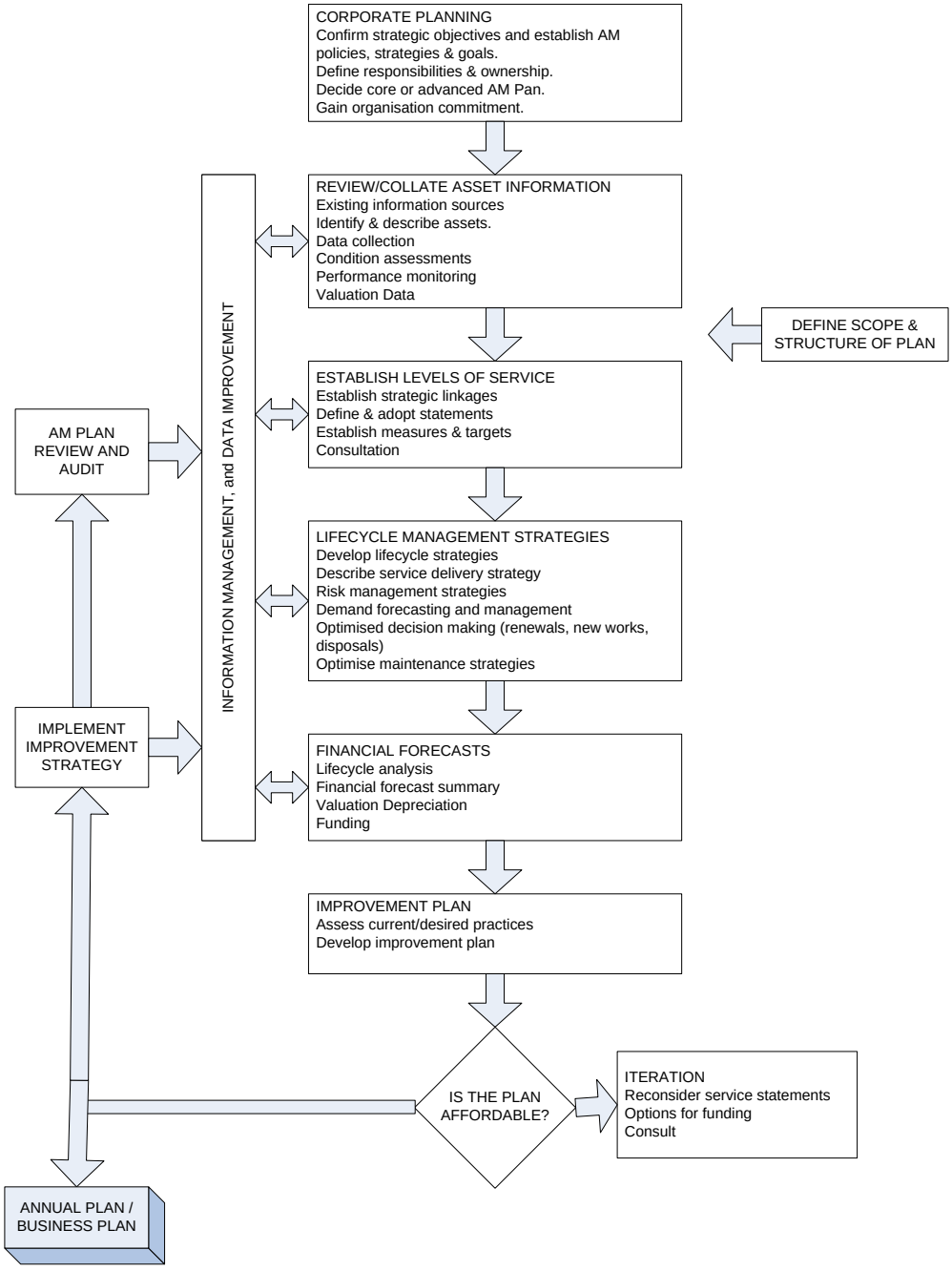
2.12 CORE AND ADVANCE ASSET MANAGEMENT

This AMP is prepared as a 'core' asset management plan over a 10-year planning period in accordance with the International Infrastructure Management Manual[5]. It is prepared to meet minimum legislative and organisational requirements for sustainable service delivery and long-term financial planning and reporting. Core asset management is a 'top down' approach where analysis is applied at the 'system' or 'network' level and should be regarded primarily as a snapshot of current practices and strategies. In contrast, advanced asset management is a 'bottom-up' approach, which seeks to optimise activities and programs to meet agreed service standards through development of management tactics based on collection and analysis of key information on asset condition, performance, lifecycle costs, risk costs and treatment options.

Future revisions of this AMP will move towards 'advanced' asset management using a 'bottom up' approach for gathering detailed asset information for individual assets to support the provision of activities and programs to meet agreed service levels in a financially sustainable manner.

[5] IPWEA, 2015, IIMM.

Fig 4: Road Map for preparing an Asset Management Plan



3.0

LEVEL OF SERVICE

3.1 ASSET HIERARCHY

In accordance with the International Infrastructure Management Manual, Council acknowledges that the primary purpose of an asset hierarchy is to ensure that appropriate management, engineering standards and planning practices are applied to the asset based on its function. It also enables more efficient use of limited resources by allocating funding to those assets that are in greater need and the costs are better justified.

3.1.1 Stormwater Asset Hierarchy

The methodology used to determine the hierarchy of all drainage assets are based on the traditional drainage infrastructure asset component identifiers and their size and nature / importance within the broader network and based on the consequence of failure rating in relation to other private or public owned assets. Drainage classifications describe the various areas drainage may lie under or within.

Table 5: City of Parramatta Council Roads Hierarchy & Property Description

Council's Classification	NAASRA Road Classification	Description
Residential & Minor Roads	Class 8 & 9	Local Roads
Commercial Roads	Class 7, 8, 9	Commercial Roads
Industrial Roads	Class 5	Industrial Roads
Private Land	-	Over Private Land
Contaminated Land	-	Old industrial sites and land fill sites.
Council Reserves	-	Owned & Care and Control
Regional & Collector and Sydney Water Channels (excluded)	Class 6 & 7	Regional, collector and Sydney Water

In the past Council's approach to asset management has been 'reactive' in responding to maintenance and replacement of its stormwater drainage asset infrastructure as and when identified and required. This is slowly changing towards a more proactive approach.

The methodology used to determine the hierarchy of all drainage assets are based on the following two main principles.

- The traditional drainage infrastructure asset component identifiers and their size and nature / importance within the broader network.
- Based on the consequence of failure rating in relation to other private or public owned assets.

Council's classifications are provided in Tables 6 and 7 below. Determination of the Target Condition is determined in consideration of the two Tables.

Table 6 - Drainage asset classification and intervention levels

Council's Classification	IPWEA-NAMS.AU Practice Note 5 Identification	Description	Intervention Condition Score	Typical Types of Intervention
Minor Drainage	Gully pits, field inlets, maintenance access pits, collector pipes.	Pipe Size diameters 375mm to 600mm or box culvert equivalent. Swales, small open drains	4 or 5	Pipe patching, pipe lining, Pipe or culvert replacement. Swale clearing and / or reconstruction
Major Drainage	Main Drains	Pipe Size diameters 600mm / box culvert equivalent and larger. Larger open drains and Swales.	4	Pipe patching, pipe lining, Pipe or culvert replacement. Swale clearing and / or reconstruction
Trunk Drainage	Main Drains	Concrete lined channels and natural creeks and waterways	4	Patching of Concrete panels, treatment of concrete joints
Pollution Control Devices	Gross Pollutant Traps and Screens	Discharge to all Parramatta River & tributaries	4 or 5	Regular clearing, repairs and replacement of screens and racks

Table 7 - Drainage asset hierarchy based on road classification and land use planning considerations.

Council's Classification	NAASRA Road Classification	Description	Intervention Condition Score
Residential & Minor Roads	Class 8 & 9	Local Roads	4
Commercial Roads	Class 7, 8, 9	Commercial Roads	4
Industrial Roads	Class 5	Industrial Roads	4
Private Land (typical residential)		Over Private Land	4
Contaminated Land		Old industrial sites and land fill sites.	3 or 4
Council Reserves		Owned & Care and Control	4
Regional & Collector and Sydney Water Channels (excluded)	Class 6 & 7	Regional, collector and SW	NA

Tables 6 and 7 provides the Council agreed intervention condition score for each category (Note these scores will need to align with Council's exist Asset Management Policy, consideration will need to be given in further revision of AMP and Policy). The score represents the condition when intervention action is required to repair or replace the asset.

Table 8: Summary of Condition Grades as per IPWEA Practice Note 5 and CoP Condition Grade Manuals.

Condition Grade	Description	Structural Description	Serviceability Description
Grade 1	Very Good	Sound physical condition. Insignificant determination. Asset likely to perform adequately without major work for 25 years or more.	No or insignificant loss of hydraulic capacity.
Grade 2	Good	Acceptable physical condition; minor deterioration / minor defects evident.	Minor loss of hydraulic performance. Negligible short-term failure risk but potential for deterioration in long-term (20 years plus). Only minor work required (if any).
Grade 3	Fair	Moderate to significant deterioration evident; Minor components or isolated sections of the asset need replacement or repair now but not affecting short term structural integrity.	Moderate loss of hydraulic performance but asset still functions safely at adequate level of service. Failure unlikely within next 10 years but further deterioration likely and major replacement likely within next 10 to 20 years. Work required but asset is still serviceable.
Grade 4	Poor	Serious deterioration and significant defects evident affecting structural integrity.	Significant loss of hydraulic performance. Substantial work required in short-term to keep asset serviceable. Failure likely in short to medium term. Likely need to replace most or all of asset within 10 years. No immediate risk to health or safety but works required within 10 years to ensure asset remains safe.
Grade 5	Very Poor (Bad)	Failed or failure imminent. Immediate need to replace most or all of asset.	Health and safety hazards exist which present a possible risk to public safety, or asset cannot be serviced / operated without risk to personnel. Major work or replacement required urgently.

Pipe condition broken down by pipe diameter is presented in table 9. The results in the table show that the majority of pipes are in condition 1, 2 and 3. 4% of pipe lengths are in condition 4 and 2% in condition 5.

Table 9: Pipe Condition Rating Data

		Condition % total pipe length

Pipe Diameter (mm)	Pipe Length (m)	1	2	3	4	5
100	693	0%	34%	66%	0%	0%
150	2,604	0%	26%	74%	0%	0%
225	6,731	6%	28%	66%	0%	0%
300	46,338	16%	1%	68%	9%	7%
375	211,810	6%	19%	69%	5%	1%
450	87,955	17%	19%	58%	3%	3%
525	27,283	22%	52%	18%	7%	1%
600	40,534	14%	31%	39%	10%	7%
675	13,661	13%	55%	31%	0%	1%
750	20,200	48%	31%	19%	2%	0%
825	4,536	30%	32%	35%	0%	3%
900	20,009	18%	62%	18%	0%	1%
1000	1,440	0%	0%	100%	0%	0%
1050	15,387	33%	57%	9%	1%	0%
1200	16,140	36%	51%	13%	0%	0%
1350	6,032	15%	29%	52%	3%	0%
1500	7,662	24%	71%	5%	0%	0%
1650	943	8%	89%	3%	0%	0%
1800	3,200	15%	59%	25%	0%	0%
1950	1,189	34%	66%	0%	0%	0%
2100	3,596	10%	78%	12%	0%	0%
2400	1613	0%	79%	21%	0%	0%
2700	872	0%	22%	78%	0%	0%
3000	296	0%	45%	55%	0%	0%
3300	34	0%	6%	94%	0%	0%
3600	961	13%	10%	77%	0%	0%
3900	54	0%	100%	0%	0%	0%
4000	697	0%	0%	100%	0%	0%
4500	188	0%	43%	57%	0%	0%
5000	128	0%	0%	100%	0%	0%
5100	43	0%	100%	0%	0%	0%

5400	8	0%	100%	0%	0%	0%
6000	560	0%	0%	100%	0%	0%
7000	2	0%	0%	100%	0%	0%
9000	42	0%	0%	100%	0%	0%
15000	14	0%	0%	100%	0%	0%
Total (%)		**14%**	**27%**	**52%**	**4%**	**2%**
Total (m)	**543,455m**	77,773m	147,711m	283,066m	23,885m	11,020m

3.1.2 Catchment criticality and priority

Catchment criticality and priority is used to guide inspection, maintenance and capital project decisions. Council's CCTV inspection program has been prioritised based on an assessment as to whether the sub-catchment area is considered 'critical' or 'low critical' and further assessed based on its priority. In turn, most maintenance and capital works will be prioritised through this program of inspection due to the visual limitations of most stormwater assets.

Critical Catchment Areas are areas containing any of the following elements:

- Local Commercial Areas. These include Parramatta CBD, Epping CBD and other local business areas.
- Future Growth Areas – These have been previously identified by Council's Strategic Planners for the Parramatta River Flood Study and include:
    - Parramatta CBD.
    - North Parramatta Urban Renewal Precinct.
    - Westmead Biomedical Precinct.
    - Rydalmere Knowledge Precinct.
    - Camellia Precinct.

  New areas from Council amalgamations.

  Catchment Priority is defined as 'high', 'medium' and 'low' and assessed based on whether it is likely to contain areas planned for major growth and redevelopment in the short, medium or long term. Catchment Priority also factors in impacts on property and existing flood affected areas. Refer to Table 2 on catchment priority and criticality.

3.2 LEVEL OF SERVICE HIERARCHY

The levels of service decision-making hierarchy at Council flows from:

- legislative requirements, to
- community expectation, to
- Council strategies.

Council uses the levels of service to measure its performance and establish forward works programs, maintenance schedules and delivery programs for short- and long-term planning.

3.3 CUSTOMER RESEARCH AND EXPECTATIONS

This AMP is prepared to facilitate consultation initially through feedback on draft AMP's prior to adoption by the Council. The AMP incorporates community consultation on service levels and costs of providing the service. This assists the Council and stakeholders in matching the level of service required, service risks and consequences with the community's ability and willingness to pay for the service.

Council conducts regular Community Surveys to measure satisfaction with services and to identify priorities. An annual survey polls a sample of residents on their level of satisfaction with Council's services. The customer satisfaction survey that was conducted in December 2023 reports the performance gaps and priority rankings.

Fig 5: Services and Facilities –Comparison to Targets

Community satisfaction results					
Measure	Target	2020	2021	2022	2023
Overall mean of community satisfaction rating of Council facilities	-	3.37	3.42	3.26	3.34
Opportunity to have your say on key issues affecting community	-	3.48	3.40	3.23	3.22
Council promoting sustainable transport options including footpaths, cycleways and public transport	-	-	3.59	3.28	3.26
Council is forward thinking	-	3.45	3.47	3.15	3.23
Council is innovative	-	3.50	3.34	3.13	3.22
Council's efforts to increase recycling	-	3.60	3.43	3.31	3.18
Planting of trees in your local area	3.59	3.59	3.71	3.38	3.34
Availability of parks, bushland or other green spaces	-	-	4.12	3.70	3.78
Food inspections	-	3.62	3.71	3.28	3.64
Patrolling and enforcement of parking regulations	3.48	3.48	3.52	-	-
Provision of cycleways and facilities	3.55	3.55	3.69	3.40	3.39
Maintenance of footpaths	3.58	3.58	3.67	3.24	3.24
Condition of local suburban roads	3.55	3.55	3.67	2.96	3.10
Waste collection services	3.92	3.92	4.00	3.76	3.71
Cleanliness of streets	3.82	3.82	3.86	3.53	3.39
Library services	92%	88%	90%	3.84	3.98
Parramatta Artists' Studios		3.63	3.51	3.29	3.34
Riverside Theatres	4.00	4.00	3.84	3.69	3.75
Community hub services (PHIVE/ WPCCL)	-	-	-	-	3.63
Provision of information on community issues, developments, and Council initiatives	3.46	3.46	3.43	3.24	3.20
New developments are in keeping with local character	-	3.00	3.06	2.79	-
New developments are well planned	-	3.03	3.07	2.72	2.90
Development Application Service	3.21	3.21	3.21	2.73	2.89
Availability of parking in commercial centres (city centre/local centres)	3.02	3.02	3.08	2.77	2.82

It is important that our community have a say. Obtaining community feedback on the condition of our assets is important for council to understand as it impacts how we prioritise work, allocate Council budget, make recommendations to Councillors on future budget decisions, including the level of rates required to fund important infrastructure and improve safety and quality of life for our community.

Council must maintain community infrastructure to acceptable standards for safety and functional usage. However, when determining the community levels of service, we look beyond the minimum standards and work with the community to define acceptable standards for a range of assets, so we can better align resources with community priorities.

It is recommended that future Community satisfaction surveys include specific questions relating to the performance of stormwater drainage and flood impacts.

Community Survey results

Council undertook community consultation via five in-person ward workshops from March to June 2024 which comprised a total of 194 residents and 13 Councillors representing the community.

In small table groups, the residents completed a participatory budgeting exercise to help determine future Council spending and better understand the priorities for each ward. Figures 6 and 7 below show the average results on spending and top priorities by each ward – this may indicate a performance expectation gap.

Fig 6 - Community priorities VS our spend

Community proposed spend

Budget categories	% proposed spend	% current spend	% difference
Major works and construction	12.9%	13% (4)	- 0.1%
Maintaining roads, footpaths and drains	12.3%	17% (1)	- 4.7%
Parks, public spaces and recreation	11.0%	15% (2)	- 4%
Planning and development	11.0%	7% (7)	+ 4%
Waste management	9.6%	12% (5)	- 2.4%
Engineering and traffic	8.8%	2% (11)	+ 6.6%
Environmental sustainability	8.6%	4% (9)	+ 4.6%
Library and community services	7.8%	8% (6)	- 0.2%
Culture and events	7.4%	6% (8)	+ 1.4%
Administration and corporate services	6.9%	14% (3)	- 7.1%
Trade and fleet management	3.7%	2% (10)	+ 1.7%

Our current spend as per DPOP

Fig 7– Top 3 priorities by ward

Dundas	Parramatta	Rosehill	North Rocks	Epping
Major works and construction (14.9%)	**Planning and development (12.8%)**	Maintaining roads, footpaths and drains (14.1%)	Major works and construction (15.2%)	Maintaining roads, footpaths and drains (12.9%)
Waste management (12.5%)	Major works and construction (12.7%)	Major works and construction (12.4%)	Parks, public spaces and recreation (12.3%)	**Engineering and traffic (11.6%)**
Parks, public spaces and recreation (11.3%)	Parks, public spaces and recreation (11.6%)	Parks, public spaces and recreation (10.7%)	Maintaining roads, footpaths and drains (12.0%)	Planning and development (11.5%)

Workshop participants were asked what changes or improvement they would like to see in their local area by 2050. The top themes that were gathered from workshop feedback and helped in the development of Parramatta 2050 are illustrated below in Fig 8.

