Dungog Shire Council

Urban Stormwater Drainage and Flood Protection

Asset Management Plan

Version 4

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Institute of Public Works Engineering Australia
AM4SRRC

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Asset Management for Small, Rural or Remote Communities Practice Note

The Institute of Public Works Engineering Australia.

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1. EXECUTIVE SUMMARY

Context

The Shire of Dungog is part of the Hunter Region and the Lower Hunter Sub-Region and is bound by MidCoast Council to the East and North, Upper Hunter Shire to the North-west Singleton Shire to the West, Port Stephens Shire and the City of Maitland to the South.

Dungog Shire covers an area of 2248 sq. kilometres. The Council is situated in the Barrington tops region and has a population of 8,975 (2016 Census). The Shire consists predominantly of very rugged to hilly country which becomes less rugged from north to south. The major population centres within the Shire include:

•Dungog •Clarence Town •Paterson •Gresford •Martins Creek •Vacy

The Australian Bureau of Statistic's annual Estimated Residential Population for Local Government Areas reported that Dungog Shire recorded a growth rate of 0.4% and that over the previous five years had recorded an average annual growth rate of 0.7%.

Urban Stormwater Drainage and Flood Protection

These infrastructure assets have a replacement value of $5.5M.

What does it Cost?

The projected cost to provide the services covered by this Asset Management Plan includes operations, maintenance, renewal and upgrade of existing assets over the 10 year planning period is $115,118 per year (this figure excludes depreciation and is averaged over the 10 year period).

The annual projected expenditure requirements averaged over the 10 year period are as follows:-

Budget Area	Budgeted	Required	Increase Required
Maintenance	$20,714	$57,594	$36,880 (178%)
Capital	$11,118	$57,594	$46,476 (418%)

Estimated annual (budget) operations, maintenance and capital renewal funding is $31,832 per year giving a 10 year funding shortfall of $83,356 per year and a 10 year sustainability indicator of 0.38. This indicates that Council has only budgeted for 38% of the projected expenditures needed to provide the services documented in the asset management plan.

It can be seen that significant increases in funding is required to retain the urban stormwater assets in their current condition and to undertake capital works improvements as they become required. If the funding shortfall is not addressed, this will lead to a reduced level of service and further deterioration of the urban stormwater network across the Shire.

One of the primary purposes of this urban stormwater asset management plan is to identify levels of service that the community needs and can afford and develop the necessary long term financial plans to provide the service in a sustainable manner. This will dictate that Council needs to take a long term view of existing assets and the overall service provided.

What we will do

Council plans to provide urban stormwater drainage services for the following:

- Operation, maintenance, renewal and upgrade of urban stormwater drainage assets to meet service levels set by council in annual budgets;
- Develop and Implement a Capital Works Programme;
- Develop and Implement a Urban Stormwater Maintenance Management Plan;
- Improve the underlying information and review service level trends.

What we cannot do

Council does not have enough funding to provide all services at the desired service levels or provide new services. Works and services that cannot be provided under present funding levels are:

- Provision of all the additional urban stormwater drainage assets to support the services desired by the community;
- Fund the asset renewal capital budget requirements without a significant increase in Capital revenue.

Managing the Risks

There are risks associated with providing the service and not being able to complete all identified activities and projects. We have identified major risks as:

- Blockages and lack of maintenance causing flooding issues;
- Rising costs of managing infrastructure;
- Meeting Community expectations for services;
- Providing the most appropriate and affordable infrastructure for the community;
- Controlling the deterioration of the urban stormwater drainage assets due to lack of pre-emptive maintenance and renewal funding.

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

- Manage the existing infrastructure
- Manage the expansion of urban stormwater drainage infrastructure based on the priorities established in the Community Plan
- Expand infrastructure in a financially responsible manner and as funded in Council's Long Term Financial Plan.
- Seek additional funding in the form of grants wherever possible.
- Review and update of service level and risk projections as data improves. This review will inform the annual budget process.

The Next Steps

The actions resulting from this asset management plan are:

- Continue to improve asset information and knowledge.
- Develop a single corporate asset register for financial and reporting purposes
- Monitor the provision of urban stormwater drainage infrastructure alongside the community expectations for community facilities.

Questions you may have

What is this plan about?

This asset management plan covers the infrastructure assets that serve the Shire's urban stormwater drainage network. These assets include pipes, pits, culverts, headwalls and gross pollutant traps that harvest stormwater and protect local residents and their properties from inundation.

What is an Asset Management Plan?

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

An asset management plan details information about infrastructure assets including actions required to provide an agreed level of service in the most cost effective manner. The Plan defines the services to be provided, how the services are provided and what funds are required to provide the services.

Why is there a funding shortfall?

Most of the Council's urban stormwater drainage assets were constructed from government grants often provided and accepted without consideration of ongoing operations, maintenance and replacement needs.

Many of these assets are approaching the later years of their life and require replacement, services from the assets are decreasing and maintenance costs are increasing.

Councils' present funding levels are insufficient to continue to provide existing services at current levels in the medium term.

What options do we have?

Resolving the funding shortfall involves several steps:

1. 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,
2. Improving our efficiency in operating, maintaining, replacing existing and constructing new assets to optimise life cycle costs,
3. Identifying and managing risks associated with providing services from infrastructure,
4. Making trade-offs between service levels and costs to ensure that the community receives the best return from infrastructure,
5. Identifying assets surplus to needs for disposal to make saving in future operations and maintenance costs
6. Consulting with the community to ensure that urban stormwater drainage services and costs meet community needs and are affordable,
7. Developing partnership with other bodies, where available to provide services;
8. Seeking additional funding from governments and other bodies to better reflect a 'whole of government' funding approach to infrastructure services;
9. Analysis of utilisation of loan borrowings for Capital works from an intergenerational perspective.

What happens if we don't manage the shortfall?

It is likely that council will have to reduce service levels in some areas, unless new sources of revenue are found. For urban stormwater drainage assets, the service level reduction may include a reduction in maintenance and operating costs and an inability to renew existing assets in line the current renewal program (scenario 1 - from asset register).

What can we do?

Council can develop options and priorities for future urban stormwater drainage assets with costs of providing the services, consult with the community to plan future services to match the community services needs with ability to pay for services and maximise benefit to the community for costs to the community.

What can you do?

Council will be pleased to consider your thoughts on the issues raised in this asset management plan and suggestions on how Council may change or reduce its urban stormwater services mix to ensure that the appropriate level of service can be provided to the community within available funding.