Fig 8 – Changes or improvements in local area by 2050

The top themes:

- Improvement of **mobility infrastructure** (public and active transport)
- Improvement and increase of **social infrastructure**
- Preserving and expanding **green space and associated amenities**
- Improved **planning, city design** and **place making**
- More and improved **community services** in local areas

3.4 STRATEGIC AND CORPORATE GOALS

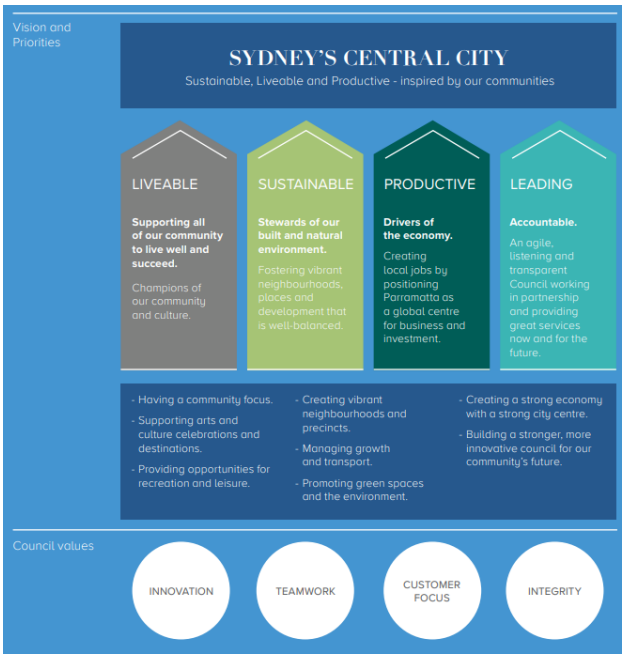
This AMP is prepared under the direction of the City of Parramatta's vision, mission, goals and objectives.

Our vision is: *Sydney's central city, sustainable, liveable, and productive – inspired by our communities.*

Underpinning the City of Parramatta Vision are 6 Key Result Areas (KRAs) that provide the big picture results, which the community would like Council and its many partners to focus on achieving. These KRAs are as follows.

- Fair - We can all benefit from the opportunities our city offers.
- Accessible - We can all get to where we want to go.
- Green - We care for and enjoy our environment.
- Welcoming - We celebrate culture and diversity - past, present and future.
- Thriving - We benefit from having a thriving CBD and local centres.
- Innovative - We collaborate and champion new ideas to create a better future.

Fig 9: City of Parramatta Vision and Priorities Framework



Relevant goals and objectives and how these are addressed in this asset management plan are:

Table 10: Priorities and how these are addressed in this Plan

Goal	Objective	How Goal and Objectives are addressed in AMP
Building a stronger, more innovative council for our community's future	Ensuring we provide high quality services and projects that meet the needs of our community whilst being open and transparent and financially prudent. We will engage and communicate with our community about our plans and progress and ensure that we continue to provide inspirational leadership and good governance. We will provide responsive regulatory functions that address community issues. Be at the forefront of innovation by harnessing leading-edge technology.	City of Parramatta plan for the total cost of ownership of Council assets and services. Asset management governance supports evidence-based decision making. Council will utilise predictive modelling in order to model the performance of council's assets
Managing Growth and Transport	Work with government partners to improve connections and traffic flow within and through the City of Parramatta to connect people to jobs and the rest of the region. Managing the parking and transport needs of residents, visitors and workers. Create truly great spaces and places for the community through well managed development. Ensure that green and open spaces are created, protected and maintained in line with population growth. Advocate to State and Federal agencies and business to ensure that there is the right infrastructure at the	Council will maintain community infrastructure as per our asset management policy and strategies and seek to meet and manage community expectations around safety, amenity and access.

	right time including traffic and transport solutions, schools and open space planning. Harnessing the benefits of growth for all.	
Promoting green spaces and the environment	To create a green city by creating and maintaining green spaces, bushland and waterways for residents and visitors to enjoy. To create an eco-efficient city that through good planning uses less energy and water whilst recycling more waste efficiently as the city grows – doing more with less. Protect and enhance our natural bushland.	Council will ensure natural areas and bushland is sustainably funded to ensure environment protection outcomes are met.
Providing opportunities for recreation and leisure	Create more active travel options and maintain accessible and high quality facilities to promote healthy and active lifestyles amongst our growing local government area. Maintain the City's reputation as a premier sporting destination.	Council will ensure the provision of open space and recreational areas that our community and residents can utilise to facilitate healthy and active lifestyles.
Creating a strong economy with a strong city centre	Create a centre that can generate jobs for everyone, attract business and investment and provide better services in order to meet the demands of population growth. Create a well-connected, efficient city and neighbourhoods, attract high skill knowledge intensive jobs and promote Parramatta as a knowledge hub and a centre for ideas and excellence. Ensure that Parramatta Square Development is the key economic driver to deliver world-class office, retail, residential and public space to accommodate growth and stimulate employment. Work with key partners to create a city centre that is a high value-adding, employment hub and driving force behind the generation of new wealth in Western Sydney.	Council will plan for the delivery of major developments to ensure world class public domain areas are maintained to an agreed level of service and contributes to the value adding force behind new growth in employment and residential populations
Having a community focus	Foster and celebrate a sense of community that is friendly, welcoming and embraces diversity. Respect, protect and celebrate the Aboriginal and European heritage, songlines, stories and history of our city. Create a place that encourages social connectivity and is inclusive and accessible for all. Understand the needs of the community and ensure the provision of relevant, accessible and exceptional services.	Council will maintain and plan for public artworks and heritage interpretation assets within the LGA. This includes ensuring maintenance plans and adequate funding is secured to manage these asset types.
Supporting arts and culture celebrations	Celebrate our cultural life and build positive perceptions of Parramatta by delivering a program of high quality festivals, local and major events and street activities.	No asset related outcome

and destinations	Provide a variety of cultural experiences and attractions unique to Parramatta which make it a destination of choice for residents and visitors.	
Creating vibrant neighbourhood and precincts	Drive renewal in key precincts in order to increase jobs, housing, development and transport options including Epping, Camellia, Westmead, Wentworth Point, the Greater Parramatta to Olympic Park (GPOP) areas. Create welcoming and distinctive local neighbourhoods, that foster a sense of community and local identity for residents right across the Local Government area.	Council will continue to invest in the assets within key precincts including the upgrade of existing assets, planning for new assets, and maintaining/ renewing assets when they underperform

The City of Parramatta will exercise its duty of care to ensure public safety in accordance with the infrastructure risk management plan prepared in conjunction with this AMP. Management of infrastructure risks is covered in Section 7.

This AMP will assist in providing environmental improvements to water quality and the natural environment and will protect other road infrastructure assets and private property. This supports councils above goals and priorities.

3.5 LEGISLATIVE REQUIREMENTS

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

Table 11: Legislative Requirements

Legislation	Requirement
Local Government Act	Sets out role, purpose, responsibilities and powers of local governments. Draft Bill 2009 includes the preparation of a long term financial plan supported by asset management plans for sustainable service delivery. 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, (b) to regulate the relationships between the people and bodies comprising the system of local government in New South Wales, (c) to encourage and assist the effective participation of local communities in the affairs of local government, (d) to give councils: • the ability to provide goods, services and facilities, and to carry out activities, appropriate to the current and future needs of local communities and of 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, (e) to require councils, councillors and council employees to have regard to the principles of ecologically sustainable development in carrying out their responsibilities.
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.

Protection of the Environment Operations Act 1997	Council is required to exercise due diligence to avoid environmental impact and among others are required to develop operations emergency plans and due diligence plans to ensure that procedures are in place to prevent or minimise pollution.
Building Code of Australia (BCA)	The objectives of the BCA are to enable the achievement and maintenance of acceptable standards of structural sufficiency, safety (including safety from fire), health and amenity for the benefit of the community now and in the future. These goals are applied so that the BCA extends no further than is necessary in the public interest, are cost effective, easily understood, and are not needlessly onerous in its application. The BCA contains technical provisions for the design and construction of buildings and other structures, covering such matters as structure, fire resistance, access and egress, services and equipment, and certain aspects of health and amenity.
Australian Standards & Codes of Practice	Various AS relevant to the asset class. Referenced in the Building Code of Australia. Governs a vast range of building construction and management
Crown Lands Act	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 it care control and management.
Road Transport (Safety and Traffic Management) Act 1999	Facilitates the adoption of nationally consistent road rules in NSW, the Australian Road Rules. It also makes provision for safety and traffic management on roads and road related areas including alcohol and other drug use, speeding and other dangerous driving, traffic control devices and vehicle safety accidents.
Road Transport (General) Act 2005 Road Transport (General) Amendment Regulation 2008	Provides for the administration and enforcement of road transport legislation. It provides for the review of decisions made under road transport legislation. It makes provision for the use of vehicles on roads and road related areas and also with respect to written off and wrecked vehicles.
Roads Act 1993	Sets out 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 roads 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 activities on public roads.
Australian Accounting Standards	Prescribes requirements for recognition and depreciation of property, plant and equipment assets.
Dam Safety Act 2015 and Dam Safety Regulations 2019.	The legislation under the Act and Regulation stipulates the requirements for management of Dams and Detention Basins.

3.6 CURRENT LEVEL OF SERVICES

3.6.1 Level of Service Description

Levels of service (LOS) underpin asset management decisions and defines service quality for a particular activity or service area against which service performance can be measured. When levels of service are considered collectively, they provide clarity and assist with meeting council's strategic

objectives. They provide the basis for the life-cycle management strategies and works programme identified within the AMP.

Levels of service support the Organisation's strategic goals and are based on customer expectations and statutory requirements.

Levels of service can be broken down into three basic aspects:

Function – its purpose for the community.
Design Parameters – what is required of and from the asset itself.
Performance & Presentation - the effectiveness of the service and ensuring it is safe, clean and appropriate for use.

The objective of asset management is to enable assets to be managed so that agreed Levels of Service are consistently delivered in the most cost effective way. There are two types of Level of Service:

- 'Community' Levels of Service are related to the service that the customer receives. The community expectations with regard to levels of service are communicated to Council via consultation. These levels of service are also established by Council taking the communities expectations, legislative requirements and available funding into account.

- 'Technical' Levels of Service are operational in nature and are the means by which Council officers establish and manage the operation and maintenance required to ensure that the Customer Levels of Service are being achieved.

By setting community and technical levels of service, Council can assess and monitor its assets performance. Council can then be held accountable and is able to report to the community on the asset performance. In the long term this will ensure that Council funds are spent where the community want them to be spent, and assets are maintained in the most cost effective manner.

Council is developing the performance targets from the established level of services and incorporated improvement action plan. Future versions of this AMP will include all classes of assets LOS and KPI's.

3.6.2 Strategic Level of Services

Community Levels of Service, communicate the philosophies of Council in relation to the management of the SW portfolio including the rehabilitation and renewal of these assets as they deteriorate due to age and use.
The strategic level of service relates to how the community receives the service in terms of safety, quality, quantity, reliability, responsiveness, cost/efficiency and legislative compliance.

The feedback and responses allow Council to set the performance standards at the strategic level providing guidance for the management of Council's SW portfolio.

The performance standard for this section is simply based on the number of complaints or Service Requests received by the community. The performance targets identified with in the customer service and technical LOS allows Council to adequately maintain the assets and deliver services.

3.7 CUSTOMER LEVEL OF SERVICE

Customer Levels of Service measure how the customer receives the service and whether value to the customer is provided. Customer levels of service measures used in the AMP are:

Quality: How good is the service. W*hat is the condition of the road surface?*

Function: Is it suitable for its intended purpose. *Is it the right sized footpath to provide the access required?*

Capacity/Use: Is the service over or under used. D*o we need more or less of these assets? How effectively is the footpath being used?*

Council's drainage infrastructure is maintained sustainably now and over the Long Term Financial Plan. More specifically. Council seeks to deliver services by;

- Managing the ageing materials of the drainage network to be optimally replaced as required.
- Ensuring the capital works and maintenance programs are planned and programmed with adequate funding.
- Responding to community expectations as measured through Community Voice Customer Research surveys. Whilst the market research is not specific enough to generate actions, it can highlight when waterways have a performance gap.

The Floodplain Risk Management Plans are an ongoing development and consultation process. Environment & Sustainability Team assist with developing these plans collaboratively including customer consultation. This could be a mixture of new, renewal and upgrade funding. The key points of these plans are:

- Protect resident from the impacts of flooding by reducing flood risk and losses after a flood event.
- Address and identify high hydraulic flood areas.
- Develop flood mitigation strategies to reduce flood impacts through non- structural measures of improved planning and development controls, community education and structural measures such as flood mitigation structures, detention basins and levees, improved drainage pit and pipe infrastructure. The planning and development controls are community consultation are managed by council's Planning and Development Sections and council's Media and Communication Sections.

Council's philosophies in relation to rehabilitation and renewal of drainage assets is that it has developed a hierarchy of determining the relative priority of drainage assets located in various areas where risk and consequences of failure of the drainage system has been considered. For example, some of the factors considered are:

- The position of the asset in relation to building structures.
- Possible disruption to the community as a result of failure.
- Environmental considerations e.g. pipe runs through highly contaminated land.
- Disruption to road access etc.
- Design and construct new assets to recognise that there is opportunity to build in resilience to changing climatic conditions such as increased rainfall intensity, frequency and duration and associated flooding

Consideration as to the means and type of rehabilitation is made to ensure appropriate cost-effective measures are chosen. The Community Strategic Plan 2038 aims to improve the resilience of the LGA to adverse environmental events e.g. flooding and to substantially improve the water quality in our waterways.

The current and expected customer service levels are detailed in Tables 12 and 13. Table 14 shows the expected levels of service based on resource levels in the current long-term financial plan.

Organisational measures are measures of fact related to the service delivery outcome. e.g. number

of occasions when service is not available, condition %'s of Very Poor, Poor/Average/Good, Very Good. Key performance criteria have been developed based on LOS and targets set to measure the performance for different class of assets.

These provide a balance compared to customer perception that can be more subjective.

Table 12: Customer Level of Service

	Expectation	Performance Measure Used	Current Performance	Expected Position in 10 Years based on the current budget.
Quality	Provide well maintained assets that are affordable to the Community.	% of Council assets which are poor/very poor condition	2% of Council's assets are currently very poor (Condition 5) condition	2% of Council's drainage assets to be in very poor condition.
	To respond to the communities need in relation to the effective collection and disposal of stormwater	Letters received from community. Level of satisfaction from Council's annual customer survey Community Voice Customer Research	Provide an acknowledgement to any community request within 14 days.	Expect to maintain current level of satisfaction
Function and Capacity	Provide stormwater systems which have suitable capacity and in condition to convey stormwater	Response to reports in Council's Pathway Service Request System Letters received from community	Appropriately respond to all flood complaints with the aim to have all new drainage systems: Designed and construct to adequately drain 1 % AEP (1 in 20 year) design flows wherever possible. Ensure overland flow paths are protected and maintained free of obstructions wherever possible to drain 1 % AEP (1 in 100) ARI design flows.	A series of condition and function audits are planned for next 10 years Update of existing mainstream flood studies every 5 to 10 years. Undertake local overland flood modelling. Design, document and construct flood and drainage mitigating works.
Safety	Drainage infrastructure is designed and maintained safe to community.	Number of reported injuries attributed to drainage asset condition.	Less than 2 incidents per year where Council accepts liability	Less than 2 incidents per year where Council accepts liability
Environmental	Improve quality of stormwater entering waterways.	Provide and maintain pollution control devices.	Record and maintain regular frequent cleaning of pollution capture devices in accordance with agreed service levels.	Record and maintain regular frequent cleaning of pollution capture devices in accordance with agreed service levels.
Responsiveness	Timely response to customer requests.	Time taken to appropriately respond and finalise requests.	Start initial investigation within 30 days. Delivering works program on time and within budget subject to the completion of design.	Start initial investigation within 30 days. Delivering works program on time and within budget subject to the completion of design.

3.8 TECHNICAL LEVEL OF SERVICE

Technical Levels of Service measures are based on what the city does to ensure delivery of the service. These measures support customer measures and tend to be used internally. Technical measures can also be further divided into longer term measures for asset management planning,

measure performance, and shorter-term operational measures for delivering asset life-cycle activities.

Detailed Technical Levels of Service are required to assess performance on a day-to-day basis to guide decision making and workflows. The prime objective in setting the Technical or operational Levels of Service is to set targets that will lead to achieving the desired Community-based Service Levels. These include response times, work standards and condition ratings.

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 budget allocation to particular asset based on the following categories.

- Acquisition – the activities to provide a higher level of service (e.g. installation new of drainage assets, GPT, new drainage infrastructure to meet the growth demand.
- Operations – the regular activities to provide services (e.g. opening hours, cleansing, regular and inspections and monitoring, 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. drainage pit repairs, pipe and GPT cleaning and general maintenance and repair on declared dams).
- Renewal – the activities that return the service capability of an asset up to that which it had originally (e.g. pipeline replacement and relining and reconstruction of pits.,
- Upgrade/New – the activities to provide a higher level of service (e.g.), replacing a pipeline with a larger size) or a new service that did not exist previously (e.g. upgrade/new drainage system to address flooding issues and reduce property damage).

Service Managers, Finance and Asset Managers collaboratively plan, implement and control technical service levels to influence the customer service levels.[6]

[6] IPWEA, 2015, IIMM, p 2|28.

Table 13: Technical Level of Service – Drainage Asset (Structures)

Service Attribute	Service Activity Objective	Activity Measure Process	Current Performance *	Desired for Optimum Lifecycle Cost **
Operations	Stormwater inlet pits are free of sediment and debris	Review of performance of inlet pit cleaning program reports	Not currently measured	Stormwater pits that are critical or of high priority are free of sediment and debris
	Gross Pollutant traps are emptied at optimum frequencies	Reported cleaning frequency and mass of material removed	Cleaning frequency adequate and meeting scheduled maintenance program frequency	Cleaning frequency adequate and meeting scheduled maintenance program frequency
Maintenance	Inspection and maintenance of stormwater infrastructure assets is undertaken as per maintenance plan	Review of performance stormwater infrastructure inspection and maintenance program reports	Expect to maintain current level of service, as indicated above.	Continue to maintain current level of service, as indicated above.
	Lake Parramatta is managed to meet adequate water quality and water levels, minimise sediment and pollutants to preserve flora and fauna, and suitability for recreational uses	Lake Parramatta Dam bi-daily, weekly, monthly and quarterly inspection and maintenance is carried out Lake Parramatta water quality levels are suitable for recreational swimming and activities	Lake Parramatta inspection program is carried out Lake Parramatta water quality currently meets minimum standards to allow for recreational activities	Lake Parramatta inspection program is carried out Lake Parramatta water quality currently meets minimum standards to allow for recreational activities
Renewal	Renewal of assets is undertaken at the optimal time in lifecycle	Assets are renewed when required under. Scheduled condition survey and inspection are conducted by catchment to develop renewal program and inclusion of works in operation plan.	90% completion of annual capital renewal programs relating to Council's Stormwater programs	100% completion of annual programs, subject to available funding and resources.
	Renewal assets are delivered efficiently and fit for purpose	Completion of Council's renewal program, including Major Projects	On-going implementation of capital renewal programs including Major Projects	Assessment to be carried out on completion of major renewal works.
Upgrade/ **New**	New assets are delivered efficiently and fit for purpose	Completion of Council's upgrade & new assets program, including Major Projects	On-going implementation of capital upgrade programs including Major Projects	Completion of Major Projects

Note: * Current activities and costs (currently funded).
** Desired activities and costs to sustain current service levels and achieve minimum life cycle costs (not currently funded)

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

Table 14: Technical Level of Service –Drainage Asset (Pits and Pipes)

Asset Category	Key Performance	Measures Level of Service	Performance Measure Process	Performance Target
Conduits	Quality	Well-maintained and suitable structures for its intended use.	Measure the conditions every 5 years on a sampling basis and extrapolate to whole system (current practice). Number of customer request.	Aim to maintain 94% of the conduits at condition rating of 3. Reduced number of request/complaints per annum., <100pa.
	Capacity	Council design practice to provide 5% AEP capacity of its conduits. Asset capacity is sufficient, without any obstruction, and efficiency/output is >80%. Asset meets service demand/growth	Catchment analysis every 5 to 10 years. Annual audits of stormwater assets Insurance claims/incidents reports. Inspections/compliance with specifications.	Maintain 5% AEP capacity throughout LGA, where possible. Meet current Australian Standards.
	Safety	Reduces insurance claims annually related to the particular asset type. Asset kept at the safe operating level.	Number of reported incidents e.g. sinkholes, causing damage to road payments and private property. Annual safety audits	Asset meets current WHS standards, design guidelines and environmental compliance. Insurance claim <20pa.
	Function	Asset functioning well, appropriate for its intended use.	Audit asset is fit for purpose. Regulation/design changes.	Asset meets technical/industry standard >90%.
Structures	Quality	Well-maintained and suitable structures for its intended use.	Measure the conditions every 5 years on a sampling basis and extrapolate to whole system. (current practice) Number of customer request.	Aim to maintain 94% of the conduits at condition rating of 3. Reduced number of request/complaints per annum., <50pa.
	Capacity	Council design practice to provide 5% AEP capacity of its structures. Asset capacity is sufficient, without any obstruction, and efficiency/output is >80%. Asset meets service demand/growth	Catchment analysis every 5 to 10 years. Annual audits of stormwater structures. Insurance claims/incidents reports. Inspections/compliance with specifications.	Maintain 5% AEP capacity throughout LGA, where possible. Meet current Australian Standards.
	Safety	Reduces insurance claims annually related to the particular asset type. Asset kept at the safe operating level.	Number of reported incidents e.g. causing damage to road payments, vehicle, pedestrians and private property. Annual safety audits	Asset meets current WHS standards, design guidelines and environmental compliance. Insurance claim <20pa.