2. INTRODUCTION

2.1 Background

This asset management plan is to demonstrate responsive management of assets (and services provided from assets), compliance with regulatory requirements, and to communicate funding needed to provide the required levels of service.

The asset management plan is to be read with Council's Asset Management Policy, Asset Management Strategy and the following associated planning documents:

- Dungog Shire Council Delivery Program, Operational Plan and Community Strategic Plan
- Clarence Town Flood Study

The infrastructure assets covered by this asset management plan are shown in Table 1.

Table 1: Assets covered by this Plan

Asset Sub-Category	Asset Replacement Cost (*Calculated from asset register)	Depreciated Replacement Cost *
Channels (Concrete & Natural)	$2,172,125	$748,346
Culverts	$1,914,033	$668,160
Gross Pollutant Trap	$63,000	$51,030
Headwalls	$89,007	$28,868
Pipes	$841,050	$280,659
Pits	$411,670	$183,679
Wetland Treatment Water Quality Treatment Facility	$0	$0
TOTAL	**$5,490,885**	**$1,960,742**

* Calculations are based on the last revaluation of the assets

2.2 Goals and Objectives of Asset Management

The Council exists to provide services to its community. Some of these services are provided by infrastructure assets. Council has acquired infrastructure assets by 'purchase', by contract, construction by council staff and by donation of assets constructed by developers and others to meet increased levels of service.

Council's goal in managing infrastructure assets is to meet the required level of service in the most cost effective manner for present and future consumers. The key elements of infrastructure asset management are:

- Taking a life cycle approach,
- Developing cost-effective management strategies for the long term,
- Providing a defined level of service and monitoring performance,
- Understanding and meeting the demands of growth through demand management and infrastructure investment,
- Managing risks associated with asset failures,
- Sustainable use of physical resources,
- Continuous improvement in asset management practices.[1]

The goal of this asset management plan is to:

- Document the services/service levels to be provided and the costs of providing the service,

[1] IPWEA, 2006, *IIMM* Sec 1.1.3, p 1.3.

- Communicate the consequences for service levels and risk, where desired funding is not available, and
- Provide information to assist decision makers in trading off service levels, costs and risks to provide services in a financially sustainable manner.

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

Council's theme is:

"A vibrant, united community, with a sustainable economy. An area where rural character, community safety, and lifestyle are preserved."

Council's mission is:

"To manage, enhance, and protect, the resources of the Shire, in consultation with the community."

Relevant goals and objectives and how these are addressed in this asset management plan are shown in Table 2.

Table 2: Organisation Goals and how these are addressed in this Plan

STRATEGY	PROGRAM / ACTIVITY	HOW THE ACTIONS ARE BEING ADDRESSED IN THIS AMP
5. Ensure that community assets and facilities and public infrastructure are maintained and improved to a reasonable standard.	5.1.1 Development and implementation of Asset Management Plans	This document will continue to evolve as further information of the asset is gathered
	5.2.1 Maintain facilities and assets within budgetary limitations.	Infrastructure is provided to support services. Getting the correct infrastructure appropriate to the needs of the community is a primary goal of Asset Management. As Council has limited resources, the Asset Management Planning process sets the priorities and allocations of these resources in line with community expectations in the Community Strategic Plan.
	5.3.1 Continue to explore opportunities to submit grant applications for facility upgrades	The AMP will be utilised as the basis for future funding requirements and grant applications if and or when they become available

2.3 Plan Framework

Key elements of the plan are

- Levels of service – specifies the services and levels of service to be provided by council.
- Future demand – how this will impact on future service delivery and how this is to be met.
- Life cycle management – how the organisation will manage its existing and future assets to provide the required services
- Financial summary – what funds are required to provide the required services.
- Asset management practices
- Monitoring – how the plan will be monitored to ensure it is meeting the organisation's objectives.
- Asset management improvement plan

2.4 Core and Advanced Asset Management

This asset management plan is prepared as a first cut 'core' asset management plan in accordance with the International Infrastructure Management Manual[2]. 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.

2.5 Community Consultation

This 'core' asset management plan is prepared to facilitate community consultation initially through feedback on public display of draft asset management plans prior to adoption by Council. Future revisions of the asset management plan will incorporate community consultation on service levels and costs of providing the service. This will assist Council and the community in matching the level of service needed by the community, service risks and consequences with the community's ability to pay for the service.

[2] IPWEA, 2006.

3. LEVELS OF SERVICE

3.1 Customer Research and Expectations

Council has limited research on customer expectations in this area. This will be investigated for future updates of the asset management plan.

3.2 Legislative Requirements

Council has to meet many legislative requirements including Australian and State legislation and State regulations. Relevant legislation is shown in Table 3.

Table 3: Legislative Requirements

Legislation	Requirement
Local Government Act 1993 and Local Government Amendment (Planning and Reporting) Act 2009 (the Act).	Sets out role, purpose, responsibilities and powers of local governments including the preparation of a long term financial plan supported by asset management plans for sustainable service delivery. The amendments to the Act give effect to the Integrated Planning and Reporting framework.
Work Health & Safety Act & Regulations	Sets out roles and responsibilities to secure the health, safety and welfare of persons at work. Council is to provide a safe working environment and supply equipment to ensure safety.
Local Government (General) Amendment (Stormwater) Regulation 2006 under the Local Government Act 1993	The object of this Regulation is to amend the Local Government (General) Regulation 2005: (a) to prescribe the maximum amount that may be charged by a council for the provision of stormwater management services; (b) to provide that certain information regarding stormwater management services is to be included in a council's draft management plan; and (c) to provide that a council's annual report is to include certain information relating to the provision of stormwater management services.
Protection of the Environment Administration Act 1991	The objects of this Act are as follows: (a) to constitute the Environment Protection Authority, (b) to provide integrated administration for environment protection, (c) To require the Authority to perform particular tasks in relation to the quality of the environment, environmental audit and reports on the state of the environment.
Water Management Act 2000	The objects of this Act are to provide for the sustainable and integrated management of the water sources of the State for the benefit of both present and future generations.

3.3 Current Levels of Service

Council has defined service levels in two terms.

Community Levels of Service - relate to the service outcomes that the community wants in terms of safety, quality, quantity, reliability, responsiveness, cost effectiveness and legislative compliance.

Community levels of service measures used in the asset management plan are:

Quality	How good is the service?
Function	Does it meet users' needs?
Safety	Is the service safe?

Technical Levels of Service - Supporting the community service levels are operational or technical measures of performance. These technical measures relate to the allocation of resources to service activities that the council undertakes to best achieve the desired community outcomes.