Asset Category	Key Performance	Measures Level of Service	Performance Measure Process	Performance Target
	Function	Asset functioning well, appropriate for its intended use.	Audit asset is fit for purpose. Regulation/design changes.	Asset meets technical/industry standard >90%.

The above performance targets indicated are not always met due to existing resource levels.

3.9 DESIRED LEVEL OF SERVICE

An initial Community (Strategic) and Technical (Operational) Levels of Service document to guide and assist Council has been developed with regard to ongoing management of its SW Assets portfolio. Any changes in the future to the Levels of Service for any of Council's SW assets will be in accordance with this document.

The development of the Levels of Service takes into account:

Customer research and expectations
Strategic goals and objectives
Legislative requirements
Current asset condition
Drainage Hierarchy
Funding requirements

Based on the above survey and criteria the community and technical level of service are developed.

Community Level of Service

- Provide a well maintained stormwater drainage system in suitable condition.
- Effective collection and disposal of stormwater.
- Response time to customer requests.
- Designed and maintained safe for the Community.
- Improve Water Quality in waterways.
- Planning for increased development within CBD and other growth areas.
- Protect and enhance riparian corridors to reduce peak flood flows and improve aquatic habitats

Technical Level of Service

- Drainage assets in a serviceable condition in accordance with intervention condition (as per Asset Management Plan).
- Improvements to pipe drainage system to achieve 1% AEP (1 in 20 year ARI) capacity where possible.
- Maintain drainage assets by undertaking preventative maintenance as required. (This includes cleaning, CCTV inspections and condition rating).
- Drainage assets constructed and maintained in accordance with Asset Management Plan and to meet with Council's Work Health and Safety requirements.
- Design assets to cater for new hydraulic and changing climatic conditions by increasing the stormwater capacity through upgrade or duplication

To enable improvements to Council's drainage asset management systems the additional improvements listed below will also need to be addressed.

Improved Staffing levels and Funding - Currently asset management of Council's drainage system has been predominantly based on reactive treatment to reported and known problems. This has been mainly due to limited staffing resources available to undertake planned investigations that go beyond annual works programs.

The aim in future is to progressively move from the predominantly reactive approach to a more planned proactive asset management system. It is proposed to fill this staff shortage by the creation of a dedicated Asset Management Engineer position which will focus on the asset management of stormwater drainage assets.

Historic Inhibitors to Change - Historically drainage asset management team did not have the same profile as other asset classes such as road, footpaths, libraries, community buildings, open space and recreational facilities.

This is not uncommon as drainage assets are predominantly structures underground, unseen by the general community and their technical function and performance not commonly understood or appreciated until after the impact of a major flood where any limitations to the drainage system that results in flood damage and large recovery costs are clearly visible. It is therefore important that funding is continued in the areas of:

- Flood Studies.
- Floodplain Risk Management Study and Plans.
- Implementation of Flood Mitigating Works.
- Funding for the Continued Maintenance of New and Existing Infrastructure.

Ongoing Community Consultation – Community Consultation that educates residents and property owners of flood risk is essential. A formal community education program is to be considered and a regular campaign to remind everyone the importance of floodplain risk management and the continued supporting funding to maintain existing drainage infrastructure and to fund new flood mitigating infrastructure is critical.

Further development of the levels of service will be undertaken in consultation with the various business units within Council. These will be documented in future revisions of this AMP.

The asset management planning process includes the development of three scenarios to develop Levels of Service that are financially sustainable.

Scenario 1 – What we need to do (spend) in the next 10 years to sustain current service levels plus planned upgrade new / new assets / services aligned with the Long Term Financial Plan, Delivery Program, Operational Plan, and Asset Strategy.

Scenario 2 – What we need to do (spend) in the next 10 years to sustain current service levels plus planned upgrade new / new assets / services using Method 2 (Condition Modelling) or Method 3 (Network Renewals / Defect Repairs).

Scenario 3 – What we can do and be financially sustainable with AMP's matching Long Term Financial Plan (LTFP), identifying major capital renewal and upgrade/new proposals that cannot be done in the next 10 years, determining the service consequences (service levels below desired levels) and service risks associated with the deferral of these proposals.

What options do we have?

Resolving the funding shortfall involves several steps:

- Improving asset knowledge so that data accurately records the asset inventory, how assets are performing, and when assets are not able to provide the required service levels.
- Improving our efficiency in operating, maintaining, renewing, and replacing existing assets to optimise lifecycle costs.
- Identifying and managing risks associated with providing services from infrastructure.
- Making trade-offs between service levels and costs to ensure that the community receives the best return from infrastructure.
- Identifying assets surplus to needs for disposal to make saving in future operations and maintenance costs.
- Consulting with the community to ensure that water infrastructure services and costs meet community needs and are affordable.
- Developing partnership with other bodies, where available to provide services.
- Seeking additional funding from governments and other bodies to better reflect a 'whole of government' funding approach to infrastructure services.

What happens if we don't manage the shortfall?

It is likely that we will have to reduce service levels in some areas, unless new sources of revenue are found. For SW infrastructure, the service level reduction may include reduction of the frequency of routine maintenance such as street sweeping, road and drainage maintenance, and delay on delivery of new structures. Reduction in maintenance in other areas may accelerate the consumption of some asset groups.

What can we do?

We can develop options, costs, and priorities for future civil infrastructure services, consult with the community to plan future services to match the community service needs with ability to pay for services, and maximise community benefits against costs. Seek funding from State Government for delivery of planned works.

4.0

FUTURE DEMAND

4.1 DEMAND DRIVERS

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

Demand for new services is being managed through a combination of managing existing assets, where appropriate upgrade of existing assets and providing new assets to meet demand through a variety of delivery mechanisms mentioned within Section 5 of this report.

Council can currently sustainably fund and maintain its existing stormwater portfolio to a satisfactory condition, which will allow it to meet existing community and operational demands. Almost 83% of SW assets (by GRC) currently score a condition rating of 3 or better (Satisfactory). Further in-depth long term planning is still required to identify if Council has the required asset in the required place to perform the required function.

The SW network is being managed to ensure continued service provision as well as allowing for the future growth. Given Parramatta's geographical significance, planning for both the current and future communities is required and will need to include services for groups outside of the Parramatta LGA, being the wider Sydney region.

Additional in-depth and long term planning is required to identify if Council has the required asset in the required place to perform the required function. To assist in addressing the demand into the future Council is currently undergoing numerous detailed planning studies to ensure that the future growth of the LGA is accounted for. These studies take into consideration the meeting of demand from Council's existing stock, future programmed assets via a range of delivery mechanisms, as well as service delivery via assets owned by other organisations.

Demographic analysis for the Parramatta LGA demonstrates that the population is extremely diverse which results in a need for access to a full range of social infrastructure. Current trends also identify a need for flexible, multi-purpose facilities that cater to a broad range of interests and that can adapt as needs change.

The CBD of Parramatta is undergoing a substantial planning review by Council to facilitate the significant growth for the LGA and region. This will have a substantial increase and further concentrate worker and residential population numbers. To address this, Council is also undergoing its own significant property redevelopment program of its CBD assets to facilitate growth of the organisation, community and region.

Future versions of this AMP will take into consideration the numerous Strategies and Programs currently under development by Council, including the financial considerations for each being Capital New, Renewal, Maintenance and Operational requirements. These Strategies and Programs include but are not limited to:

1. Lennox Bridge Car Park Redevelopment.

2. Riverside Theatre.
3. Parramatta Riverbank.
4. Multi Storey Car Park Redevelopment Projects.
5. North Parramatta Urban Growth Release.
6. Parramatta Square (PS) Redevelopment – Project recently completed.

As stated above, Council is undertaking planning studies forecasting the growth and demand into the future and considering the delivery mechanisms to meet future service delivery targets.

It is envisaged that demand identification and management will be further and continually identified though stakeholder engagement within this AMP and then delivered through an annual and four year Program consisting of:

- Acquisition, Disposal and Reclassification.
- Development.
- Capital New and Renewal.
- Maintenance and Operation.

Future strategic levels of service for the drainage network

Improving the resilience of the Parramatta Council Area to any future disruptions or disasters is a key task of local government, in cooperation with the State Government. This is reflected in Parramatta's Community Strategic Plan (CSP), which states Council should:

- Minimise and manage environmental risks.
- increase resilience.
- improve recovery times.

and focus on:

- preparation for extreme weather events and/or other extreme events that disrupt food, water, energy or other resource supply.
- identification of risk and putting plans in place to better deal with events when they happen.
- flooding risk.

In addition, the CSP states that "bringing back swimming to the Parramatta River" is a Council priority. To achieve this vision a key Council task will be to improve the water quality entering waterways via improvements in the drainage network.

In response to these CSP requirements, and other Council Policies such as the Council Floodplain Risk Management Policy, various long term enhancements to the stormwater drainage network are required, and are described below.

Enhancement of the drainage network to meet a universal 5% AEP flow capacity

Councils network of pits, pipes and gutters extends across the whole of the Local Government Area (LGA) with a total pipe length of 543km and 23,292stormwater pit structures, GPT's and other structures with a combined total Written Down Value (WDV) value $619,122,916. This network has been built up over many decades to a variety of standards. Some parts of the network can cope with storms of 5% AEP intensity (the largest storm that, on average, would be expected to occur every 20 years), whilst others can only cope with storms of 20% AEP intensity.

It is proposed exploring in the future to retrofit those parts of the network with lower standards of service to be able to cope with a 5% AEP storm. A prioritisation program will be developed, with those areas deemed to be most critical (e.g. areas of high density, important public assets like hospitals) upgraded first and then other areas upgraded as funds become available.

Making the Parramatta CBD more flood resistant

The Parramatta CBD is currently the most important economic, social and cultural centre for the Sydney metropolitan area, outside of the Sydney CBD. It is the 6th largest CBD in the nation, with tens of thousands of workers commuting daily to the CBD and with an annual economic output of billions of dollars. In addition, a major rezoning of the CBD is currently being planned which is likely to very substantially increase the working and residential population of the CBD as well as the value of public and private assets and the overall importance of the CBD to the national economy.

The Parramatta River runs through the CBD, providing vital open space and recreational activities. However, as with all Rivers, the Parramatta River occasionally floods. In a larger flood it has been estimated that hundreds of millions of dollars of direct and indirect damages could occur in the CBD, along with potential loss of life. This is despite some very effective flood mitigation projects that were installed in the 1990s after extensive flooding that occurred in 1986 and 1988.

A new project is starting in 2015 to create a comprehensive and accurate flood model for the whole of the Parramatta River, including the CBD. The flood model was adopted by Council 2024, which includes substantial flood mitigation projects that will need cooperative funding mechanisms to be developed between local, state and federal governments.

Water sensitive urban design

In the rain event the runoff enters the underground drainage network and picks up any pollutants that are present in the environment such as heavy metals, pesticides, herbicides and potentially dangerous bacteria. These pollutants are then rapidly transported to any nearby creek or river, where they can cause significant environmental damage. One way to reduce the effects of pollution is to install features such as raingardens and grassed areas ("water sensitive urban design, WSUD") in the drainage system that intercept the water and clean it up before releasing the water into the local waterway. In addition to the water cleansing capabilities of WSUD these areas of vegetation create natural environments providing environmentally friendly local areas on hot days and habitats for the native species.

Currently, only a relatively small area of the LGA have WSUD installed. Council plans to increase WSUD to such a level that the water quality in the Parramatta River will improve enough to allow swimming at selected locations such as the CBD, Little Coogee in Parramatta Park or at Ermington Bay. It has been estimated that about 1% of the total surface area of the LGA would need to have WSUD retrofitted to achieve the aim of returning swimming to the Parramatta River. In response, all future civic upgrade projects should have at least 1% of the upgrade area dedicated to WSUD. The delivery of WSUD is part of a broader strategy which appropriately includes improvement to water quality as part of any redevelopment. The planning and development requirements relating to WSUD are assessed by Council's Development Services Engineer. Council has an internal document identifying locations where large scale WSUD would be suitable to be retrofitted on public owned lands (subject to funding becoming available). Smaller scale applications of WSUD have been rolled out across various park, streetscape and carpark upgrades as part of our Capital Works program.

In regard to private lands, the City of Parramatta DCP (2023) has a whole section on Water Management (Flood/Stormwater/WSUD) specifically Section 5.1.2 on Water Sensitive Urban Design for new developments. Broader scale WSUD is also addressed by Council's Planning Directorate as part of the Master Planning process for different precincts or under specific Voluntary Planning Agreements (VPAs).

Management of High Hazard Flood Flows

During storm event, the raising water level impacts in many ways. Council has identified the hotspot areas that are classified as high hazard flood zones. Council has a rolling program of updating its flood studies and Floodplain Risk Management Study and plans. As part of this process a review of all high hazard flood zones and high-risk properties within the floodplain will be identified and appropriate actions associated with managing flood risks will be undertaken. In subsequent years we will be developing site specific approaches to minimise the risks to those living in the problem areas, which will include drainage system improvements and modifications.

Parramatta Central City Growth

The increase in FSR over the City Centre area has a significant impact on the drainage network. The predicated change in zoning and expansion of the CBD will affect the network and overland flows. This will be mitigated by evaluating the effects of the expansion on the drainage network and floodplain emergency evacuation.

Proposed Light Rail through Parramatta

The NSW Government has delivered the Parramatta Light Rail Stage 1 project. As part of this project adjustments to existing drainage infrastructure and improvements to the drainage systems at locations around the light rail corridor have been completed and those new stormwater assets that are gifted to council will be included in council's Asset Management System.

Stage 2 of the Parramatta Light Rail project is in the planning stage by Transport for NSW and and a similar process will occur with handover of new stormwater assets. Consideration of local and mainstream flood impacts will be assessed by Transport for NSW and incorporated in the design of the light rail Stage 2 system to ensure flood protection of transport infrastructure and minimise any disruption to the rail service.

Pollution control devices on stormwater pipes discharging to waterways

- Council has an existing network of stormwater pollution control devices that the improvement to water quality entering its natural waterways.
- These devices are a mixture of trash screen, CDS units, pit baskets and litter floating booms which are strategically placed within the catchment system to capture pollutants such as litter and sediments.
- Further devices will be planned as more growth and development occurs within the LGA.
- Future specific water quality targets specific to achieve projects such as the introduction to swimming in the Parramatta River will also result in the increase to the number of these devices.
- The growth in pollution control devices will require extending the existing cleaning and maintenance programs and budgets accordingly.

4.2 CHANGES IN ENVIRONMENT

Climatic changing conditions is a continuous discussion, recent extreme weather event which are likely to become more frequent such as heat waves, large storms, increased rainfall, rising sea levels, fluctuations in wet/dry season.

This is likely to impact on condition of assets, place pressure on asset lifecycle costs and potentially reduce asset life, e.g. increased moisture in ground and road pavements. There is also potential for more frequent asset failure, e.g. failure in retaining walls in 2014 at Harris Park Train Station which collapsed causing infrastructure failure of the road above.

When Council undertakes renewal work, rigorous assessment takes place in design phase and procurement practise are implemented to mitigate the impact of increased intensity and frequency of extreme weather events;

- Using higher grade binder in the asphalt which preforms for longer periods in areas with high temperatures.
- Increasing the capacity of drainage systems and installing more drainage pits to improve the removal of extreme rainwater flow.
- Extreme rainwater travels faster and requires an extended kerb inlet.
- Provision of subsoil drainage system to prevent the ingress of moisture into the pavement and formation.

The most likely changes expected is due to proposed increases in population within the LGA and the impacts leading from increased development. Such impact would require upgrade and modifications to existing pipe drainage and water quality infrastructure, as indicated above.

Other environmental changes could result due to predicted change to rainfall and sea level. This could result in future works being designed with greater capacity to account for increased weather extremes.

The impact of climate change on assets is a complex issue with additional modelling and enhanced resilience to be developed in future revisions of this Asset Management Plan.

This asset management plan concentrates on the operation and maintenance of council's existing drainage infrastructure. Any new flood study mapping and climate change scenario results are covered in the Flood Study and the Floodplain Risk Management Study and Plan investigates and recommends how council will be managing the flood risks, which includes consideration of future predicted impacts to climate such as increased rainfall and sea level rise. The delivery of any new flood mitigation assets identified in the approved floodplain risk management study and plan will be included in Council's asset system and managed as part of any future Stormwater Drainage Asset Management Plan.

4.3 DEMAND FORECAST

The present position and projections for demand drivers that may impact future service delivery

and utilisation of assets have been identified in number of recent studies undertaken by Council, being the Community Infrastructure Strategy and the CBD Infrastructure Needs Study, which were undertaken in 2017 and 2019. The findings of the studies have been used to inform the draft Developer Contribution Plan. Further studies are underway, and demand forecast for SW infrastructure will be developed once the revised environment, social, economic strategies are formally adopted by Council.

4.4 KEY TRENDS

Various factors that may impact on SW assets in the future as a result of population growth include:

- Residential development.
- Town centre improvement/CBD Planning and proposals.
- Growth in industrial areas.
- Pollutants in our stormwater system - Higher population will lead to more gross pollutants in the stormwater system with a potential impact on our natural waterways.