Technical service measures are linked to annual budgets covering:

- Maintenance – the activities necessary to retain an assets as near as practicable to its original condition
- Renewal – the activities that return the service capability of an asset up to that which it had originally
- Upgrade – the activities to provide a higher level of service or a new service that did not exist previously

Council's current service levels are detailed in Table 4.

Table 4: Current Service Levels - Community

Key Performance Measure	Customer Level of Service	Performance Measure	Performance Target	Current Performance
COMMUNITY LEVELS OF SERVICE				
Quality	Well maintained and clean At a quality or standard suitable for their purpose	Customer requests % of asset by value that has poor or very poor condition	<5 requests per annum % poor / very poor not increasing	Meeting standard % poor / very poor not increasing
Function	Asset is fit for purpose.	Customer requests	Requests received should not increase annually	Not increasing
Safety	Provide an urban stormwater system that is low risk to the community	Number of failures or incidents reported	Nil	Less than 3 per year

Table 5: Current Service Levels - Technical

TECHNICAL LEVELS OF SERVICE				
Key Performance Measure	**Customer Level of Service**	**Performance Measure**	**Performance Target**	**Current Performance**
Condition	All assets will be in good condition for their purpose	Asset condition inspections	100% of assets have a condition audit undertaken as scheduled	Part asset condition audit undertaken in June/July 2014
Serviceability	All assets will be serviced within appropriate timeframes to ensure maximisation of asset life	Percentage of assets maintained in accordance with the maintenance plan	90% of activities completed within set timeframes	Not measured at this time
Cost / Affordability	Ensure maintenance works and services provide value for money	% of maintenance works achieved within budget	90% of activities are undertaken within budgetary restraints	Achieved
Safety	Ensure all assets are in a safe condition	Safety audit of the assets	Defects repaired within approved timeframes and budgetary restraints	Not currently measured

3.4 Desired Levels of Service

At present, indications of desired levels of service are obtained from various sources including residents' feedback to Councillors and staff, service requests and correspondence. There will be an ongoing challenge for Council to review levels of service and budget allocations in attempting to more closely match these with community expectations.

4. FUTURE DEMAND

4.1 Demand Forecast

Factors affecting demand include population change, changes in demographics, seasonal factors, vehicle ownership, consumer preferences and expectations, economic factors, agricultural practices, environmental awareness, etc.

Demand factor trends and impacts on service delivery are summarised in Table 6.

Table 6: Demand Factors, Projections and Impact on Services

Demand factor	Present position	Projection	Impact on services
Population	8,975 (2016)	9830 (2029)[3]	Increased Assets and demand on existing assets will have a follow on impact on maintenance and renewal costs.
Construction Costs	The cost to construct, maintain and renew infrastructure is increasing at a rate greater than council's revenue	Costs anticipated to increase	Increasing construction costs will impact on the future management of urban stormwater assets and level of service able to be provided.
Regulation	Current regulations	Regulations relating to stormwater e.g. recurrence intervals, flooding, etc	Will add further to the cost of providing, maintaining and renewing urban stormwater assets
Demographics	High percentage of older persons residing within the shire.	Anticipated to continue to rise due to fewer job opportunities and lack of higher education facilities	Increasingly difficult to maintaining the current level of service
Climate Change	Higher frequency of extreme weather events	Unknown, but changes likely.	Addition costs may be imposed to fund environmental initiatives

4.2 Changes in Technology

Technology changes forecast to affect the delivery of services covered by this plan are detailed in Table 7.

Table 7: Changes in Technology and Forecast effect on Service Delivery

Technology Change	Effect on Service Delivery
Changes in construction techniques, available materials and improvements to plant and equipment will evolve	These changes will be assessed on merit and applied where efficiencies can be achieved in construction and maintenance practices.
Improvement to pollutant control devices	Higher level of pollution capture and treatment of stormwater
Asset data capture by video inspection and the incorporation of this information into GIS systems	Spatial location and condition of assets able to be verified from GIS reducing the need for reactive inspections

[3] Projection based on 0.7% average annual growth rate provided by the Australian Bureau of Statistic's annual Estimated Residential Population for Local Government Areas

4.3 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.

Opportunities identified to date for demand management are shown in Table 8. Further opportunities will be developed in future revisions of this asset management plan.

Table 8: Demand Management Plan Summary

Service Activity	Demand Management Plan
Urban stormwater maintenance	Routine inspections and repairs carried out in accordance with best practice principles
Communicate options and capacity to fund drainage infrastructure with the community	Monitor community expectations and communicate service levels and financial capacity with the community to balance priorities for infrastructure with what the community is prepared to pay for.
Funding priority works	Continue to seek grant funding for projects identified in the Community Plan and Asset Management Plans
Improve understanding of costs and capacity to maintain current service levels	Continue to analyse the cost of providing service and the capacity to fund at the current level of service

4.4 New Assets for Growth

The new assets required to meet growth will be acquired from land developments and constructed/acquired by Council.

Some stormwater assets in Urban areas will have capacity increases as a result of and in conjunction with roadworks constructions such as those to commence in Clarence Town. For inter-allotment stormwater systems, Council does not propose to construct any new assets over the course of the ten year planning period unless increased funding is received from external sources.

Acquiring these new assets will commit council to fund ongoing operations and maintenance 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 and maintenance costs.

5. RISK MANAGEMENT

5.1 Risk Management Plan

An assessment of risks associated with service delivery from infrastructure assets has identified critical risks to Council. The risk assessment process identifies credible risks, the likelihood of the risk event occurring, the consequences should the event occur, develops a risk rating, evaluates the risk and develops a risk treatment plan for non-acceptable risks.

Critical risks, being those assessed as Extreme, requiring immediate corrective action and High, requiring prioritised corrective action identified in the infrastructure risk management plan are summarised in Table 8.

Table 9: Risk Identification and Treatment Plan

Risk Details	Likelihood	Consequence	Risk Rating	Risk Treatment Plan
Damage to properties as a result of flooding	Likely	Very High	Very High	• Continue to apply relevant planning policy prohibiting construction within 100yr flood plain • Identify areas at risk of 100yr flooding and proposed remediation options
Blockages in pipes or pits leading to surcharging of system and localised flooding	Likely	High	High	• Pro-active maintenance and cleaning program • Seek funding for CCTV of drainage lines • Upgrade kerb inlet structures as funding allows
Existing urban stormwater culverts having inadequate hydraulic capacity	Likely	High	High	• Identify areas at flood risk • Prepare preliminary designs and costing of drainage network upgrades
Ongoing deterioration of urban stormwater assets	Likely	High	High	• Regular condition inspections • Annual allocation of sufficient funding and resources

6. LIFECYCLE MANAGEMENT PLAN

The lifecycle management plan details how Council plans to manage and operate the assets at the agreed levels of service (defined in Section 3) while optimising life cycle costs. To undertake lifecycle asset management means consideration of all management options and strategies as part of the asset lifecycle from planning to 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.