4.5 PARRAMATTA CBD PLANNING STUDY AND CBD PLANNING PROPOSAL

A major Council objective that will impact the demand on RI assets within the CBD and surrounds is the current Parramatta CBD Planning Study. The objectives of this Strategy are:

1. To set the vision for the growth of the Parramatta CBD as Australia's next great city.
2. To establish principles and actions to guide a new planning framework for the Parramatta CBD.
3. To provide a clear implementation plan for delivery of the new planning framework for the Parramatta CBD.

The Parramatta CBD Planning Strategy sets the direction for the project and details the 'Actions' that will inform a future Planning Proposal to amend the planning controls for the CBD. Further details are available on Council website.

The work required to implement the identified actions and progress a formal Planning Proposal for the CBD are detailed in the Strategy's 'Implementation Plan'. This includes a number of technical studies, including an infrastructure needs analysis. Most asset classes will require Needs/Impact Studies that will inform the infrastructure needs analysis which Council is currently undertaking as part of the review of the Parramatta CBD Planning Framework.

4.5.1 Implications for the Asset Management Plan

In the 15/16 financial year City Strategy tested the implications of what increases in FSR with no height limits may have on the Parramatta CBD and surrounds (North Parramatta and Harris Park) in terms of required community facilities, traffic, transport, environment, storm water and heritage. This is being referred to as an an Infrastructure Needs Assessment for Social Services, Education & Community Facilities.

The increase in FSR and the impacts upon existing assets will be further considered in detail, including whether the existing assets have appropriate capacity to receive new future additional network demands or if new assets are required to meet service delivery requirements.

As the new planning controls will also allow for the significant growth in workers and residents and in turn impact Council's building and infrastructure network, Council's review process is also

identifying all of the required infrastructure that the Parramatta City Centre needs over the next 10 - 20 years in this study area. In doing so, it will also identify the proportion of 7.11 funds that will be required to deliver the Needs Assessment. At the end of this review process there will be a new draft Civic Improvement Plan and 7.11 plan for Parramatta City Centre, with funds allocated to different areas of Council for delivery of the works, including Council's building and RI portfolio.

Future SW requirements in consultation of the above mentioned process will be identified and included within future versions of this AMP.

4.6 DEMAND MANAGEMENT

Demand Management into the future for Council will need to consider:

- Maximising patronage within existing assets.
- Upgrading existing assets.
- Providing new assets to meet demands.
- Managing the demand by non-asset solutions.

4.6.1 Demographics

CoP's population is estimated to be 256,729 in 2021(confirmed), 287,289 forecasted for 2022 and estimated forecast of 446,021 in 2041 resulting in an increase of 55.25 % from 2022-41.

Table 16 Demographic – CoP Census

SECTION	STATEMENT 2024	SOURCE 2024
POPULATION	256,729 in 2021 (3,056 people per km2)	Profile Id (2021 Census)
	446,021 forecast for 2041 (5,310 people per km2)	Forecast Id
	Median age = 35 years (NSW = 39 years)	ABS 2021 Census
	84% feel welcome living in our city	Our City My Life Survey 2023
DWELLINGS	92,109 occupied dwellings in 2021	ABS 2021 Census
	188,447 dwellings forecasted for 2041	Forecast Id
	40.5% residents live in a flat or apartment	ABS 2021 Census
DIVERSITY	53.3% of residents were born overseas	Profile Id (2021 Census)
	56.4% speak a language other than English at home	ABS 2021 Census
	o 12.4% Mandarin	
	o 6.4% Cantonese	
	o 5.5% Korean	
EDUCATION AND EMPLOYMENT	36.1% of residents hold a bachelor's degree or higher	ABS 2021 Census
	97.6% employment rate in June 2023	Economic Id
	23.6% of residents work within the LGA	Profile Id (2021 Census)
	Median household income = $2,051 per week (NSW = $1,829)	ABS 2021 Census
VULNERABLE COMMUNITIES	13.1% of households are 'low income', earning less than $650 per week	ABS 2021 Census

	15.6% of households are in housing stress	Housing Id
	4.1% of people require assistance with daily living activities	ABS 2021 Census
	16.5% of residents reported that they do not speak English well or at all	Profile Id (2021 Census)
LOCATION	The City of Parramatta covers 84km2 at the centre of metropolitan Sydney, 24km west of Sydney CBD	
CONNECTION	Home to the Dharug peoples for more than 60,000 years	
	Australia's oldest inland European settlement	
HERITAGE	Parramatta Park is a World Heritage Listed site	
	More than 750 significant archaeological sites	
	More than 50 State significant heritage sites	
ENVIRONMENT	36.7% vegetation cover including 22.6% tree canopy cover	Urban Monitor methodology and data (2016)
	11 days in 2023 over 35°C	BOM (2024) - data over 2023 calendar year
ECONOMY	2.3 million people live within a 45-minute commute to the Parramatta CBD	PwC (2016)
	Gross Regional Product = $28.21 billion	Economic Id (NIEIR 2022)
	168,019 people work in the City of Parramatta	Economic Id (June 2022)
	5,435 jobs created 2016-2021	Economic Id
	30,591 businesses call Parramatta home	Economic Id (ABS 2022)
	23.4% vacancy in Parramatta's commercial office buildings	Property Council of Australia (July 2023)

Council has a diverse demographic base which is constantly changing. As identified below, Council needs to consider numerous factors when planning for its RI assets into the future.

Parramatta 's median age in 2016 was 34 and comparatively young when compared to 36 for Greater Sydney and 38 for NSW. Data from the 2016 Census indicated that approximately 74 per cent of Parramatta's residents worked outside the Parramatta local government area; the majority working in the Sydney CBD. Local residents made up less than 20 per cent of our total Parramatta workers. Around 120,000 people are employed in Parramatta, of which more than 43,000 work in the Parramatta city centre, with many coming from Blacktown, The Hills Shire, Holroyd, Penrith, Hornsby and other areas.

4.6.2 Planning

In order to understand Demand in more detail into the future, Council is also both internally and through the procurement of various external consultants reviewing and identifying specific community needs. Infrastructure team is collaboratively working with Corporate Strategy team to develop planning tool for infrastructure group factor demand forecast in treatment proposal for new assts and renewal program.

Council has also created through its Social Outcomes, City Strategy team a set of Social Infrastructure Guides as a series of high level social infrastructure needs for major development hotspots across the Parramatta LGA, including Parramatta CBD, Granville, Westmead and Epping. The Guides identify the current capacity of social infrastructure within these areas as well as highlighting broad trends and challenges in social

infrastructure provision. It is envisaged that this current study will be expanded to other parts of the LGA to assist in asset planning into the future for the RI, SW, land and building portfolio.

4.6 DEMAND MANAGEMENT PLAN

Demand for new services will be managed through a combination of managing existing assets, upgrading of existing assets and providing new assets to meet demand and demand management. Demand management practices include non-asset solutions, insuring against risks and managing failures. The impact of demand drivers that may affect future service delivery and use of assets are shown in Table 17.

The objective of demand management is to actively seek to modify customer demands for services in order to:

- optimise the utilisation and performance of existing assets.
- reduce or defer the need for new assets.
- meet the organisations strategic objectives.
- deliver a more sustainable service.
- respond to customer needs.

It is vital to the success of the AMP that demand factors be analysed comprehensively and their impact quantified in terms of the following:

- the effect of the growth of the asset network.
- any possible future need to increase or decrease infrastructure.
- the implementation of non-asset solutions, such as managing demand.

In addition to the factors mentioned above, risk affects demand for services and consequently the following must be taken into account:

- the methodology and accuracy of forecasts.
- the uncertainty of forecasts.
- any unforeseen natural factors.

As shown in future sections of this plan, acquiring new assets will commit ongoing operations, maintenance and renewal costs for the period that the service provided from the assets is required. These future costs are identified and considered in developing forecasts of future operations, maintenance and renewal costs in Section 5.

Future plan revisions will consider the costs of climate change, water restrictions, technology, urban consolidation, and other possible variables.

Table 15 Demand Management Plan

Demand Driver	Impact on Services	Demand Management Plan
Demographics	Changing service needs and hence changing building requirements, particularly relating to accessibility	On-going delivery of Council's Community Facilities Deferred Maintenance and Upgrade works to provide more inclusive and accessible facilities.
Population	General increase in demand for services provided by Council's buildings	New Developer Contributions Plan has been drafted to take into account the potential future demand for services/assets,and these are considered in this AMP.

Population – new DCP	Will require initial capital funding from Council to match s94 funding, also results in a projected increase in recurrent operational & maintenance costs and annual asset depreciation costs.	Adoption of new DCP. Explore opportunities to provide additional services/ assets through VPA's or joint ventures. An overarching Property Strategy to be developed.
Regulation	Will add further to the cost of providing, operating, maintaining and renewing buildings	On going assessment of building portfolio as regulations change to determine additional cost.
Construction Costs	The shortage of skilled labour, high labour costs and increasing building costs will impact on the future management of drainage	On-going internal productivity reviews to ensure value for money. Undertake regular testing of the market through standard tendering and procurement processes for external service provisions.

Action from the demand management plan is being finalised and update will be included in the further revision.

5.0

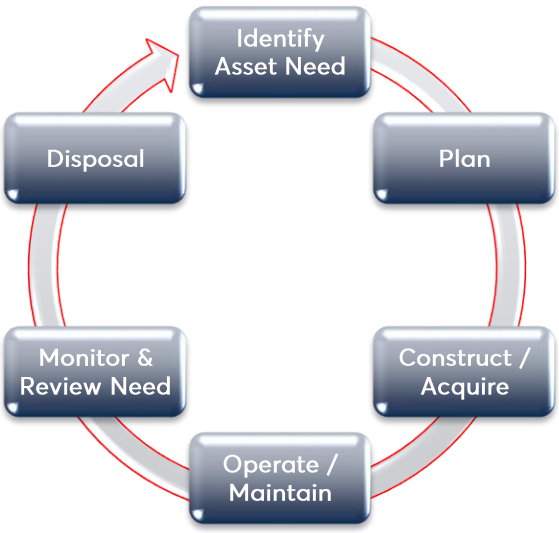
LIFECYCLE MANAGEMENT PLAN

5.1 LIFE-CYCLE MANAGEMENT PRINCIPLES

The lifecycle management plan details how the City of Parramatta Council plans to manage and operate the assets at the agreed levels of service (defined in Section 3) while managing life cycle costs.
Life-cycle Management is recognised by Council as an essential component of this AMP. This section of the Plan provides details of the data and processes required to effectively manage, renew and upgrade Council's asset portfolio. It also documents the analysis that Council undertakes regularly to predict and monitor expected future expenditures required to effectively manage the portfolio.

Undertaking life-cycle asset management means considering all management options and strategies as part of the asset life cycle, starting with the planning phase and ending with disposal. The objective of managing the assets in this manner is to look at long-term cost impacts (or savings) when making asset management decisions. **Error! Reference source not found. Error! Reference source not found.** provides a graphical representation of the asset life cycle including each of the stages an asset passes through during its life.

Figure10: Life Stages of Infrastructure Assets



5.1.1 Delivery of Council's 10 year Asset Management Plan

The development of Council's SW AMP in line with the Asset Management Policy and Strategy allows Council to plan, identify and implement an annual and four year delivery program for Council's SW assets in line with a lifecycle management strategy consisting of:

- Acquisition or Development.
- Operating.
- Maintenance.

- Capital Renewal or Disposal.

Delivery mechanisms of the above and the new asset creation process vary from internal to external resources and includes commissioning through various business units within Council. Future iterations of this AMP will further consolidate and refine the various delivery programs.

5.2 BACKGROUND DATA

5.2.1 Asset Hierarchy

An asset hierarchy provides a framework for structuring data in an information system to assist in collection of data, reporting information and making decisions. The hierarchy includes the asset class and component used for asset planning and financial reporting and service level hierarchy used for service planning and delivery.

Table 16: Asset Service Hierarchy

Service Hierarchy	Service Level Objective
Parramatta Dam water levels	Retain static water level at a to be determined level at all times
Surface flow paths for drainage network	Ensure all surface flow paths in city road reserves, easements and Park Lands are retained and unobstructed and provide maximum flood protection to properties.
Stormwater drainage main drainage	Ensure all stormwater main drainage are operating at greater than 80% capacity to minimise flooding to properties and obstruction to road users
Reserves and parks watercourses	Minimise the occurrence of obstructions in water courses which divert creek flows onto adjacent roadways and open space
Stormwater detention basins	Ensure Council's stormwater detention basins remain fully operational at all times
Stormwater drainage network major catchment low points	Operate pipes, inlets and manholes at minimum 80% capacity to minimise flooding of roads and provide maximum protection to properties adjacent low points with significant upstream catchment area
Stormwater drainage network park paths and access roads	Minimise pedestrian and cycling obstructions due to flooding caused by failed stormwater drainage infrastructure
Pollutant management	Operate Council's suite if gross pollutant traps to maximise the interception of litter and organic material from receiving watercourses.

5.2.2 Asset capacity and performance

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

Locations where deficiencies in service performance are known are detailed in Table 17.

Table 17: Known Service Performance Deficiencies

Location	Service Deficiency
All drainage assets	Some sections of the network have less than one in 10-year ARI capacity causing excessive ponding on the roadway surface during minor rainfall events.

5.2.3 Asset Condition

Council engaged the services of OPUS International Consultants in 2015 and Total Drain Clean in 2019 to undertake a condition inspection sample survey of Council's stormwater drainage system. The survey comprised of a representative sample of approximately 5% of Council's drainage pits & pipes network.

The inspection methodology included data collection and records of pit condition and pipe condition using Quickview camera video and photographs of the internal drainage system. This information was used to undertake a condition rating of the stormwater drainage pipes using the IPWEA – NAMS.AU Practice Note No.5 Stormwater Drainage assessment framework.

Council currently does not have a formal Assessment Methodology document, however the methodology used to assess the asset condition of its stormwater drainage infrastructure is summarised as follows:

- Typically, all above ground drainage structures such as pits, basins etc. are assessed by visual inspection on site. Record of their condition is by photograph of the structure.
- Below ground structures such as pipes, pits (internal component) and culverts are inspected by CCTV, results recorded in a report and video footage and an assessment of the condition of the asset is undertaken on the review of the report and video.

5.2.4 Condition Scores – Stormwater Asset Condition

The Stormwater portfolio's physical componentised condition rating as a percentage of gross replacement cost, being:

Table 18: Drainage Asset Condition (based on 2019 survey data)

Asset	Condition Rating	Generalised Description of asset condition	Condition (%)
Stormwater (Conduits)	0	Not inspected – Asset disposed, segment/structure does not structure exists at segment or due to access issues.	0
	1	As new, requires normal maintenance only	13
	2	Good condition, requires minor maintenance	25
	3	Acceptable condition, requires significant maintenance	55
	4	In very poor condition, requires renewal	5
	5	Unserviceable or unusable	2
Stormwater (Structures)	0	Not inspected – Asset disposed, segment/structure does not structure exists at segment or due to access issues.	0
	1	As new, requires normal maintenance only	10
	2	Good condition, requires minor maintenance	81
	3	Acceptable condition, requires significant maintenance	8
	4	In very poor condition, requires renewal	0
	5	Unserviceable or unusable	0
Stormwater (Other Assets)	0	Not inspected – Asset disposed, segment/structure does not structure exists at segment or due to access issues.	
	1	As new, requires normal maintenance only	4
	2	Good condition, requires minor maintenance	37
	3	Acceptable condition, requires significant maintenance	50
	4	In very poor condition, requires renewal	7
	5	Unserviceable or unusable	2

There is a broad range of asset condition. Condition "0" indicates that no condition data is held in the asset register.

Condition is measured using a 1 – 5 grading system[7] as detailed in Table 21.

Table 19: Simple Condition Grading Model

Condition Grading	Description of Condition
1	**Very Good**: A near new asset with no visible signs of deterioration. only planned maintenance required.
2	**Good**: An asset in a very good overall condition but with some early stages of deterioration evident. Minor maintenance required plus planned maintenance
3	**Fair**: An asset in fair overall condition. Deterioration in condition would be obvious and there would be some serviceability loss. Significant maintenance required
4	**Poor**: An asset in poor overall condition. Deterioration would be quite severe and would be starting to limit the serviceability of the asset. Maintenance costs would be high and significant renewal/rehabilitation is required
5	**Very Poor**: An asset in extremely poor condition with severe serviceability problems and needing rehabilitation immediately. There would be an extreme risk in leaving the assets in service. Physically unsound and/or beyond rehabilitation

5.3 MEASURING THE CONDITION OF COUNCIL'S ASSETS

5.3.1 Asset Condition Assessment Methodology

Council's drainage network is located within road reserves, open space and through private property.

In addition to the above, within Council's Local Government Area exists approximately 62.6 km of stormwater drainage conduits and 2,390 stormwater pit structures that are owned and managed by the Roads and Maritime Service (RMS) and are located predominantly on RMS roads and reserves.

Of the 543 km of stormwater drainage asset stock maintained by Parramatta City Council, the most predominant material type is concrete.

Material Type

The majority of council's stormwater drainage pipe system is constructed in concrete. This accounts for approximately 97% of the network. Other material types are PVC, vitrified clay, stone and brick.

The majority of council's pits, approximately 99%, are constructed in concrete.

5.4 OPERATION AND MAINTENANCE PLAN

Operations include regular activities to provide services such as public health, safety and amenity, e.g. safer road environment, cleaning, street sweeping, grass mowing 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.

[7] IPWEA, 2015, IIMM, Sec 2.5.4, p 2|80.

5.4.1 Operation and Maintenance Plan

Operations activities affect service levels including quality and function through the types and timing of activities, and the design of the infrastructure. Examples of these include street sweeping, removal of debris and grass mowing with the road reserve. 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.

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.

Over time, minor faults can occur within the drainage network. Council addresses the repairs and maintenance of these faults (i.e. repairs and lining) on the basis of defined intervention levels and response times. The intervention level defines the condition, state or risk level associated with an asset, 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.

Maintenance may be classified into reactive, planned, and specific maintenance work activities.

Reactive maintenance is unplanned repair work carried out in response to service requests and management/supervisory directions.

Planned maintenance is repair work that is identified and managed through a maintenance management system (MMS). MMS activities include inspection, assessing the condition against failure/breakdown experience, prioritising, scheduling, actioning the work and reporting what was done to develop a maintenance history and improve maintenance and service delivery performance.

Actual past maintenance expenditure is shown in Table 20.

Table 20: Maintenance Expenditure Trends

Year (Financial Year ending)	Maintenance budget
2023	$1,951,769
2024	$3,065,174
2025	$3,946,265

Planned maintenance work as a percentage of total maintenance expenditure is not identified. Information on this will be developed for the next revision of this asset management plan, as higher proportions of planned maintenance expenditure to reactive maintenance will provide better value.

Maintenance expenditure levels are considered to be adequate to meet projected service levels, which may be less than or equal to current service levels. Where maintenance expenditure levels are such that will result in a lesser level of service, the service consequences and service risks have been identified and service consequences highlighted in this AMP and service risks considered in the Infrastructure Risk Management Plan.

5.4.2 Operation and Maintenance Strategies

City of Parramatta Council will operate and maintain assets to provide the defined level of service to approved budgets in the most cost-efficient manner. The operation and maintenance activities include:

- Scheduling operational activities to deliver the defined level of service in the most efficient manner.