6.1 Background Data

6.1.1 Physical parameters

The assets covered by this Urban Stormwater Asset Management Plan are:

- Drainage pipe network
- Drainage pits, inlets, outlets, headwalls
- Box culverts, channels, concrete dish drains
- Detention basins
- Gross Pollutant Trapping devices

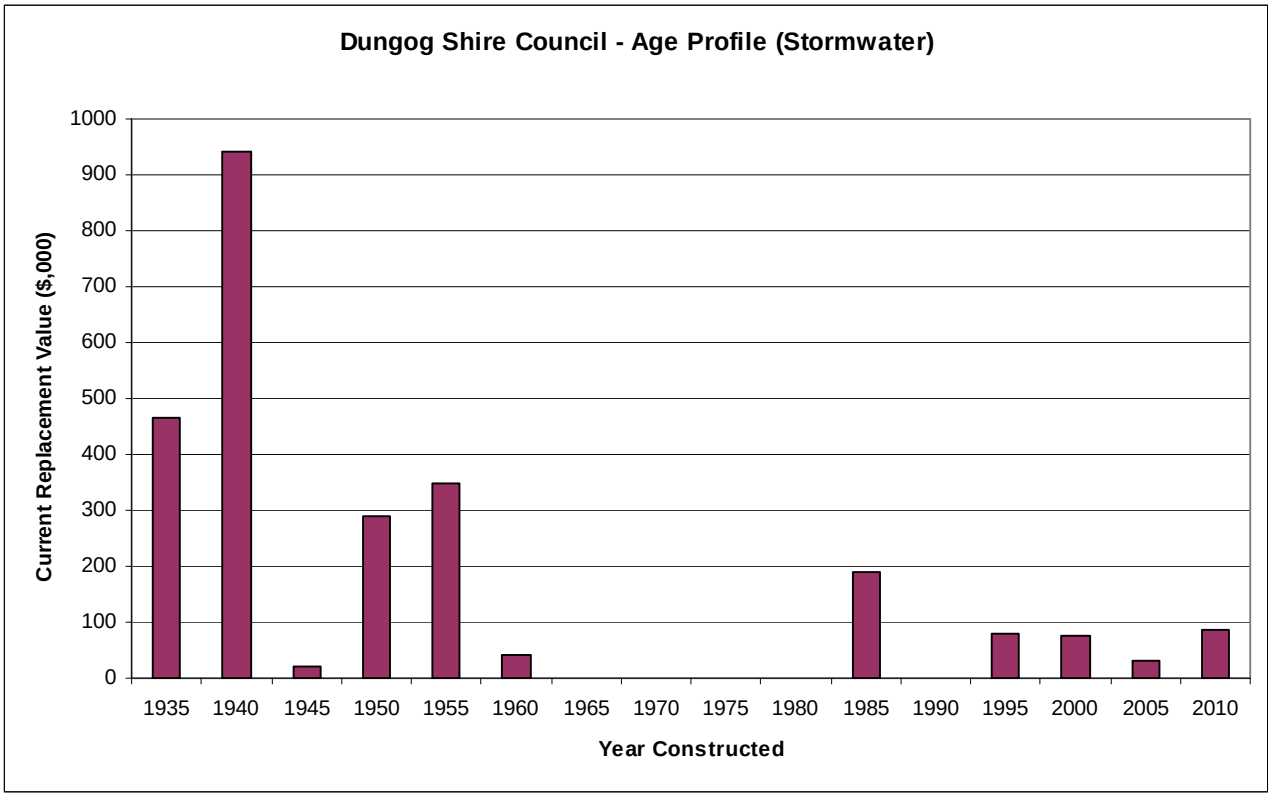
Note:- Urban Stormwater Assets only are considered in this Asset Management Plan. Stormwater Assets in Rural areas (ie under rural roads, etc) are considered within the Roads Asset Management Plan.

The information basis for the urban stormwater drainage and flood protection assets are:

- Financial Valuations
- Technical Inventory
- Maintenance and Renewal Plans

Whilst definitive information is not necessarily available for all assets, the assumed age profile of the assets include in this Asset Management Plan is shown in Figure 1.

Figure 1: Asset Age Profile



As can be seen from the age profile, the vast majority of Council's urban stormwater assets were constructed pre 1965. Based on this age profile, it could be expected that there will be considerable renewal expenditure required towards the end of this modelling period and over future modelling periods.

6.1.2 Asset capacity and performance

Council's services are generally provided to meet design standards where these are available.

Whilst all actual locations where deficiencies in service performance are not fully detailed at this time, these deficiencies can generally be categorised as detailed in Table 10.

Table 10: Known Service Performance Deficiencies

Location	Service Deficiency
Urban stormwater drainage network	Under capacity pipe and pit drainage, lack of drainage systems and property flooding
Urban stormwater pollution control measures	Not all stormwater inlets / outlets have pollution control measures
Urban stormwater reuse	Whilst there is some infrastructure for urban stormwater reuse in place, with appropriate funding this could be increased

6.1.3 Asset condition

At present the condition of the urban stormwater assets has been gauged by a visual rating system that assigns a condition rating on the asset based on how it appears to be functioning in providing its service to the community.

The visual condition assessment was measured using a 1-5 rating system:

Table 11: Asset Condition Descriptions

Condition Rating	Description
1	Excellent condition: A near new asset with no visible signs of deterioration
2	Very good: An asset in a very good overall condition but with some early stages of deterioration evident
3	Fair: An asset in fair overall condition. Deterioration in condition would be obvious and there would be some serviceability loss
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
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 asset in service

Given the long life of Stormwater assets and the difficulties in establishing their actual condition, it is recognized that this process is largely subjective.

6.1.4 Asset valuations

The value of assets recorded in Council's asset register covered by this asset management plan is shown below.

Current Replacement Cost	$5,490,885
Depreciable Amount (no residual value)	$5,490,885
Depreciated Replacement Cost	$1,960,472
Annual Depreciation Expense	$ 67,293

Council's sustainability reporting reports the rate of annual asset consumption and compares this to asset renewal and asset upgrade and expansion.