- Undertaking maintenance activities through a planned maintenance system to reduce maintenance costs and improve maintenance outcomes. Undertake cost-benefit analysis to determine the most cost-effective split between planned and unplanned maintenance activities (50 – 70% planned desirable as measured by cost).
- Maintain a current infrastructure risk register for assets and present service risks associated with providing services from infrastructure assets and reporting Very High and High risks and residual risks after treatment to management and Council.
- Review current and required skills base and implement workforce training and development to meet required operations and maintenance needs.
- Review assets use to identify under used assets and appropriate remedies, and over used assets and customer demand management options.
- Maintain a current hierarchy of critical assets and required operations and maintenance activities.
- Develop and regularly review appropriate emergency response capability,
- Review management of operations and maintenance activities to ensure best value for the resources used.

5.5 ROUTINE MAINTENANCE PLAN

Maintenance are those minor works necessary to keep assets on their expected life-cycle path. Failing to carry out necessary maintenance when it is required will result in assets deteriorating faster than expected.

Not achieving the expected life from assets costs an organisation in the long run as it will be forced to renew its assets earlier resulting in higher annual capital renewal expenditures. In addition, as the overall condition of the assets deteriorates the annual maintenance cost will rise as assets in poorer condition require more maintenance.

5.5.1 Operational Practices

When determining the required maintenance in year 2022 based on the distribution of the Roads and kerbs asset stock, Council has adopted an 'As a percentage of Replacement Cost' approach to determine the Required Annual Maintenance. This is consistent with the International Infrastructure Management Manual and other industry standards. The percentage of the Replacement Cost adopted for drainage assets is as follows.

5.5.2 Maintenance plan

Maintenance Activities

The extent of maintenance activities undertaken for stormwater drainage network assets is significant and consists of

- Clean drains/ culverts/Pits.
- Repair pipes and culverts.
- Repair pits and stormwater drainage structures.
- Cleaning and repairs after Storm and flood.
- Subsoil drainage.
- Cleaning and repairing open drains.

When determining the required maintenance in year 2025 based on the distribution of the Stormwater asset stock, Council has adopted an 'As a percentage of Replacement Cost' approach to determine the Required Annual Maintenance. This is consistent with the International Infrastructure Management Manual and other industry standards. The percentage of the Replacement Cost adopted for Stormwater assets is as follows.

Council's current 10 Year LTFP allocation of funding to SW Maintenance and Operating is broken down in the following table:

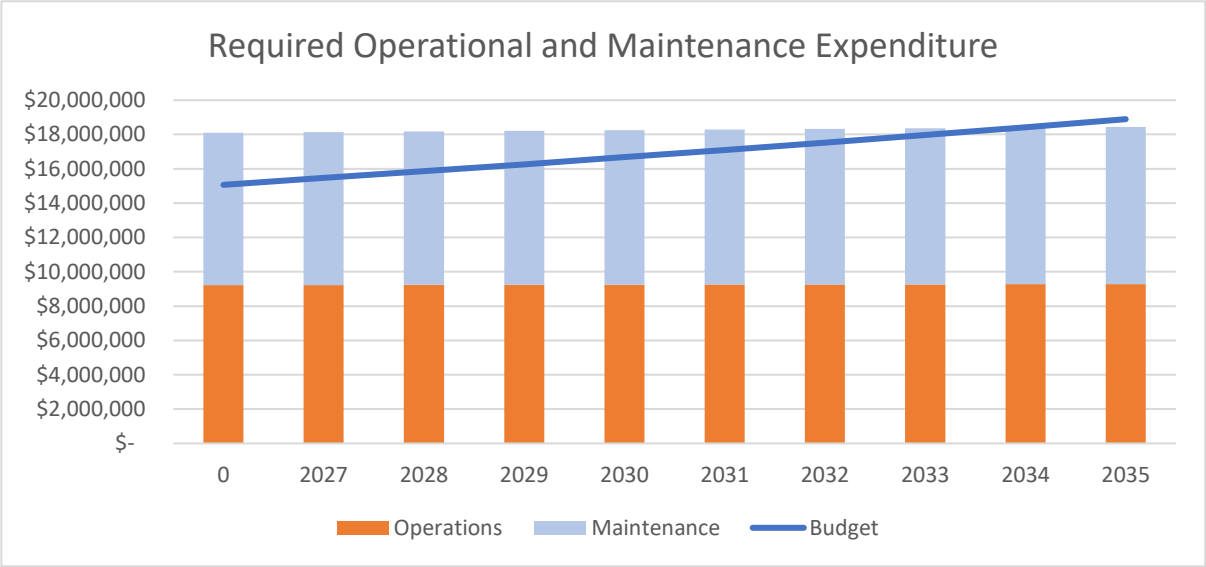
Table 21: LTFP - Maintenance and Operating Funding

	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Maintenance	$5,844,824	$5,995,520	$6,146,840	$6,298,510	$6,454,085	$6,613,660	$6,777,345	$6,945,245	$7,117,470	$7,294,115
Operations	$9,220,679	$9,468,925	$9,717,676	$9,966,428	$10,221,603	$10,483,357	$10,751,869	$11,027,312	$11,309,870	$11,599,721

5.5.3 Summary of future operation and maintenance expenditure

Forecast operations and maintenance costs are expected to vary in relation to the total value of the asset stock. If additional assets are acquired, the future operations and maintenance costs are forecast to increase. If assets are disposed of the forecast operation and maintenance costs are expected to decrease. Figure 11 shows the forecast operations and maintenance costs relative to the proposed operations and maintenance Planned Budget.

Figure 11: Projected Operations and Maintenance Expenditure



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

Maintenance is funded from the operating budget where available. This is further discussed in Section 7.

5.6 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 upgrade or new works expenditure resulting in additional future operations and maintenance costs.

Renewal will be undertaken using 'low cost' renewal methods where practical. The aim of 'low cost' renewals is to restore the service potential or future economic benefits of the asset by renewing the assets at a less cost than actual replacement costs. Typical Stormwater renewal works include the treatments of existing assets: -

- Drainage lines
- Pits and structures
- Gross Pollutant traps
- Dam components
- Levees
- Sea walls

With infrastructure assets, the lowest total cost of ownership is achieved through developing a Renewal and Replacement Plan around the practice of replacing assets when they are at the end of the life as determined by their condition.

Budgeting for the future based on historical spending has been shown to be unreliable as it does not consider any growth areas within the municipality. Growth means an increasing asset portfolio, and this eventually results in increased asset renewal expenditure demands. While the growth has also resulted in an increasing rate base, the demand for increased expenditure lags at least a decade or two behind due to the long lives of infrastructure assets.
The lag in the need to grow the income can be challenging for both the Council and the community especially if the period of growth has passed. Hence it is vital that Council tracks the consumption of its assets and forecasts the asset renewal up to 10 years ahead.

5.6.1 Renewal Plan

Assets requiring renewal/replacement are identified from one of three methods provided in the 'Expenditure Template'.

- Method 1 uses Asset Register data to project the renewal costs using acquisition year and useful life to determine the renewal year, or
- Method 2 uses capital renewal expenditure projections from external condition modelling systems (such as Pavement Management Systems), or
- Method 3 uses a combination of average *network renewals* plus *defect repairs* in the *Renewal Plan* and *Defect Repair Plan* worksheets on the 'Expenditure template'.

Method 1 was used for this asset management plan.

It is common that the valuation registers used in Scenario 1 are not developed to a level of maturity where they are reliable for producing a realistic renewal forecast. Ideally when this asset register is sorted by remaining life from 1 to 10 years this should be consistent with the capital renewal program. For City of Parramatta Council the refinement of the asset register to achieve this situation should become an important part of the asset management improvement plan.

Scenario 2 is prepared using the technical estimates of what renewal is required to sustain the current levels of service, plus the known capital upgrade/new expenditures over the 10 year period. It is common that that this estimate will be beyond the current funding capacity of council.

Scenario 3 is a reflection of the actual funding available. The difference between Scenario 2 and Scenario 3 represents "what we can't do". The discussion about this "gap" will lead us into a much better informed community discussion about what are achievable and acceptable service levels, as well as giving a focus on managing risk.

5.6.2 Renewal and Replacement Strategies

City of Parramatta Council will plan capital renewal and replacement projects to meet level of service objectives and minimise infrastructure service risks by:
Planning and scheduling renewal projects to deliver the defined level of service in the most efficient manner,

- Undertaking project scoping for all capital renewal and replacement projects to identify:
    - The specific requirements of the service provider.
    - the service delivery 'deficiency', present risk and optimum time for renewal/replacement.
    - the project objectives to rectify the deficiency.
    - the range of options, estimated capital and life cycle costs for each options that could address the service deficiency.
    - and evaluate the options against adopted evaluation criteria.
    - select the best option to be included in capital renewal programs.
- Using 'low cost' renewal methods (cost of renewal is less than replacement) wherever possible.
- Maintain a current infrastructure risk register for assets and service risks associated with providing services from infrastructure assets and reporting Very High and High risks and residual risks after treatment to management and Council.
- Review current and required skills base and implement workforce training and development to meet required construction and renewal needs.
- Maintain a current hierarchy of critical assets and capital renewal treatments and timings required.
- Review management of capital renewal and replacement activities to ensure the best value for resources used is obtained.

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.), or
- To ensure the infrastructure is of sufficient quality to meet the service requirements (e.g.).[8]

It is possible to get some indication of capital renewal and replacement priorities by identifying assets or asset groups that:

- Have a high consequence of failure,
- Have high use and subsequent impact on users would be greatest,
- Have a total value represents the greatest net value,
- Have the highest average age relative to their expected lives,
- Area identified in the AMP 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.[9]

Typical renewal and replacement asset priority ranking criteria:

- Public Safety (flood risk)– Weighting 35%
- Legislative requirement – Weighting 15%
- Asset condition - Weighting 20%
- Locality - Weighting 10%
- Joint project - Weighting 5%
- Community demand & capacity issue– Weighting 10%
- External partnership i.e. State Government – Weighting 5%

Renewal and replacement standards

Renewal work is carried out in accordance with the following Standards and Specifications.

- Australian Rainfall & Runoff Guidelines Australian Standards.
- Project Specific Technical Specifications (e.g. NATSPEC).

[8] IPWEA, 2015, IIMM, Sec 3.4.4, p 3|91.

[9] Based on IPWEA, 2015, IIMM, Sec 3.4.5, p 3|97.

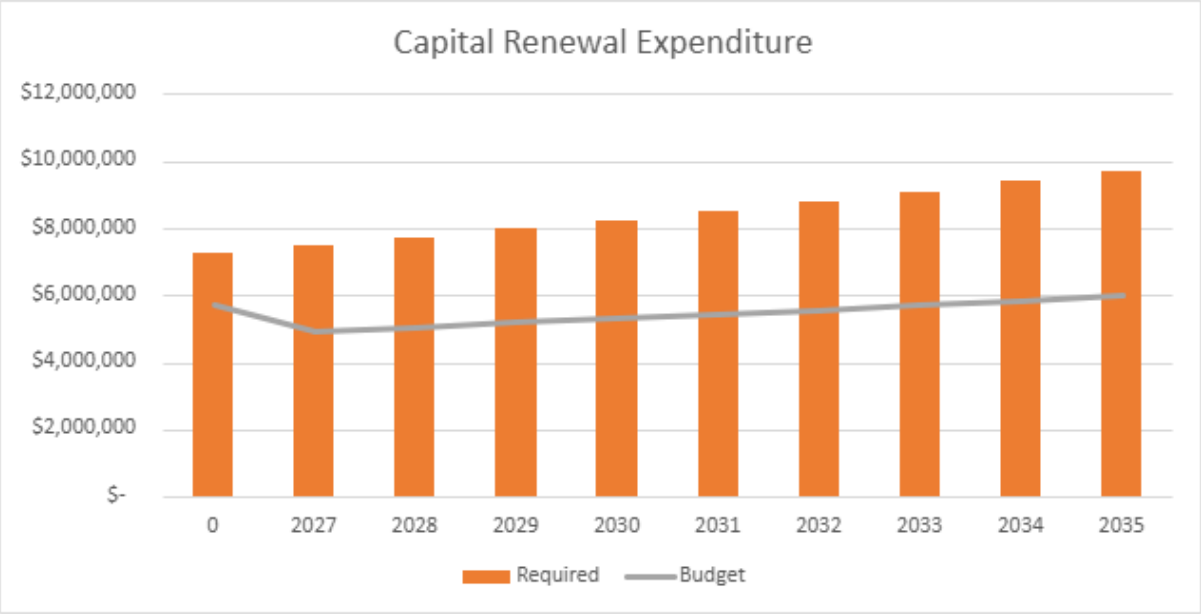
- Council Planning Regulations and DCP's.
- Other Council Policies & Objectives.
- Council Standard Drainage Design Drawings.
- Council Drainage, Water Quality (MUSIC) and Flood TUFLOW Modelling Guidelines.

5.6.3 Summary of future renewal and replacement expenditure

Projected future renewal and replacement expenditures are forecast to increase over time when the asset stock increases. The expenditure is required is shown in Fig 12. Note that all amounts are shown in real values.

The projected capital renewal and replacement program is shown in Appendix B.

Fig 12: Projected Capital Renewal and Replacement Expenditure



Deferred renewal and replacement, i.e. those assets identified for renewal and/or replacement and not scheduled in capital works programs are to be included in the risk analysis process in the risk management plan.

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

The renewal projection (forecast) in Scenario 1 (Using the asset/valuation register) generates a highly variable renewal profile. Whilst the long term averages and total values from this register are sound, the shorter term renewal forecast are not, and are inconsistent with the known capital renewal plans. This indicates that further refinement of the asset register is required before it is valuable as a capital renewal planning tool. This should be given a high priority in the asset management improvement plan.

5.7 CREATION/ACQUISITION/UPGRADE

New works are those works that create a new asset that did not previously exist or works which 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.

Council has already identified and resolved to undertake a number of upgrade or new asset projects to support existing services. These upgrade/new works are discussed in the following Sections.

5.7.1 Selection criteria

New assets and upgrade/expansion of existing assets are identified from various sources such as community requests, proposals identified by strategic plans or partnerships with others. Candidate proposals are inspected to verify need and to develop a preliminary renewal estimate. Verified proposals are ranked by priority and available funds and scheduled in future works programmes.

5.7.2 Capital investment strategies

Capital upgrade and new projects will be planned to meet level of service objectives by:

- Continuing to implement Council's major projects.
- Finalising a new Developer Contributions Plan.
- Planning and scheduling capital upgrade and new projects to deliver the defined level of service in the most efficient manner.
- Undertake project scoping for all capital upgrade/new projects to identify:
    - the service delivery 'deficiency', present risk and required timeline for delivery of the upgrade/new asset.
    - the project objectives to rectify the deficiency including value management for major projects.
    - the range of options, estimated capital and life cycle costs for each option that could address the service deficiency.
    - management of risks associated with alternative options.
    - evaluate the options against evaluation criteria adopted by Council.
    - select the best option to be included in capital upgrade/new programs.
- Review current and required skills base and implement training and development to meet required construction and project management needs.
- Review management of capital project management activities to ensure Council is obtaining best value for resources used.

Standards and specifications for new assets and for upgrade/expansion of existing assets are the same as those for renewal shown in Section 5.6.2.

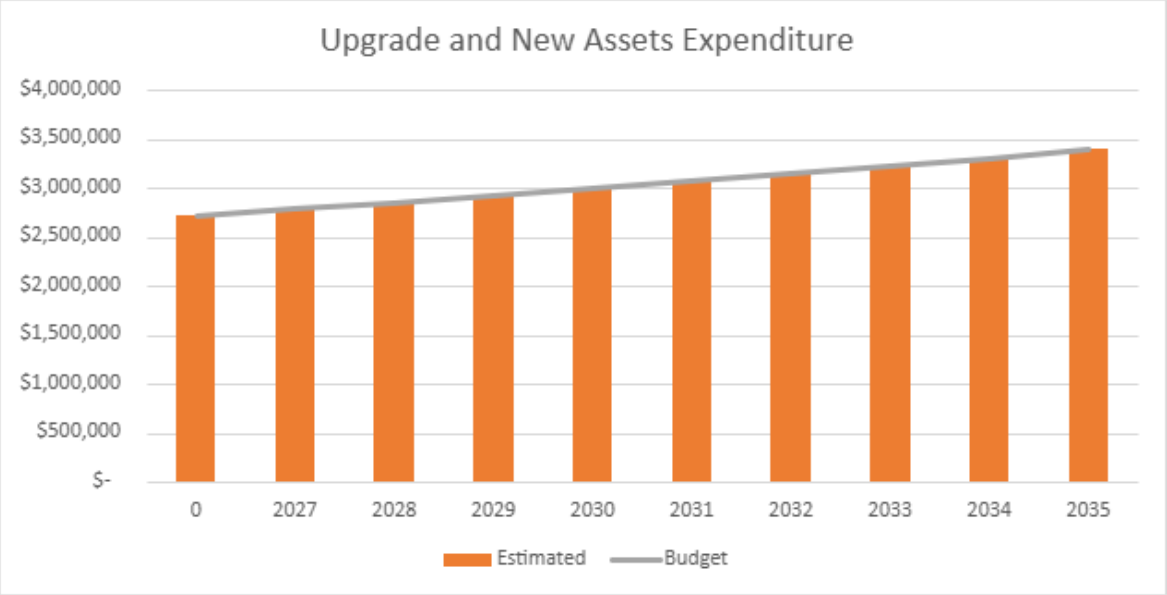
Typical capital investment for assets priority ranking criteria:

- Public Safety, situation/condition – Weighting 35%
- Legislative requirement – Weighting 15%
- Connectivity, capacity and functionality - Weighting 20%
- Locality - Weighting 10%
- Joint project - Weighting 5%
- Community demand and capacity issue– Weighting 10%
- External partnership i.e. State Government – Weighting 5%

5.7.3 Summary of future upgrade

Projected upgrade/new asset expenditures are summarised in Fig 13. The projected upgrade/new capital works program is shown in Appendix B. All amounts are shown in real values.

Fig 13: Projected Capital Upgrade/New Asset Expenditure



Expenditure on new assets and services in the capital works program will be accommodated in the long term financial plan. This is further discussed in Section 7.2.

5.8 DISPOSAL PLAN

Disposal includes any activity associated with disposal of a decommissioned asset including sale, demolition or relocation. Assets have been identified for possible decommissioning and disposal together with estimated annual savings from not having to fund operations and maintenance of the assets. These assets will be further reinvestigated to determine the required levels of service and see what options are available for alternate service delivery, if any. Any costs or revenue gained from asset disposals is accommodated in the long term financial plan.

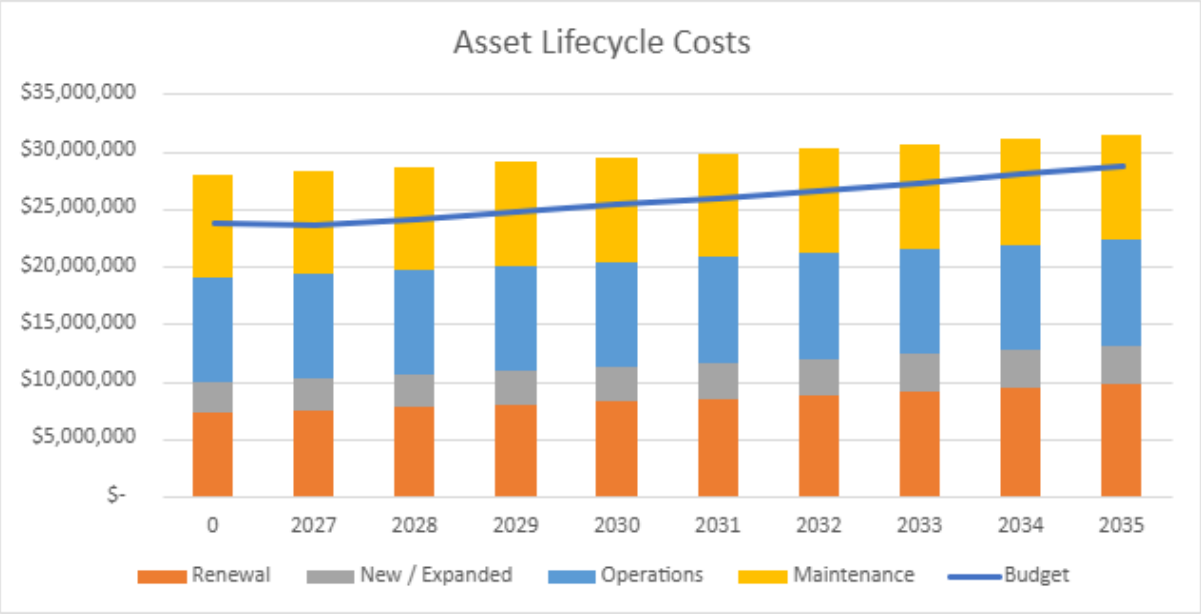
Where cash flow projections from asset disposals are not available, these will be developed in future revisions of this asset management plan.

5.9 SUMMARY OF ASSET FORECAST COSTS

The financial projections from this asset plan are shown in Figure 16. These projections include forecast costs for acquisition, operation, maintenance, renewal, and disposal. These forecast costs are shown relative to the proposed budget.

The bars in the graphs represent the forecast costs needed to minimise the life cycle costs associated with the service provision. The proposed budget line indicates the estimate of available funding. The gap between the forecast work and the proposed budget is the basis of the discussion on achieving balance between costs, levels of service and risk to achieve the best value outcome.

Figure 14: Lifecycle Summary



All figure values are shown in current day dollars.

6.0

RISK MANAGEMENT PLAN

The purpose of infrastructure risk management is to document the results and recommendations resulting from the periodic identification, assessment and treatment of risks associated with providing services from infrastructure, using the fundamentals of International Standard ISO 31000:2018 Risk management – Principles and guidelines.

Risk Management is defined in ISO 31000:2018 as: "coordinated activities to direct and control with regard to risk"[10].

An assessment of risks[11] associated with service delivery from infrastructure assets has identified critical risks that will result in loss or reduction in service from infrastructure assets or a 'financial shock'. 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.

6.1 CRITICAL ASSETS

Critical assets are those assets which have a high consequence of failure but not necessarily a high likelihood of failure. By identifying critical assets and critical failure modes, investigative activities, maintenance plans and capital expenditure plans can be targeted at the appropriate time.

Operations and maintenances activities may be targeted to mitigate critical assets failure and maintain service levels. These activities may include increased inspection frequency, higher maintenance intervention levels, etc. Critical assets failure modes and required operations and maintenance activities are detailed in section 6.2

Generally, the following stormwater drainage and related assets are regarded as 'critical';

- Systems and pipelines in flood prone areas and catchment low points.
- Systems running through private property.
- Major channels and culverts.
- Flood mitigation facilities including detention basins, surcharge pits and relevant components e.g. spillways, fencing, signage.
- Major environmental water quality facilities and devices.

Table 22: Critical Assets and Service Level Objectives

Critical Assets	Critical Failure Mode	Operations & Maintenance Activities
Lake Parramatta Dam and other major dam structures	Structural Failure	Ensure regular structural and condition inspections are undertaken on all dam structures and appropriate maintenance and renewal activities are carried out
Lake Parramatta	Failure of water release	Ensure Maintenance and Operations plans

[10] ISO 31000:2009, p 2

Dam and other major dam structures	control system to maintain water level	are executed and control system is operated in accordance with operational manual
Stormwater detention basins	Structures fail to restrict flow to downstream receiving networks	Ensure regular inspection and maintenance of Detention Basin structures and water control infrastructure
Stormwater drainage network major catchment low points	Blockage of low point outlet drains – flooding of adjacent properties and roadways	Increased inspections and cleaning of stormwater interception pits at major low points to minimise likelihood of blockage

The full details of Enterprise Risk Management are contained within the associated Policy and Procedures. This Asset Management Plan identifies risks, mitigations and insurance measures contained within this asset class.

To further identify and manage the risks associated with providing services from stormwater drainage assets Council has implemented many management practices and procedures. These include:

- Flood Protection Program () is to be undertaken.
- Heat and increased extreme weather events impact on assets.
- Operating a reactive maintenance service for all assets and services and migrating to operating. a planned maintenance system that reflects the Asset Hierarchy.
- Monitoring condition and remaining service life of assets nearing the end of their service life.
- Renewing and upgrading assets to maintain service delivery (CBD increase).
- Closing and disposing of assets that are not providing the required service level.
- Acquiring or constructing new assets to provide new and improved services.
- Inspections, prioritisation of reactive maintenance based on risk avoidance.
- Acknowledging that no drainage assets are insured therefore relying on maintenance, operating, new drains and upgrades are the only risk mitigations available in the drainage asset class.

6.1.1 Drainage Critical Assets

Critical Drainage and Flood Mitigation assets include:

- Systems and pipelines in flood prone areas and catchment low points.
- Systems running through private property.
- Major channels and culverts.
- Flood mitigation facilities including detention basins, surcharge pits and relevant components e.g. spillways, fencing, signage.
- Major environmental water quality facilities and devices.

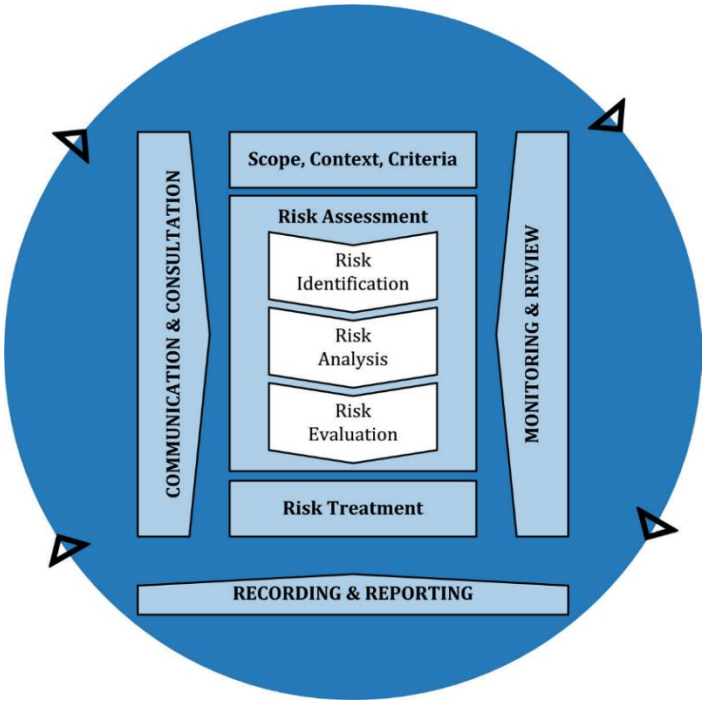
Standards and specifications - Maintenance work is carried out in accordance with the following Standards and Specifications.

- AUS SPEC Road standards.
- Australian Standards.
- Project Specific Technical Specifications (e.g. NATSPEC).
- Council Planning Regulations and DCP's.
- Other Council Policies & Objectives.

6.2 RISK ASSESSMENT

The risk management process used in this project is shown in Figure 17 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 ISO risk assessment standard ISO 31000:2018.

Fig 15 Risk Management Process – Abridged



Source: ISO 31000:2018, Figure 1, p9

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.

An assessment of risks[12] associated with service delivery from infrastructure 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) rating identified in the Infrastructure Risk Management Plan. The residual risk and treatment cost after the selected treatment plan is operational is shown in Table 23. These risks and costs are reported to management and Council.

Table 23: Risk Rating Matrix

Risk Rating					
Likelihood	Consequences				
	Insignificant	Minor	Moderate	Major	Catastrophic
Rare	L	L	M	M	H
Unlikely	L	L	M	M	H

Possible	L	M	H	H	H
Likely	M	M	H	H	VH
Almost Certain	M	H	H	VH	VH

6.2.1 Drainage and Flood Mitigation Asset Specific Risk Analysis

Although scientific evidence is limited at this stage, climate change may result in an increase in the frequency and/or intensity of rainfall in the future. This will place increased pressure on the drainage system. This means that drainage systems in some areas may need to be upgraded to accommodate the higher level of rainfall. A revised estimate of the likely impacts of increased frequency of extreme weather events is currently being prepared by industry specialists (e.g. Australian Rainfall and Runoff). When these new flood studies are available, Council will review and update all relevant standards and design procedures for its drainage network and systems.

Generally, the location of pipes below ground means that they are subject to fewer risks than other assets. The key risks are accidental damage as part of construction works damage from natural causes (tree roots, drying soils) and damage or failure in extreme rainfall events. Accidental damage due to construction works can be best avoided through clear information on the location of Council's drainage assets. Generally, this is effective and there have been few significant incidences of damage in recent years.

Tree roots can cause significant damage to pipes, resulting in blockages, cracks and potentially breaks. Careful selection of tree species, particularly street trees, and use of root barrier and crack resistant pipe materials can reduce the incidence of this occurring. As many of Council's drainage systems are old and made from potentially porous or brittle material, tree roots remain a problem.

Clay soils, which are present in parts of the City expand and contract in times of rain or drought. This can cause pipes to crack, particularly those made of older, more brittle materials. Drainage system failure generally means that the components of the drainage system do not contain the water generated by a particular rainfall event. This will result in water escaping the drainage system and flooding surrounding areas. This is not usually a significant problem where overland flow paths are available to transport the water to the next section in the drainage system. If overland flow paths are not in place or are not able to accommodate the volume of water, surrounding properties may flood.

Parramatta has a measurable number of older styled butt jointed pipes which are unable to respond to ground movements and can result in joint displacement. This displacement allows tree roots to enter the pipes and cause blockages to the drainage system, this is the main risk with drainage pipes. The current mitigation is to replace these butt joints with new 'spigot & socket' pipes with rubber ring joints whenever new works are undertaken. Identification of misaligned joints or joints infiltrated by tree roots identified in CCTV inspections are cleared by pipe lining.

This risk is best addressed by ensuring that drainage structures meet required standards, and that overland flow paths are in place. Council has established standards and DCP requirements for drainage infrastructure, and a Flood Mitigation strategy is in place and is being implemented.

The overall strategies for Council to manage risks are generally to either mitigate, avoid, transfer or accept. These will be further refined in future versions of this AMP. As it is envisaged that the strategies will be linked to ISO 31000 as it provides greater detail on how to deal with risk:

- Avoiding the risk by deciding not to start or continue with the activity that gives rise to the risk.

- Accepting or increasing the risk in order to pursue an opportunity.
- Removing the risk source.
- Changing the likelihood.
- Changing the consequences.
- Sharing the risk with another party or parties (including contracts and risk financing).
- Retaining the risk by informed decision.

To further identify and manage the risks associated with providing services These include:

- Land Accuracy Project.
- Heat and increased extreme weather events impact on assets.
- Operating a reactive maintenance service for all assets and services.
- Operating a planned maintenance system for key assets.
- Monitoring condition and remaining service life of assets nearing the end of their service life.
- Renewing and upgrading assets to maintain service delivery (CBD increase).
- Closing and disposing of assets that are not providing the required service level.
- Acquiring or constructing new assets to provide new and improved services.
- Inspections, prioritisation of reactive maintenance based on risk avoidance.
- Insurance policy addresses the critical assets.
- Building and Service Continuity Plans.

Council can also attempt to limit the ongoing financial risks of managing the stormwater assets portfolio by:

- Simplifying the financial reporting and control structures.
- Value engineering the materials they are constructed from.
- Simplification and allowance for adaptability of future designs.
- Updated plant and equipment (when required) with an environmental and cost efficient focus.
- Integrate Business Information Modelling (BIM) and improved operating systems in new stormwater assets which will lead to performance efficiencies.

6.3 INFRASTRUCTURE RESILIENCE APPROACH

The resilience of our critical infrastructure is vital to our customers and the services we provide. To adapt to changing conditions and grow over time we need to understand our capacity to respond to possible disruptions and be positioned to absorb disturbance and act effectively in a crisis to ensure continuity of service.

To enhance our capacity to manage unforeseen or unexpected risk to the continuity of operations we take an infrastructure resilience approach using an 'all hazards' methodology.

The 'all-hazards' approach involves:

- An initial assessment of critical assets.
- A resilience assessment for these assets.
- Identification of related improvements or interventions.

Resilience is built on aspects such as response and recovery planning, financial capacity and crisis leadership.

7.0

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.

As discussed in Section 5.4 the expenditure projection (forecast) in Scenario 1 (Using the asset/valuation register) is not consistent with the required works program or the long term financial plan and is indicative of the continuing work required to improve the asset register.

Funding Sources available for the management of SW within the AMP and Program are as follows:

1. General Revenue
3. Special Rates
4. Grants and Contributions
5. Section 7.11 and 7.12
6. Other Reserves
7. Loans (LIRS)

Council is currently reviewing, qualifying and consolidating under the Asset Strategy Unit, all of its financial data and control of funds across all building asset classes with regard to the following:

- Operations, Maintenance & Capital - Actuals, Budget, Benchmarks and Backlog.
- Lifecycle Cost Analysis.
- Confirming Sustainable Funding Sources.
- Adopted Valuation and Depreciation amounts.

The current Operational Plan under the 10 year Long Term Financial Plan (LTFP) allocates the following funding to the RI portfolio across the various programs in the Long Term Financial Plan (LTFP) within the Table below.

Table 24: City of Parramatta lifecycle budget expenditure for SW assets

Lifecycle Expenditure	2026	2027	2028
$'000	Budget	Budget	Budget
Operational	$9,220,679	$9,468,925	$9,717,676
Maintenance	$5,844,824	$5,995,520	$6,146,840
Capital renewal	$5,704,750	$4,948,619	$5,070,458
Capital upgrade and new	$2,723,250	$2,791,331	$2,861,114
Total	$23,493,504	$23,204,395	$23,796,088

*Source: LTFP 2024/25 Delivery Plan

It should be noted that Parramatta is undergoing generational change and urban growth. The projected population growth is the highest in NSW and Western Sydney. Therefore, the resource allocation of this AMP reflects considerable investment in infrastructure to be constructed in the future.

7.1 WORK CATEGORY DEFINITIONS

Operational: Operational activities keep the asset utilised but have little to no effect on condition. Typical operational activities include:

- Cleaning (High pressure)
- Street sweeping
- Utility costs
- Inspection
- Mowing grass
- Insurance
- Plant & Equipment (Heavy Machinery)

Public lighting (Electricity supply)

Maintenance: Maintenance activities are those routine works which keep assets operating to the required service levels. The fall broadly into two categories:

Planned Maintenance (Proactive) - Inspection and maintenance works planned to prevent asset failure; and

Unplanned Maintenance (Reactive) - Reactive action to correct asset faults and failures on an as required basis (i.e. emergency repairs).
Historically, expenditure on infrastructure assets has generally been considered to be Capital when the asset is being provided from new or is subject to some major change or Maintenance when the expenditure is minor during the life of the asset.

Strategic Asset Management requires more clarity about the effect any expenditure is having on an asset, especially its expected life-cycle. As a consequence, infrastructure asset expenditure is better classified into one of five categories. These categories are set out in Table 25 **Error! Reference source not found.**.

Table 25: Infrastructure Work Expenditure Categories

Expenditure Type	Description	Typical Work	Effect on Lifecycle
Capital - New	Provision of a new asset.	Construction of a new infrastructure asset such as new drainage line, installation of new GPT.	Commences the asset on its life-cycle path.
Capital - Renewal	Renews a degraded asset back to New or Near New condition.	Replacement of drainage line, drainage structure (pits, lintel, gates, dish drains etc.)	Resets the asset back to the start of its life-cycle path.
Capital - Upgrade	Improves the functionality of an asset.	Modify inlet, replace drainage connections to capture surface runoff in perk period, and installation of pollutant basket.	Resets the asset back to the start of its life-cycle path.

Capital - Expansion	Improves the capacity of an asset.	Replace existing drainage line with bigger size pipes to increase capacity.	Commences the expanded portion on its life-cycle path. Any effect on the original portion of the asset depends on any work done on that portion.
Maintenance	Minor repairs.	Replacement of lids, concrete surrounds, pipe joint repairs, replace collapse section of drain.	Keeps asset on its expected life-cycle path.

The Operational category is required to be clearly segregated from the capital and maintenance activities references above from an accounting perspective and can be defined as:

Operation	Recurring expenditure incurred from normal business operations	High pressure cleaning, street sweeping, inspection etc.	Activities which are necessary to keep the asset appropriately utilised, being running costs to service the asset

7.2 FINANCIAL SUSTAINABILITY AND PROJECTIONS

7.2.1 Sustainability of service delivery

There are two key indicators of sustainable service delivery that are considered in the AMP for this service area. The two indicators are the:

- asset renewal funding ratio (proposed renewal budget for the next 3 years / forecast renewal costs for next 3 years), and
- medium term forecast costs/proposed budget (over 10 years of the planning period).

Asset Renewal Funding Ratio

Table 26: Asset renewal funding ratio

	2026	2027	2028
Renewals Ratio	79%	66%	66%

Asset Renewal Funding Ratio[13]

The Asset Renewal Funding Ratio is an important indicator and illustrates that over the next 3 years we expect to have 70% of the funds required for the optimal renewal of assets.

Medium term – 10 year financial planning period

This AMP identifies the forecast operations, maintenance and renewal costs 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.

This forecast work can be compared to the proposed budget over the first 10 years of the planning period to identify any funding shortfall.

[13] AIFMM, 2015, Version 1.0, Financial Sustainability Indicator 3, Sec 2.6, p 9.

The forecast operations, maintenance and renewal costs over the 10 year planning period is $26,693,144 average per year.

The proposed (budget) operations, maintenance and renewal funding is $22,528,035 on average per year with shortfall of $4,165,109. This indicated that 84% of the forecast costs needed to provide the services documented are accommodated in the proposed budget. Note, these calculations exclude acquired assets.

Providing sustainable services from infrastructure requires the management of service levels, risks, forecast outlays and financing to achieve a financial indicator of approximately 1.0 for the first years of the AMP and ideally over the 10 year life of the Long-Term Financial Plan.

7.2.2. Forecasts Cost (outlays) for the long-term financial plan

Table 27 shows the forecast costs (outlays) required for consideration in the 10 year long-term financial plan. Providing sustainable services from infrastructure requires the management of service levels, risks, forecast outlays and financing to achieve a financial indicator for the first years of the AMP and ideally over the 10 year life of the Long-Term Financial Plan.