Asset Consumption (Depreciation/Depreciable Amount)	1.23%
Asset renewal (Capital renewal exp/Depreciable amount)	0%
Annual Upgrade/New (including contributed assets) (Capital upgrade exp/Depreciable amount)	0%

Council is currently only renewing assets where required as part of urban roadworks projects. These projects are generally only extensions to existing assets and not renewals or upgrading capacity. Realistically, Council is not funding urban stormwater asset replacement at this time.

To provide services in a financially sustainable manner, Council will need to ensure that it is renewing assets at the rate they are being consumed over the medium-long term and funding the life cycle costs for all new assets and services in its long term financial plan.

6.2 Routine Maintenance Plan

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.

6.2.1 Maintenance plan

Maintenance includes reactive, planned and specific maintenance work activities.

Reactive maintenance is unplanned repair work carried out in response to service requests, risk assessment priorities and management/supervisory directions. Assessment and prioritisation of reactive maintenance is undertaken by Council staff using experience and judgment and risk management procedures.

Planned maintenance is repair work that is identified and managed through inspections of the network. Activities include 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.

Cyclic maintenance is replacement of higher value components of assets which is undertaken on a regular cycle. This work generally falls below the capital / maintenance threshold.

Recent maintenance expenditure is shown in Table 12.

Table 12: Maintenance Expenditure Trends

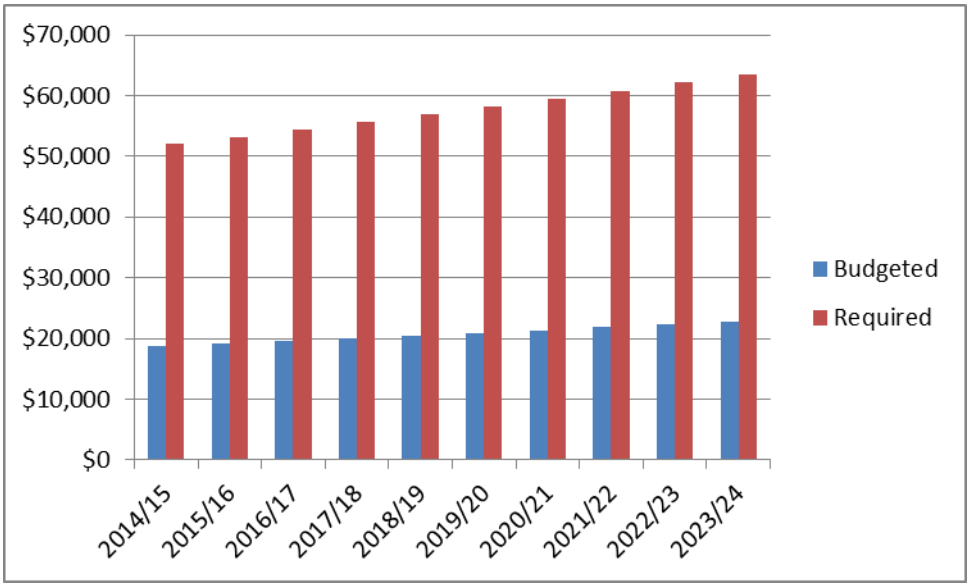
Year	Maintenance Expenditure		
	Planned/Cyclic	Reactive	Total
2015	$4,680	$14,040	$18,720
2016	$4,780	$14,350	$19,130
2017	$4,890	$14,660	$19,550
2018	$5,000	$14,990	$19,990

It is Council's goal to increase the amount of planned/cyclic maintenance work progressively and reduce the amount of reactive maintenance. This should then provide operational cost savings and maximise asset performance.

6.2.2 Summary of future maintenance expenditures

Figure 1 shows the future maintenance expenditure forecast.

Figure 1: Maintenance - Budget Versus Required Expenditure Forecast



Maintenance is funded from Council's operating budget and grants where available. Current maintenance expenditure levels are considered to be inadequate to meet required service levels. Council should be aiming at an annual maintenance expenditure level of 2% of the value of the asset stock (ie approx. $52,000 per annum). These increases will be required to fund both maintenance of Council's aging infrastructure and the maintenance of new urban stormwater assets from development. It is Council's aim to reduce some of the increase in required costs by increasing the percentage of planned maintenance and reducing reactive maintenance, however this may still not offset all the expected future increases.

Deferred maintenance works (ie works that are identified for maintenance and unable to be funded) are to be included in the risk assessment process.

Future revision of this asset management plan will include linking required maintenance expenditures with required service levels

6.2.3 Standards and specifications

Currently Council has not formally documented standards and specifications for maintenance work. Maintenance standards are intuitive to staff who have had years of experience undertaking this type of work.

6.3 Renewal/Replacement Plan

Renewal expenditure is major work which does not increase the asset's design capacity but restores, rehabilitates, replaces or renews an existing asset to its original service potential. Work over and above restoring an asset to original service potential is upgrade/expansion or new works expenditure.

Renewal will be undertaken using 'low cost' renewal methods where practicable. The aim of 'low cost' renewals is to restore the service potential for future economic benefits of the asset by renewing the assets at a cost less than replacement costs.

6.3.1 Renewal plan

Assets requiring renewal are to be identified from estimates of remaining life obtained from the condition survey. The estimated service life of concrete Stormwater pipes is between 80-100 years. Based on the age profile approximately 50% of Council's Urban Stormwater assets are approaching the 80 year age mark. This indicates that over the next 10 to 20 years, Council can reasonably expect that expenditures of $1.5 Million will be required during the next 20 years. A renewal plan will be developed using both visual and CCTV inspections.

6.3.2 Renewal standards

Renewal work is carried out in accordance with standards, specifications and legal requirements as appropriate.

6.3.3 Summary of projected renewal expenditure

No renewal projects have been identified in this plan. On completion of further condition assessments this situation will be reviewed and a Capital renewal plan developed accordingly. In the interim, due to the expected significant renewal works required, Council should increase funds being put in restricted assets for future capital works.

6.4 Creation/Acquisition/Upgrade Plan

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 to the Council from land development.

6.4.1 Selection criteria

New assets and upgrade/expansion of the existing Urban Stormwater assets are identified from the following:-

- Proposals identified by strategic plans or partnerships with other organisations;
- Urban growth - increased development density and potential flooding from such;
- Known property and street flooding locations;
- Known drainage pipe and pit hydraulic deficiencies where the capacity is below a 1 in 5 ARI;
- High level pollutant locations (ie outlets into waterways);
- Potential locations for urban stormwater storage and reuse;
- Poor condition, under capacity pipe/pit network locations;
- Sub-standard kerb inlet structures;
- Areas where maintenance of deep roadside swales is onerous;
- Areas where safety of deep roadside swales is an issue.

In preparing future works programmes to upgrade/expand the urban stormwater network consideration is given to the following:-

- Extent of property and street flooding for existing and future developments including potential damage and hazards;
- Capacity and condition of the existing urban stormwater system;
- Strategic locations to improve the quality and reuse of urban stormwater.

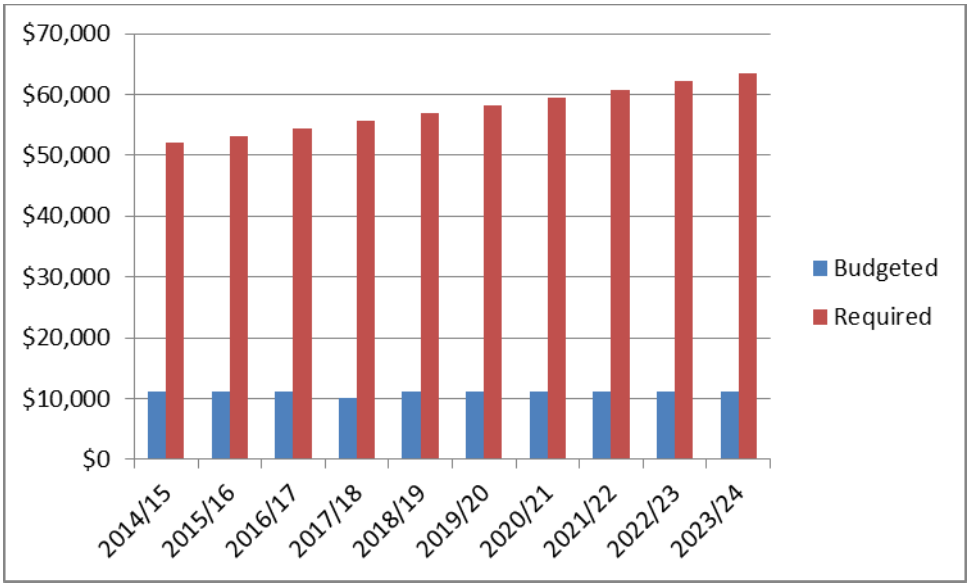
6.4.2 Standards and specifications

New assets and upgrade/expansions will be constructed in accordance with standards, specifications and legal requirements as appropriate.

6.4.3 Summary of projected upgrade/new assets expenditure

Whilst no planned capital upgrade or new asset expenditures are proposed in this plan, the following diagram illustrates current funding being restricted as opposed to projected requirements:-

Figure 2: Capital - Budget Versus Required Expenditure Forecast



6.5 Disposal Plan

Disposal includes any activity associated with disposal of a decommissioned asset including sale, demolition or relocation. Presently there are no Urban Stormwater Assets identified for possible decommissioning and disposal in this plan.

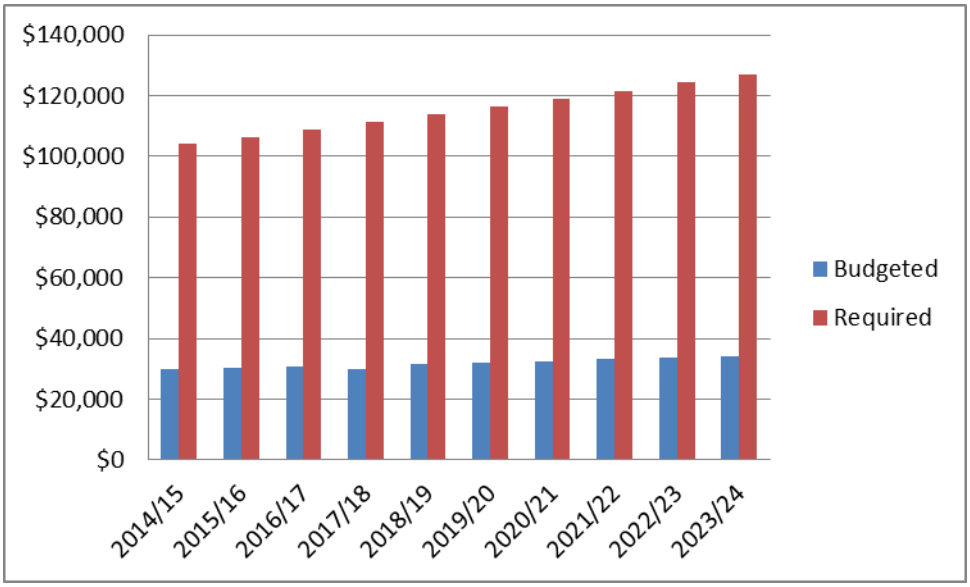
7. FINANCIAL SUMMARY

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

7.1 Financial Statements and Projections

The financial projections are shown in Figure 3 for projected budgeted maintenance and capital expenditure versus projected required maintenance and capital expenditure:-

Figure 3: Capital & Maintenance - Budgeted Versus Required Expenditure Forecast



Council can expect the total financial expenditure required for urban stormwater infrastructure to increase significantly over the duration of the planning period due to the backlog of works on ageing infrastructure. The implication for Council of the projected required expenditures is that long term financial plans will have to accommodate the required increase in overall expense if these assets are to be adequately serviced and maintained.

7.1.1 Financial sustainability in service delivery

There are two key indicators for financial sustainability that have been considered in the analysis of the services provided by this asset category, these being long term life cycle costs/expenditures and medium term projected/budgeted expenditures over 10 years of the planning period.

Long term - Life Cycle Cost

Life cycle costs (or whole of life costs) are the average costs that are required to sustain the service levels over the longest asset life. Life cycle costs include operations and maintenance expenditure, asset consumption (depreciation expense) and capital works. The annual average life cycle cost for the services covered in this asset management plan is $80,769 per year.

Life cycle costs can be compared to life cycle expenditure to give an indicator of sustainability in service provision. Life cycle expenditure includes operations, maintenance and capital renewal expenditure. Life cycle expenditure will vary depending on the timing of asset renewals. The average annual life cycle expenditure budgeted at the start of the plan is $29,953 per annum.

A gap between life cycle costs and life cycle expenditure gives an indication as to whether present consumers are paying their share of the assets they are consuming each year. The purpose of this urban stormwater asset

management plan is to identify levels of service that the community needs and can afford and develop the necessary long term financial plans to provide the service in a sustainable manner.