A gap between the forecast outlays and the amounts allocated in the financial plan indicates further work is required on reviewing service levels in the AMP (including possibly revising the long-term financial plan).

The 'gap' will be managed by developing this AMP to provide guidance on future service levels and resources required to provide these services in consultation with the community. Forecast costs are shown in 2024-dollar values.

Table 27: Forecast Costs (Outlays) for the Long-Term Financial Plan

Year (Financial Year ending)	Acquisition	Operation	Maintenance	Renewal	Disposal
2026	$2,723,250	$9,220,679	$5,844,824	$5,704,750	$0
2027	$2,791,331	$9,468,925	$5,995,520	$4,948,619	$0
2028	$2,861,114	$9,717,676	$6,146,840	$5,070,458	$0
2029	$2,932,641	$9,966,428	$6,298,510	$5,195,345	$0
2030	$3,005,957	$10,221,603	$6,454,085	$5,323,353	$0
2031	$3,081,105	$10,483,357	$6,613,660	$5,454,561	$0
2032	$3,158,133	$10,751,869	$6,777,345	$5,589,051	$0
2033	$3,237,085	$11,027,312	$6,945,245	$5,726,902	$0
2034	$3,318,013	$11,309,870	$7,117,470	$5,868,200	$0
2035	$3,400,963	$11,599,721	$7,294,115	$6,013,030	$0

7.3 FUNDING STRATEGY

The proposed funding for assets is outlined in the Entity's budget and Long Term financial plan.

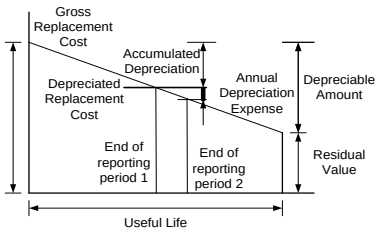
The financial strategy of the entity determines how funding will be provided, whereas the AMP communicates how and when this will be spent, along with the service and risk consequences of various service alternatives.

7.4 VALUATION FORECASTS

7.4.1 Asset valuations

The best available estimate of the value of assets included in this AMP are shown below. The assets are valued at Fair Value as at 30 June 2024.

Replacement Cost (Current/Gross)	$884,440,195
Depreciable Amount	$884,440,195
Depreciated Replacement Cost[14]	$619,122,916
Depreciation	$7,243,657
Non-Depreciable amount	-



7.4.2 Valuation forecast

Additional assets will generally add to the operations and maintenance needs in the longer term. Additional assets will also require additional costs due to future renewals. Any additional assets will also add to future depreciation forecasts.

7.4.3 Key Assumption made in AMP and Risk of Changes

In compiling this AMP, it was necessary to make some assumptions. This section details the key assumptions made in the development of this AMP and should provide readers with an understanding of the level of confidence in the data behind the financial forecasts.

Key assumptions made in this AMP are:

Table 28: Key Assumptions made in AMP and Risks of Change

Key Assumptions	Risks of Change to Assumptions
Use of the existing inventory data	Medium-High Risk
Use of existing valuations, useful lives and remaining lives determined from the condition rating	Medium-High Risk
Use of current expenditure information as best as this can be determined	Low-Medium Risk
That the current expenditures are not resulting in a significant decline in the service levels provided in the medium term	Low-Medium Risk

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

7.5 FORECAST RELIABILITY AND CONFIDENCE

The forecast costs, proposed budgets, and valuation projections in this AMP are based on the best available data. For effective asset and financial management, it is critical that the information is current and accurate. Data confidence is classified on a A - E level scale1-5 in accordance with Table 29.

Table 29: Data Confidence Grading System

Confidence Grade	Description
A. Very High	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. High	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. Medium	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. Low	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. Very Low	None or very little data held.

The estimated confidence level for and reliability of data used in this AMP is shown in Table 30.

Table 30: Data Confidence Assessment for Data used in AMP

Data	Confidence Assessment	Comment
Demand drivers	B Reliable	Based on Recreation & Community Facilities Needs studies undertaken
Growth projections	A Highly reliable	Based on Census data
Operations expenditures	B Reliable	Expenditure information taken directly from One Council's Finance Module, the operating expenditure and LTFP data.
Maintenance expenditures	B Reliable	Expenditure information taken directly from One Council's Finance Module, the maintenance expenditure and LTFP data.
Projected Renewal expenditures.	B Reliable	Expenditure information taken directly from One Council's Finance Module, the renewal allocation for different class of assets, and LTFP data.
Asset values	C Uncertain	Based on 'Fair Value' valuations undertaken. New valuation due 2024.
Asset useful lives	C Uncertain	Estimated using typical values. Further substantiation required for next revision of the AMP
Condition modelling	C Uncertain	Based on condition assessments, creation dates and useful/remaining lives, further substantiation required for next revision of the AMP
Network renewals	B Reliable	Based on corporate knowledge of asset and recent assessments, commitments and condition-based renewals.

Defect repairs	B Reliable	Based on a number of condition assessments. Also based on corporate knowledge of assets and recent visual assessments, further substantiation included in the next revision of the AMP
Upgrade/New expenditures	B Reliable	Based on findings/investigation, demands, commitments and grant funding. Allocation from S94, 7.11
Disposal expenditures	A Highly Reliable	Based on actual Council Resolutions

Over all data sources the data confidence is assessed as medium-high confidence level for data used in the preparation of this AMP.

8.0

PLAN IMPROVEMENT AND MONITORING

8.1 STATUS OF ASSET MANAGEMENT PRACTICES

8.1.1 Accounting and financial data sources

Council's accounting and financial management system is Technology One.

All operational, maintenance and capital construction cost are recorded in this system.
Required changes to accounting financial systems arising from this AMP:

- Develop reporting on expenditures, with separation of costs for operations as opposed to maintenance and improved reporting on capital expenditures as renewal or upgrade/new.
- Continued input and development of a single corporate asset register, in which financial calculations including calculation of annual depreciation can be undertaken by council.
- Linking of the customer service system/work orders to the corporate asset register to link requests to asset records.
- Improved project cost accounting to record costs against the asset component and develop valuation unit rates.

8.1.2 Asset management data sources

A. Asset registers

The key information flows into this Asset Management Plan are:

- The asset register data on size, age, value, remaining life of the network.
- The unit rates for categories of work / material.
- The adopted service levels.
- Projections of various factors affecting future demand for services.
- Correlations between maintenance and renewal, including decay models; Linkage from asset management to financial system.

B. Linkage from asset management to financial system

The key information flows from this Asset Management Plan are:

- The assumed asset renewal profile and trends.
- The resulting budget, valuation and depreciation projections.
- The useful life analysis.

These will impact the Long Term Financial Plan, Strategic Business Plan, annual budget and departmental business plans and budgets.

C. Accountabilities for asset management system and data maintenance

- Asset Strategy
- Asset Managers

Required changes to asset management system arising from this AMP:

- Review of accuracy and currency of asset data.
- Continued development of a single technical asset register as the corporate asset register, in which financial calculations including calculation of annual depreciation can be undertaken by council at an individual asset component level.
- Development of a works costing and maintenance management system to improve works planning and cost recording, in particular to identify expenditure type (operations, maintenance, capital renewal and capital new/upgrade).

Improved project cost accounting to record costs against the asset component and develop valuation unit rates.

8.1.3 Improvement Plan

The asset management improvement plan generated from this asset management plan is shown in Table 31.

Table 31: Improvement Plan

Ref No.	High Level Strategic Actions	Priority	Delivery by:
1.	Establish transparent and responsible asset management processes that align with the best appropriate practice. This includes ensuring consistency across the Asset Management Strategy, Long Term Financial Plan, Technology One asset registers, levels of service for all asset classes, data collection, validation and reporting.	High	2024/25-2025-26 Ongoing
2.	Clearly identify all asset expenditure requirements into four categories: renewals, new, maintenance, and operational. Establish clear budgets and reporting lines for each category. Correctly differentiate between maintenance and operation expenditure for each work activities.	High	2024/25
3.	Allocate and clarify roles, resources and responsibilities for asset management. This includes establishing a good understanding of asset data, finance and budgets. Establish clear communication protocols between finance and the wider organisation.	High	2024/25
4.	Review and establish agreed levels of services in consultation with the community, outlined in the asset management plans.	Medium	2025/26
5.	Review and estimate the future lifecycle costs of all decisions relating to new service levels and new assets, donated or built.	Medium	2025/26
6.	Prioritise and plan asset renewals to meet agreed service levels based on site inspections, infrastructure priorities and community importance.	Medium	2025-26

7.	Identify and prioritise critical assets for Council and its community. Establish emergency response plans and asset ownership for critical assets.	Medium	2025-26
8.	Regular proactive inspection scheduled, CCTV inspection data recorded and analysed in a format suitable for the preparation of both short and long-term maintenance, rehabilitation and renewal works programs.	Medium	2025/26 Ongoing
9.	Implement a process to capture those assets received from external developers into Council's Asset Management Information System	Medium	2025-26

8.2 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 AMP 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 AMP has a life of 4 years (Council election cycle) and is due for complete revision and updating within 1 year of each Council election.

8.3 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.

9.0

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- ISO, 2018, ISO 31000:2018, Risk management – Guidelines
- Community Strategic Plan
- Delivery Program
- Operational Plan

10.0

APPENDICES

Appendix A	Capital Renewal and Replacement Works Program 2024/25
Appendix B	LTFP Budgeted Expenditures Accommodated in AMP
Appendix C	Glossary
Appendix D	Life Cycle Degradation Profiles
Appendix E	Abbreviations & Definition

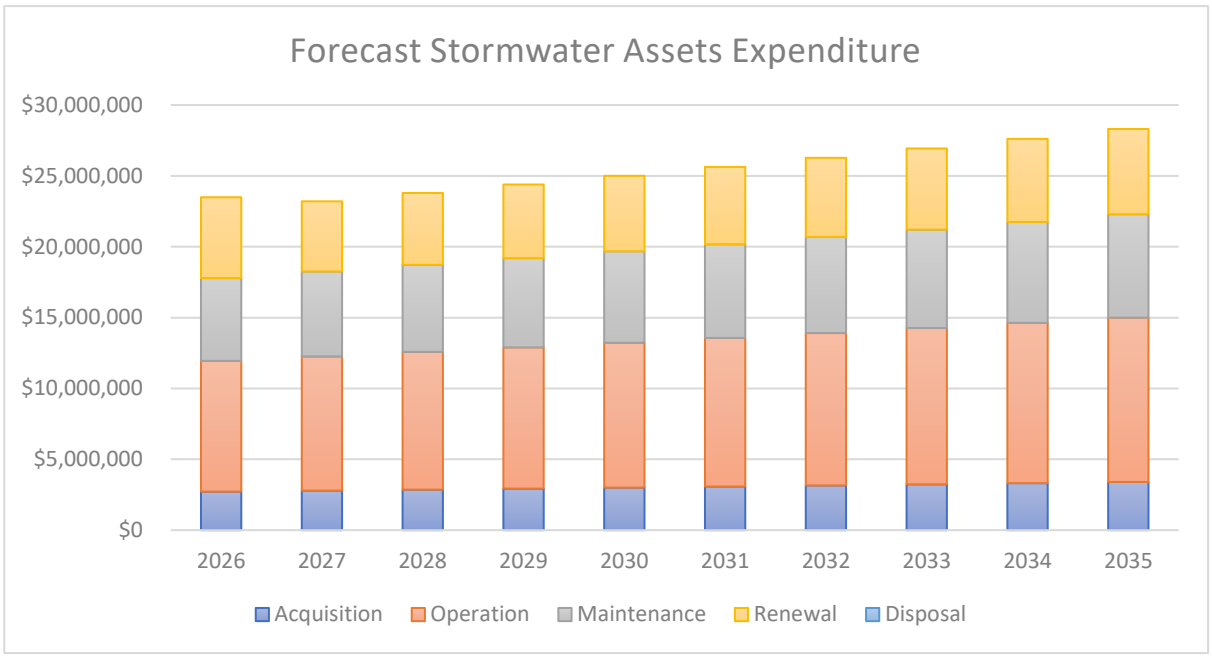
Appendix A - Capital Renewal and Replacement Works Program 24/25 & 24/26

Project Name	Suburb	Program ID
Hill Road Upgrade	Wentworth Point / Sydney Olympic Park	Hill Road Flood Study
59 Bettington Road, Oatlands (Drainage Component)	Oatlands	Flood Mitigation Program
Ollie Webb Reserve Stage 1 - Design & Construction	Parramatta	Parks Stormwater Reuse Program
22 Lamonerie Street, Toongabbie - Erosion protection retaining wall, Pendle Hill Creek - Design & Construct	Toongabbie	Drainage Construction Program
Lake Parramatta Dam Repair Works	North Parramatta	Drainage Construction Program
46 Station Street East, Harris Park	Harris Park	Drainage Construction Program
Calder and Elder Road - Flooding from Williams Reserve	Dundas	Drainage Construction Program
Lyndelle Place, Carlingford - Bank Stabilisation	Carlingford	Drainage Construction Program
1A Cocos Ave, Eastwood	Eastwood	Drainage Construction Program
2 Beamish Rd, Northmead	Northmead	Flood Mitigation Program
14 Alice St, Harris park	Harris Park	Flood Mitigation Program
7-9 Dixon St Parramatta	Parramatta	Flood Mitigation Program
Lake Parramatta Dam - Boat ramp modification and associated works	North Parramatta	Civil Construction Program
Lake Parramatta Dam - Works downstream of dam wall identified in Surveillance Report.	North Parramatta	Protecting Dams Capital Works Program
15 Pye Ave, Northmead	Northmead	Drainage Construction Program
Yeramba Place Rydalmere	Rydalmere	Drainage Construction Program
69 Phillip Street, Parramatta	Parramatta	Flood Mitigation Program
100 Murray Farm Rd, Carlingford	Carlingford	Drainage Construction Program
6 Glasgow St Winston Hills	Winston Hills	Flood Mitigation Program
Additional Pit Repairs Committed (Reactive - In Various Ward Areas - Approx. 14 pits)	Rosehill	Stormwater Drainage Renewal Program
Alexander Road Corner Neptune, Dundas Valley	Dundas Valley	Improving Water Quality In Parramatta Waterways
5 Wycombe Street, Epping	Epping	Flood Mitigation Program
14 Grand Ave, Camellia (Ongoing Flooding at Cul-de-sac)	Rosehill	Flood Mitigation Program
15 Napier Street Mays Hill	Mays Hill	Flood Mitigation Program

46X Robin St Carlingford (Robin St Park)	Carlingford	Flood Mitigation Program
Unit 43, 1-9 Cottee Drive, Epping	Epping	Flood Mitigation Program
18 Marie Street, Constitution Hill	Constitution Hill	Flood Mitigation Program
Pit Repairs - 2nd Package - 12 Pits in Epping Ward - Backlog	Epping	Stormwater Drainage Renewal Program
26 Barrawinga Road Telopea	Telopea	Stormwater Drainage Renewal Program
Lake Parramatta Dam - Installation of two (2) Remote Cameras linked to Council's Security System.	North Parramatta	Protecting Dams Capital Works Program
Tintern Ave near Felton Street, Carlingford.	Carlingford	Drainage Construction Program
Pit Repairs - 2nd Package - 9 Pits in Parramatta Ward - Backlog	Northmead	Stormwater Drainage Renewal Program
48 Oakes Road Winston Hills	Winston Hills	Drainage Construction Program
Willmot Ave, Toongabbie - stormwater pipe lining	Toongabbie	Stormwater Drainage Renewal Program
Pit Repairs - 2nd Package - 8 Pits in North Rocks Ward - Backlog	North Rocks	Stormwater Drainage Renewal Program
6B Trumper Street, Ermington	Ermington	Drainage Construction Program
Off Hart Drive - Constitution Hill	Wentworthville	Improving Water Quality In Parramatta Waterways
444 Victoria Road, Rydalmere - stormwater pipe lining	Rydalmere	Stormwater Drainage Renewal Program
160 Church Street Parramatta - stormwater pipe lining/point lining	Parramatta	Stormwater Drainage Renewal Program
27 Norwood Avenue, Beecroft	Beecroft	Drainage Construction Program
King Street, Dundas Valley	Dundas Valley	Improving Water Quality in Parramatta Waterways
Lake Parramatta Dam - Upgrade to an ERT-A2 unit and add seepage sensor to all V-Notches and a new CR300 Datalogger.	North Parramatta	Protecting Dams Capital Works Program
Pit Repairs - 2nd Package - 5 Pits in Dundas Ward - Backlog	Telopea	Stormwater Drainage Renewal Program
Pit Repairs - 2nd Package - 5 Pits in Rosehill Ward - Backlog	Rosehill	Stormwater Drainage Renewal Program
12 Symonds Av, North Parramatta - Pipe Lining	North Parramatta	Stormwater Drainage Renewal Program
Pit Repairs - 1st Package - 4 Pits in Rosehill Ward - Backlog	Rosehill	Stormwater Drainage Renewal Program
Belottie Ave, Winston Hills - stormwater pipe lining	Winston Hills	Stormwater Drainage Renewal Program
50 Eastwood Ave, Eastwood - stormwater pipe lining	Eastwood	Stormwater Drainage Renewal Program
Pit Repairs - 1st Package - 3 Pits in Parramatta Ward - Backlog	Rosehill	Stormwater Drainage Renewal Program

Lake Parramatta Dam - Build a fence at the western side of the dam top to prevent fall risk.	North Parramatta	Protecting Dams Capital Works Program
Pit Repairs - 1st Package - 1 Pits in Dundas Ward - Backlog	Telopea	Stormwater Drainage Renewal Program

Appendix B - LTFP Budgeted Expenditures Accommodated in AMP



Appendix C - Glossary

Annual Service Cost (ASC)

1) Reporting actual cost

The annual (accrual) cost of providing a service including operations, maintenance, depreciation, finance/opportunity and disposal costs less revenue.

2) For investment analysis and budgeting

An estimate of the cost that would be tendered, per annum, if tenders were called for the supply of a service to a performance specification for a fixed term. The Annual Service Cost includes operations, maintenance, depreciation, finance/ opportunity and disposal costs, less revenue.

Asset

A resource controlled by an entity as a result of past events and from which future economic benefits are expected to flow to the entity. Infrastructure assets are a sub-class of property, plant and equipment which are non-current assets with a life greater than 12 months and enable services to be provided.

Asset category

Sub-group of assets within a class hierarchy for financial reporting and management purposes.

Asset class

A group of assets having a similar nature or function in the operations of an entity, and which, for purposes of disclosure, is shown as a single item without supplementary disclosure.

Asset condition assessment

The process of continuous or periodic inspection, assessment, measurement and interpretation of the resultant data to indicate the condition of a specific asset so as to

determine the need for some preventative or remedial action.

Asset hierarchy

A framework for segmenting an asset base into appropriate classifications. The asset hierarchy can be based on asset function or asset type or a combination of the two.

Asset management (AM)

The combination of management, financial, economic, engineering and other practices applied to physical assets with the objective of providing the required level of service in the most cost effective manner.

Asset renewal funding ratio (ARFR)

The ratio of the net present value of asset renewal funding accommodated over a 10-year period in a long term financial plan relative to the net present value of projected capital renewal expenditures identified in an asset management plan for the same period [AIFMM, 2015, Version 1.0, Financial Sustainability Indicator 3, Sec 2.6, p 9].