The life cycle gap for services covered by this asset management plan is $50,816 per annum. The Life cycle sustainability index is 0.37.

The life cycle costs and life cycle expenditure comparison highlights any difference between present outlays and the average cost of providing the service over the long term. If the life cycle expenditure is less than that life cycle cost, it is most likely that outlays will need to be increased or cuts in services made in the future.

Knowing the extent and timing of any required increase in outlays and the service consequences if funding is not available will assist organisations in providing services to their communities in a financially sustainable manner. This is the purpose of the asset management plans and long term financial plan.

Medium term – 10 year financial planning period

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

These projected expenditures may be compared to budgeted expenditures in the 10 year period to identify any funding shortfall. In a core asset management plan, a gap is generally due to increasing asset renewals for ageing assets. Due to the ageing infrastructure, there is an increase above the projected life cycle cost in this medium term plan.

The annual projected expenditure requirements averaged over the 10 year period are as follows:-

Budget Area	Budgeted	Required	Increase Required
Maintenance	$20,714	$57,594	$36,880 (178%)
Capital	$11,118	$57,594	$46,476 (418%)

The average operations, maintenance and capital renewal expenditure (excluding depreciation) required over the 10 year planning period is $115,188 per year.

Estimated annual (budget) operations, maintenance and capital renewal funding is $31,832 per year giving a 10 year funding shortfall of $83,356 per year and a 10 year sustainability indicator of 0.38. This indicates that Council has budgeted for 38% of the projected expenditures needed to provide the services documented in the asset management plan.

7.2 Funding Strategy

Projected expenditure identified in Section 7.1 is to be funded from future operating and capital budgets. The funding strategy is to be detailed in the organisation's 10 year long term financial plan.

7.3 Valuation Forecasts

Asset values are forecast to increase as additional assets are added to the asset stock from construction and acquisition by Council and from assets constructed by land developers and others and donated to Council.

7.4 Key Assumptions made in Financial Forecasts

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

Key assumptions made in this asset management plan are:

- Growth rate is low based on previous years growth rates;
- Useful life of drainage pipes and pits is between 80 to 100 years;
- Service levels are not adequate at current levels;
- Present maintenance response times require improvement

Accuracy of future financial forecasts may be improved in future revisions of this asset management plan by the following actions:-

- Current rates to be reviewed and updated;
- Preparation of a Capital Works Programme;
- Preparation of a Maintenance Management Plan;
- Review of the useful life of the drainage network;
- Higher detail and definition in relation to the current expenditures by type e.g. operating, maintenance, renewal, upgrade/new

8. ASSET MANAGEMENT PRACTICES

8.1 Accounting/Financial Systems

8.1.1 Accounting and financial systems

The financial system used by Dungog Shire Council is Civica Authority 6.5

This system is managed by Council Finance Department. A financial report is produced annually

8.1.2 Accountabilities for financial systems

The Executive Manager Corporate Services is responsible for the operation and maintenance of the Financial Reporting Systems.

8.1.3 Accounting standards and regulations

Council currently complies with the following standards and regulations with respect to asset accounting:

- The Australian equivalents to international Financial Reporting Standards
- The Local Government Code of Accounting and Financial Reporting
- The Local Government Act 1993 – as amended for the Integrated Planning and Reporting Framework
- AASB116 Property, Plant and Equipment
- AAS 27 Financial Reporting by Local Governments
- Dungog Shire Council Accounting Policy

8.1.4 Capital/maintenance threshold

Refer Dungog Shire Council Accounting Policy

8.1.5 Required changes to accounting financial systems arising from this AM Plan

All asset registers currently in Microsoft Excel will be migrated to future financial systems.

8.2 Asset Management Systems

8.2.1 Asset management system

Dungog Shire Council have data inventory in MapInfo Geographic Information System (GIS) and Microsoft Excel spreadsheets. The asset management systems are not integrated with Council's Finance System. Improvements in this area would require substantial changes to the use and level of investment of Authority within Council.

8.2.2 Asset registers

All asset registers currently in Microsoft Excel.

8.2.3 Linkage from asset management to financial system

Quarterly update of capital transactions from asset management to financial system to keep excel asset register up to date for: condition, remaining life, useful life, values. Synchronisation of financial system and excel asset register when a revaluation occurs. Annual balancing of end of year note 9a reporting.

8.2.4 Accountabilities for asset management system and data

The Executive Manager Infrastructure and Assets is responsible for the operation and maintenance of the Asset Registers.

The Executive Manger Corporate Services is responsible for the operation and maintenance of the Geographic Information System.

8.2.5 Required changes to asset management system arising from this AM Plan

All asset registers currently in Microsoft Excel will be migrated to future financial systems.

8.3 Information Flow Requirements and Processes

The key information flows *into* this asset management plan are:

- Council strategic and operational plans;
- Service requests from the community;
- Asset information from the asset register and GIS data;
- The unit rates for categories of work/materials;
- Current levels of service, expenditures, service deficiencies and service risks;
- Projections of various factors affecting future demand for services and new assets acquired by Council;
- Future capital works programs;
- Financial asset values.

The key information flows *from* this asset management plan are:

- The projected Works Program and trends;
- The resulting budget and long term financial plan expenditure projections;
- Financial sustainability indicators.

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

8.4 Standards and Guidelines

Development of this plan is in accordance with:

- The International Infrastructure Management Manual (IIMM)
- Australian Infrastructure Financial Management Guidelines
- Dungog Shire Council Asset Management Policy
- Dungog Shire Asset Management Resourcing Strategy

9. PLAN IMPROVEMENT AND MONITORING

9.1 Performance Measures

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

- The degree to which the required cashflows identified in this asset management plan are incorporated into the organisation's long term financial plan and Community/Strategic Planning processes and documents;
- The degree to which 1-10 year detailed works programs, budgets, business plans and organisational structures take into account the 'global' works program trends provided by the asset management plan;

9.2 Improvement Plan

The asset management improvement plan generated from this asset management plan is shown in Table 13.