Average annual asset consumption (AAAC)*

The amount of the asset base consumed during a reporting period (generally a year). This may be calculated by dividing the depreciable amount by the useful life (or total future economic benefits/service potential) and totalled for each and every asset OR by dividing the carrying amount (depreciated replacement cost) by the remaining useful life (or remaining future economic benefits/service potential) and totalled for each and every asset in an asset category or class.

Borrowings

A borrowing or loan is a contractual obligation of the borrowing entity to deliver cash or another financial asset to the lending entity over a specified period of time or at a specified point in time, to cover both the initial capital provided and the cost of the interest incurred for providing this capital. A borrowing or loan provides the means for the borrowing entity to finance outlays (typically physical assets) when it has insufficient funds of its own to do so, and for the lending entity to make a financial return, normally in the

form of interest revenue, on the funding provided.

Capital expenditure

Relatively large (material) expenditure, which has benefits, expected to last for more than 12 months. Capital expenditure includes renewal, expansion and upgrade. Where capital projects involve a combination of renewal, expansion and/or upgrade expenditures, the total project cost needs to be allocated accordingly.

Capital expenditure - expansion

Expenditure that extends the capacity of an existing asset to provide benefits, at the same standard as is currently enjoyed by existing beneficiaries, to a new group of users. It is discretionary expenditure, which increases future operations and maintenance costs, because it increases the asset base, but may be associated with additional revenue from the new user group, e.g. extending a drainage or road network, the provision of an oval or park in a new suburb for new residents.

Capital expenditure - new

Expenditure which creates a new asset providing a new service/output that did not exist beforehand. As it increases service potential it may impact revenue and will increase future operations and maintenance expenditure.

Capital expenditure - renewal

Expenditure on an existing asset or on replacing an existing asset, which returns the service capability of the asset up to that which it had originally. It is periodically required expenditure, relatively large (material) in value compared with the value of the components or sub-components of the asset being renewed. As it reinstates existing service potential, it generally has no impact on revenue, but may reduce future operations and maintenance expenditure if completed at the optimum time, e.g. resurfacing or resheeting a material part of a road network, replacing a material section of a drainage network with pipes of the same capacity, resurfacing an oval.

Capital expenditure - upgrade

Expenditure, which enhances an existing asset to provide a higher level of service or expenditure that will increase the life of the asset beyond that which it had originally. Upgrade expenditure is discretionary and often does not result in additional revenue unless direct user charges apply. It will increase operations and maintenance expenditure in the future because of the increase in the asset base, e.g. widening the sealed area of an existing road, replacing drainage pipes with pipes of a greater capacity, enlarging a grandstand at a sporting facility.

Capital funding

Funding to pay for capital expenditure.

Capital grants

Revenue received generally tied to the specific projects or purposes, which are often for upgrade and/or expansion or new investment proposals.

Capital investment expenditure

Relatively large (material) expenditure, which has benefits, expected to last for more than 12 months (See capital expenditure definition)

Capitalisation threshold

The value of expenditure on non-current assets above which the expenditure is recorded as capital expenditure and below which the expenditure is charged as an expense in the year of acquisition.

Carrying amount

The amount at which an asset is recognised in the balance sheet after deducting any accumulated depreciation / amortisation and accumulated impairment losses.

Component

Specific parts of an asset having independent physical or functional identity and having specific attributes such as different life expectancy, maintenance regimes, risk or criticality.

Core asset management

Asset management which relies primarily on the use of an asset register, maintenance management systems, top-down condition assessment, simple risk assessment and defined levels of service, in order to establish alternative

treatment options and a long-term cash flow projection.

Cost of an asset

The amount of cash or cash equivalents paid or the fair value of the consideration given to acquire an asset at the time of its acquisition or construction, including any costs necessary to place the asset into service. This includes one-off design and project management costs.

Critical assets

Those assets that are likely to result in a more significant financial, environment and social cost in terms of impact on organisational objectives.

Deferred maintenance

The shortfall in rehabilitation work undertaken relative to that required to maintain the service potential of an asset.

Depreciable amount

The cost of an asset, or other amount substituted for its cost, less its residual value.

Depreciated replacement cost (DRC)

The gross replacement cost (GRC) of an asset less, where applicable, accumulated depreciation calculated on the basis of such cost to reflect the already consumed or expired future economic benefits of the asset.

Depreciation / amortisation

The systematic allocation of the depreciable amount (service potential) of an asset over its useful life.

Economic life

See useful life definition.

Expenditure

The spending of money on goods and services. Expenditure includes recurrent and capital outlays.

Expenses

Decreases in economic benefits during the accounting period in the form of outflows or depletions of assets or increases in liabilities that result in decreases in equity, other than those relating to distributions to equity participants.

Fair value

The amount for which an asset could be exchanged, or a liability settled, between knowledgeable, willing parties, in an arm's length transaction.

Financing gap

A financing gap exists whenever an entity has insufficient capacity to finance asset renewal and other expenditure necessary to be able to appropriately maintain the range and level of services its existing asset stock was originally designed and intended to deliver. The service capability of the existing asset stock should be determined assuming no additional operating revenue, productivity improvements, or net financial liabilities above levels currently planned or projected. A current financing gap means service levels have already or are currently falling. A projected financing gap if not addressed will result in a future diminution of existing service levels.

Gross replacement cost (GRC)

The cost the entity would incur to acquire the asset on the reporting date. The cost is measured by reference to the lowest cost at which the gross future economic benefits could be obtained in the normal course of business or the minimum it would cost, to replace the existing asset with a technologically modern equivalent new asset (not a second hand one) with the same economic benefits (gross service potential) allowing for any differences in the quantity and quality of output and in operating costs.

Heritage asset

An asset with historic, artistic, scientific, technological, geographical or environmental qualities that is held and maintained principally for its contribution to knowledge and culture and this purpose is central to the objectives of the entity holding it.

Impairment Loss

The amount by which the carrying amount of an asset exceeds its recoverable amount.

Infrastructure assets

Physical assets that contribute to meeting the needs for access to major economic and social facilities and services, e.g. roads, drainage, footpaths and cycle ways. These are typically large, interconnected networks or portfolios of composite assets. The components of these assets may be separately maintained, renewed or replaced individually so that the required level and standard of service from the network of assets is continuously sustained. Generally, the components and hence the assets have long lives. They are fixed in place and are often have no separate market value.

Key performance indicator

A qualitative or quantitative measure of a service or activity used to compare actual performance against a standard or other target. Performance indicators commonly relate to statutory limits, safety, responsiveness, cost, comfort, asset performance, reliability, efficiency, environmental protection and customer satisfaction.

Level of service

The parameters or combination of parameters that reflect social, political, economic and environmental outcomes that the organisation delivers.

Levels of service statements describe the outputs or objectives an organisation or activity intends to deliver to customers.

Life Cycle

The cycle of activities that an asset (or facility) goes through while it remains an identity as a particular asset i.e. from planning and design to decommissioning or disposal.

Life Cycle Cost (LCC)

Total LCC The total cost of an asset throughout its life including planning, design, construction, acquisition, operation, maintenance, rehabilitation and disposal costs.

Average LCC The life cycle cost is average cost to provide the service over the longest asset life cycle. It comprises average operations, maintenance expenditure plus asset consumption expense, represented by depreciation expense projected over 10 years. The Life Cycle Cost does not indicate the funds required to provide the service in a particular year.

Life Cycle Expenditure (LCE)

The Life Cycle Expenditure (LCE) is the average operations, maintenance and capital renewal expenditure accommodated in the long term financial plan over 10 years. Life Cycle Expenditure may be compared to average Life Cycle Cost to give an initial indicator of affordability of projected service levels when considered with asset age profiles.

Maintenance

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, e.g. road patching but excluding rehabilitation or renewal. It is operating expenditure required to ensure that the asset reaches its expected useful life.

Maintenance may be classified as:

- Planned maintenance

Falls into three categories:

a) Periodic – necessary to ensure the reliability or to sustain the design life of an asset.

b) Predictive – condition monitoring activities used to predict failure.

c) Preventive – maintenance that can be initiated without routine or continuous checking and is not condition based.

- Reactive maintenance

Unplanned repair work that is carried out in response to service requests and management/ supervisory directions.

- Specific maintenance

Maintenance work to repair components or replace sub-components that needs to be identified as a specific maintenance item in the maintenance budget.

- Unplanned maintenance

Corrective work required in the short-term to restore an asset to working condition so it can continue to deliver the required service or to maintain its level of security and integrity.

Maintenance expenditure *

Recurrent expenditure, which is periodically or regularly required as part of the anticipated schedule of works required to ensure that the asset achieves its useful life and provides the required level of service. It is expenditure, which was anticipated in determining the asset's useful life.

Materiality

The notion of materiality guides the margin of error acceptable, the degree of precision required and the extent of the disclosure required when preparing general purpose financial reports. Information is material if its omission, misstatement or non-disclosure has the potential, individually or collectively, to influence the economic decisions of users taken on the basis of the financial report or affect the discharge of accountability by the management or governing body of the entity.

Modern equivalent asset

Assets that replicate what is in existence with the most cost-effective asset performing the same level of service. It is the most cost efficient, currently available asset which will provide the same stream of services as the existing asset is capable of producing. It allows for technology changes and improvements and efficiencies in production and installation techniques. The modern equivalent asset is evidenced by renewal strategies in asset management plans and financing in a long-term financial plan covering at least 10 years.

*Net present value (NPV)

The value of the cash flows associated with an asset, liability, activity or event calculated using a discount rate to reflect the time value of money. It is the net amount of discounted total cash inflows after deducting the value of the discounted total cash outflows arising from e.g. the continued use and subsequent disposal of the asset after deducting the value of the discounted total cash outflows.

Non-revenue generating investments

Investments for the provision of goods and services to sustain or improve services to the community that are not expected to generate any savings or revenue, e.g. parks and playgrounds, footpaths, roads and bridges, libraries, etc.

Operations

Regular activities to provide services such as public health, safety and amenity, e.g. street sweeping, grass mowing and street lighting.

Operating expenditure

Recurrent expenditure, which is continuously required to provide a service. In common use the term typically includes, e.g. power, fuel, staff, plant equipment, on-costs and overheads but excludes maintenance and depreciation. Maintenance and depreciation is on the other hand included in operating expenses.

Operating expense

The gross outflow of economic benefits, being cash and non-cash items, during the period arising in the course of ordinary activities of an entity when those outflows result in decreases in equity, other than decreases relating to distributions to equity participants.

Operating expenses

Recurrent expenses continuously required to provide a service, including power, fuel, staff, plant equipment, maintenance, depreciation, on-costs and overheads.

Operations, maintenance and renewal financing ratio

Ratio of estimated budget to projected expenditure for operations, maintenance and renewal of assets over a defined time (e.g. 5, 10 and 15 years).

Operations, maintenance and renewal gap

Difference between budgeted expenditures in a long term financial plan (or estimated future budgets in absence of a long term financial plan) and projected expenditures for operations, maintenance and renewal of assets to

achieve/maintain specified service levels, totalled over a defined time (e.g. 5, 10 and 15 years).

Pavement management system (PMS)

A systematic process for measuring and predicting the condition of road pavements and wearing surfaces over time and recommending corrective actions.

PMS Score

A measure of condition of a road segment determined from a Pavement Management System.

Rate of annual asset consumption *

The ratio of annual asset consumption relative to the depreciable amount of the assets. It measures the amount of the consumable parts of assets that are consumed in a period (depreciation) expressed as a percentage of the depreciable amount.

Rate of annual asset renewal *

The ratio of asset renewal and replacement expenditure relative to depreciable amount for a period. It measures whether assets are being replaced at the rate they are wearing out with capital renewal expenditure expressed as a percentage of depreciable amount (capital renewal expenditure/DA).

Rate of annual asset upgrade/new *

A measure of the rate at which assets are being upgraded and expanded per annum with capital upgrade/new expenditure expressed as a percentage of depreciable amount (capital upgrade/expansion expenditure/DA).

Recoverable amount

The higher of an asset's fair value, less costs to sell and its value in use.

Recurrent expenditure

Relatively small (immaterial) expenditure or that which has benefits expected to last less than 12 months. Recurrent expenditure includes operations and maintenance expenditure.

Recurrent funding

Funding to pay for recurrent expenditure.

Rehabilitation

See capital expenditure - renewal.

Remaining useful life

The time remaining until an asset ceases to provide the required service level or economic usefulness. Age plus remaining useful life provides an estimate of useful life.

Renewal

See capital expenditure - renewal.

Residual value

The estimated amount that an entity would currently obtain from disposal of the asset, after deducting the estimated costs of disposal, if the asset were already of the age and in the condition expected at the end of its useful life. Residual value reflects consideration receivable from an asset at the end of its useful life to the entity and accordingly would not include cost savings from the re-use of in-situ materials.

Revenue generating investments

Investments for the provision of goods and services to sustain or improve services to the community that are expected to generate some savings or revenue to offset operating costs, e.g. public halls and theatres, childcare facilities, sporting and recreation facilities, tourist information facilities, etc.

Risk management

The application of a formal process to the range of possible values relating to key factors associated with a risk in order to determine the resultant ranges of outcomes and their probability of occurrence.

Section or segment

A self-contained part or piece of an infrastructure asset.

Service potential

The total future service capacity of an asset. It is normally determined by reference to the operating capacity and economic life of an asset. A measure of service potential is used in the not-for-profit sector/public sector to value assets, particularly those not producing a cash flow.

Service potential remaining

A measure of the future economic benefits remaining in assets. It may be expressed in dollar values (Fair Value) or as a percentage of total anticipated future economic benefits. It is also a measure of the percentage of the asset's potential to provide services that are still available for use in providing services (Depreciated Replacement Cost/Depreciable Amount).

Strategic Asset Management Plan

A plan that documents and specifies how the organizational objectives are to be converted into AM objectives, the approach for developing AMP's and the role of the AM system in supporting the achievement of AM objectives.

Strategic Plan

A plan containing the long-term goals and strategies of an organisation. Strategic plans have a strong external focus, cover major portions of the organisation and identify major targets, actions and resource allocations relating to the long-term survival, value and growth of the organisation.

Sub-component

Smaller individual parts that make up a component part.

Useful life

Either:

(a) the period over which an asset is expected to be available for use by an entity, or

(b) the number of production or similar units expected to be obtained from the asset by the entity.

It is estimated or expected time between placing the asset into service and removing it from service, or the estimated period of time over which the future economic benefits embodied in a depreciable asset, are expected to be consumed by the entity.

Valuation

The process of determining the worth of an asset or liability. Assessed asset value which may depend on the purpose for which the valuation is required, i.e. replacement value for determining maintenance levels, market value for lifecycle costing and optimised deprival value for tariff setting.

Value in Use

The present value of future cash flows expected to be derived from an asset or cash generating unit. It is deemed to be depreciated replacement cost (DRC) for those assets whose future economic benefits are not primarily dependent on the asset's ability to generate net cash inflows, where the entity would, if deprived of the asset, replace its remaining future economic benefits.

Source: IPWEA, IIMM & AIFMM 2015, Glossary

Additional and modified glossary items shown *

Appendix D - Life Cycle Degradation Profiles

Maintenance response is based on site judgement using the condition and risk associated with the defect and to the extent of the current budget.

Council has selected the following four degradation profiles to simulate the progressive deterioration of the various civil assets.

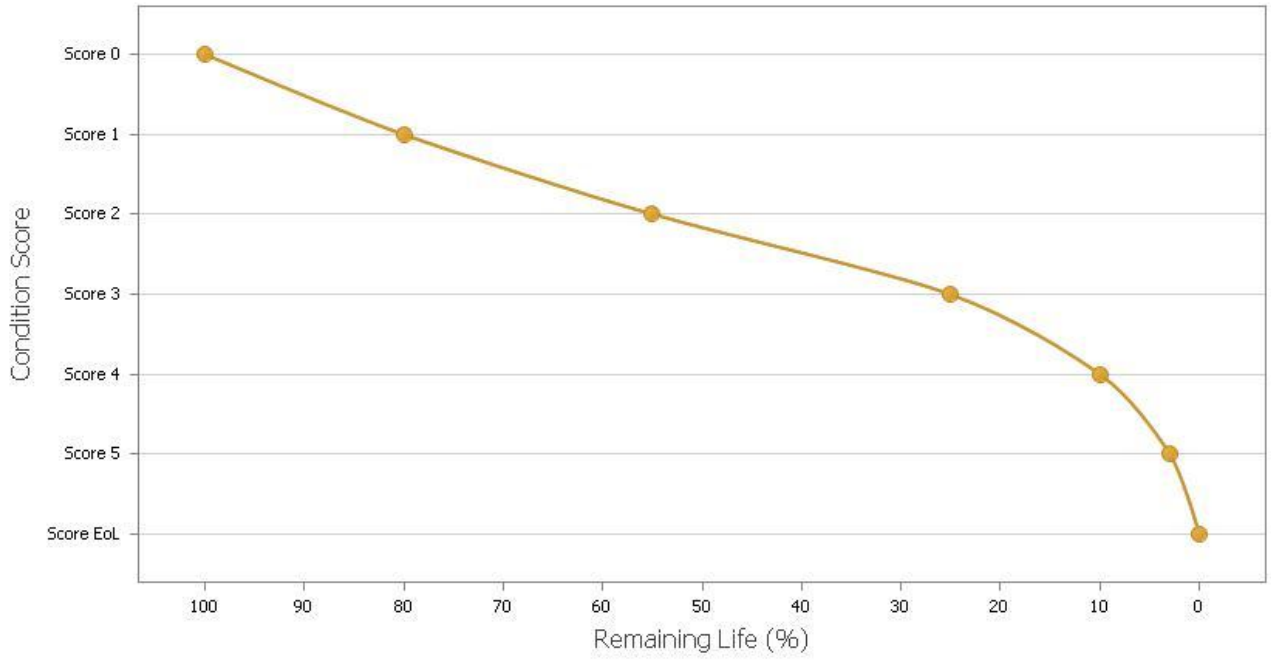


FIGURE 1 SIMULATION CURVE REPRESENTING OVERALL DETERIORATION OF INFRASTRUCTURE ASSET

Appendix E- Abbreviation & Definition

Explanation of definitions and acronyms used in this plan.

Term/Acronym	Definition
AASB	Australian Accounting Standards Board
AM Strategy	Asset Management Strategy
AMSC	Asset Management Steering Committee
Backlog	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. The current hypothetical cost of recouping this backlog (i.e. PDAMP 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
CIS	Community Infrastructure Strategy 2018-2038
CSP	City of Parramatta Council Community Strategic Plan 2018-2038
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
ICT	Information and Communication Technology
IIMM	International Infrastructure Management Manual
ISO55000	55000 Series, International Suite of Asset Management Standards
LTFP	Long-Term Financial Plan (10 year)
Average Annual Lifecycle Cost	Total cost lifecycle scenario strategy. Calculation; Total Capital Cost over 10 Years + Total Maintenance & Operational Cost over 10 Years – Backlog Movement Over 10 Years.
Non-current assets	Physical and intangible infrastructure assets, including information and communication technology (ICT) assets, controlled by the organisation
SW AMP	Stormwater Asset Management Plan
SAM	Strategic Asset Management