Table 13: Improvement Plan

Task No	Task	Responsibility	Resources Required	Timeline
1	Continue the development of the corporate asset register, in which financial calculations including calculation of annual depreciation are undertaken by council.	Assets and Corporate	Staff Time	Ongoing
2	Develop the strategy for acquiring condition data and undertake condition reporting for use in future maintenance and capital budgeting	Assets	Staff Time & Contractor	June 2019
3	Review methodology for determining remaining life, with detail assessment for assets requiring renewal in the medium to long term (next 10-20 years)	Assets and Corporate	Staff Time	Sep 2019
4	Develop the forward Capital Renewal Programme	Assets	Staff Time	Dec 2019
5	Develop a Maintenance Management Plan	Assets	Staff Time	Mar 2020
6	Continue to Improve project cost accounting to record costs against the asset component and develop valuation unit rates	Assets and Corporate	Staff Time	Ongoing
7	Continue to review the procedures for maintaining the Asset and Financial Registers	Assets and Corporate	Staff Time	June 2020

9.3 Monitoring and Review Procedures

This asset management plan will be reviewed during annual budget preparation and amended to recognise any changes in service levels and/or resources available to provide those services as a result of the budget decision process. The Plan has a life of 4 years and is due for revision and updating within 12 months of each Council election.

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APPENDICES

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Appendix A Abbreviations

AAAC Average annual asset consumption

AMP Asset management plan

ARI Average recurrence interval

BOD Biochemical (biological) oxygen demand

CRC Current replacement cost

CWMS Community wastewater management systems

DA Depreciable amount

EF Earthworks/formation

IRMP Infrastructure risk management plan

LCC Life Cycle cost

LCE Life cycle expenditure

MMS Maintenance management system

PCI Pavement condition index

RV Residual value

SS Suspended solids

vph Vehicles per hour

Appendix B 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 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 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.

Average annual asset consumption (AAAC)*

The amount of an organisation's 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 organisation's asset base, but may be associated with additional revenue from the new user group, eg. 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, eg. 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 organisation's asset base, eg. 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
Monies received generally tied to the specific projects for which they are granted, which are often upgrade and/or expansion or new investment proposals.

Capital investment expenditure
See capital expenditure definition

Capitalisation threshold
The value of expenditure on non-current assets above which the expenditure is recognised 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 after deducting any accumulated depreciation / amortisation and accumulated impairment losses thereon.

Class of assets
See asset class definition

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.

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.

Current replacement cost (CRC)
The cost the entity would incur to acquire the asset on the reporting date. The cost is measured by reference to the lowest cost at which the gross future economic benefits could be obtained in the normal course of business or the minimum it would cost, to replace the existing asset with a technologically modern equivalent new asset (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.

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

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

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

Economic life
See useful life definition.

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

Fair value
The amount for which an asset could be exchanged, or a liability settled, between knowledgeable, willing parties, in an arms length transaction.

Funding gap
A funding gap exists whenever an entity has insufficient capacity to fund 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 funding gap means service levels have already or are currently falling. A projected funding gap if not addressed will result in a future diminution of existing service levels**.**

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 of organisations or the need for access to major economic and social facilities and services, eg. roads, drainage, footpaths and cycleways. 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.

Investment property
Property held to earn rentals or for capital appreciation or both, rather than for:
(a) use in the production or supply of goods or services or for administrative purposes; or
(b) sale in the ordinary course of business.

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 defined service quality for a particular service/activity against which service performance may be measured. Service levels usually relate to quality, quantity, reliability, responsiveness, environmental impact, acceptability and cost.

Life Cycle Cost
1. **Total LCC** The total cost of an asset throughout its life including planning, design, construction, acquisition, operation, maintenance, rehabilitation and disposal costs.
2. **Average LCC** The life cycle cost (LCC) is average cost to provide the service over the longest asset life cycle. It comprises annual operations, maintenance and asset consumption expense, represented by depreciation expense. The Life Cycle Cost does not indicate the funds required to provide the service in a particular year.

Life Cycle Expenditure
The Life Cycle Expenditure (LCE) is the actual or planned annual operations, maintenance and capital renewal expenditure incurred in providing the service in a particular year. Life Cycle Expenditure may be compared to average Life Cycle Cost to give an initial indicator of life cycle sustainability.

Loans / borrowings
See borrowings.

Maintenance
All actions necessary for retaining an asset as near as practicable to its original condition, including regular ongoing day-to-day work necessary to keep assets operating, eg road patching but excluding rehabilitation or renewal. It is operating expenditure required to ensure that the asset reaches its expected useful life.

- **Planned maintenance**
  Repair work that is identified and managed through a maintenance management system (MMS). MMS activities include inspection, assessing the condition against failure/breakdown criteria/experience, prioritising scheduling, actioning the work and reporting what was done to develop a maintenance history and improve maintenance and service delivery performance.
- **Reactive maintenance**
  Unplanned repair work that is carried out in response to service requests and management/supervisory directions.
- **Significant 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 and renewal gap
Difference between estimated budgets and projected required expenditures for maintenance and renewal of assets to achieve/maintain specified service levels, totalled over a defined time (e.g. 5, 10 and 15 years).

Maintenance and renewal sustainability index

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

Maintenance expenditure

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

Net present value (NPV)
The value to the organisation 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 eg 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 to the Council, eg. parks and playgrounds, footpaths, roads and bridges, libraries, etc.

Operations expenditure
Recurrent expenditure, which is continuously required to provide a service. In common use the term typically includes, eg 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.

Pavement management system
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
A measure of average annual consumption of assets (AAAC) expressed as a percentage of the depreciable amount (AAAC/DA). Depreciation may be used for AAAC.

Rate of annual asset renewal
A measure of the rate at which assets are being renewed per annum expressed as a percentage of depreciable amount (capital renewal expenditure/DA).

Rate of annual asset upgrade
A measure of the rate at which assets are being upgraded and expanded per annum 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 renewal expenditure definition above.

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

Renewal
See capital renewal expenditure definition above.

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.

Revenue generating investments
Investments for the provision of goods and services to sustain or improve services to the community that are expected to generate some savings or revenue to offset operating costs, eg public halls and theatres, childcare centres, sporting and recreation facilities, tourist information centres, 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 is still available for use in providing services (Depreciated Replacement Cost/Depreciable Amount).

Strategic Longer-Term Plan
A plan covering the term of office of councillors (4 years minimum) reflecting the needs of the community for the foreseeable future. It brings together the detailed requirements in the council's longer-term plans such as the asset management plan and the long-term financial plan. The plan is prepared in consultation with the community and details where the council is at that point in time, where it wants to go, how it is going to get there, mechanisms for monitoring the achievement of the outcomes and how the plan will be resourced.

Specific Maintenance
Replacement of higher value components/sub-components of assets that is undertaken on a regular cycle including repainting, building roof replacement, cycle, replacement of air conditioning equipment, etc. This work generally falls below the capital/ maintenance threshold and needs to be identified in a specific maintenance budget allocation.

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 council.

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, 2009, Glossary