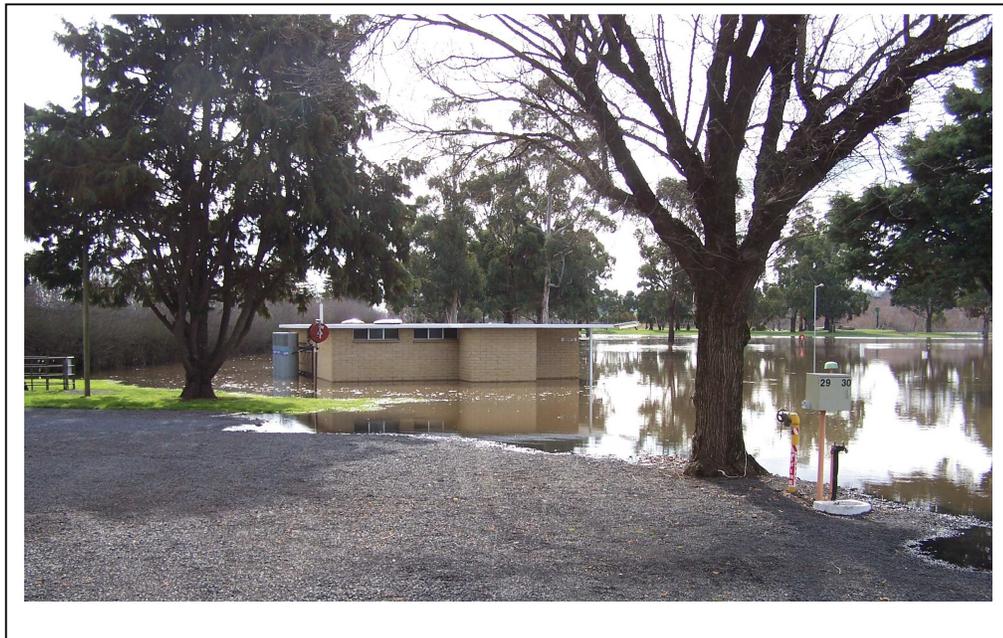




**NORTHERN
MIDLANDS
COUNCIL**

STORMWATER Asset Management Plan



Version 1b

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1. EXECUTIVE SUMMARY

Context

Northern Midlands Council provides a stormwater network within town areas to drain the majority of properties, roads reservations and public open spaces.

This stormwater asset management plan includes all stormwater related assets of pipes, council maintained open drains, manholes, stormwater entry pits and grates, pollutant traps, and detention storage facilities.

Bridges, kerb and channel, open drains, and rural roadside drainage are referenced in Council's Transport Asset Management Plan.

Council employs a Plumbing Inspector to oversee stormwater house connections. New stormwater works are predominantly undertaken by private subdividers. Council stormwater extensions are undertaken by the maintenance staff or by contractors.

Council is currently working on Stormwater Management Plans for each of its towns beginning with Perth, Cressy and Longford. In addition, detailed engineering studies are being undertaken on improvements to the Translink Industrial Precinct stormwater system, and the West Perth Stormwater System.

The Stormwater Service

The Stormwater network comprises:

- 90.842 kms total length of pipes (2,690 records) with value of \$28,880,912
- 2,661 Manholes, pits and grates with value of \$5,837,362.

These infrastructure assets have a total replacement value of \$34,045,073.

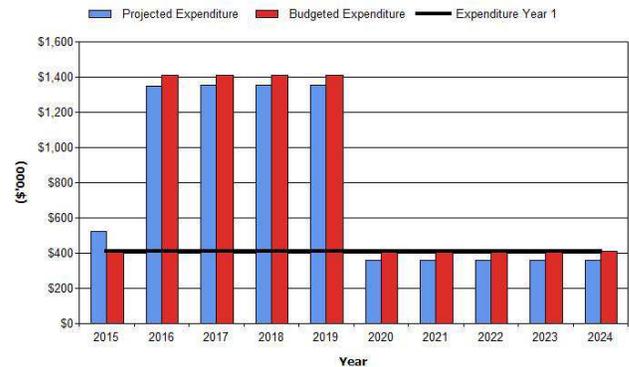
What does it Cost?

The projected outlays necessary to provide the services covered by this Asset Management Plan (AM Plan) includes operations, maintenance, renewal and upgrade of existing assets over the 10 year planning period is \$7.735m or \$773,000 on average per year.

Estimated available funding for this period is \$8.1m or \$810,000 on average per year which is 105% of the cost to provide the service. This is fully funding average expenditure per year (subject to grant funding or reserve funding of the Translink Stormwater Upgrade Plan). Projected expenditure required to

provide services in the AM Plan compared with planned expenditure currently included in the Long Term Financial Plan are shown in the graph below.

Northern Midlands - Projected and Budget Expenditure for (Stormwater_S1_V1)



What we will do

We plan to provide Stormwater services for the following:

- Operation, maintenance, renewal and upgrade of stormwater to meet service levels set by Council in annual budgets.
- Stormwater within the 10 year planning period.



What we cannot do

Works and services that cannot be provided under present funding levels possibly are:

- Major upgrades of stormwater systems at Translink Industrial Precinct and West Perth may need to be staged over several years without external funding sources being identified;
- Extension of the Longford Flood levee systems.

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:

- adequate maintenance of assets
- renewal at optimal time
- over-engineering/design
- emergency management.

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

- maintenance levels
- condition assessments at regular intervals
- qualified experienced staff.

Confidence Levels

This AM Plan is based on medium level of confidence of information.

The Next Steps

The actions resulting from this asset management plan are:

- Asset data collection/refining and modelling,
- Review risk analysis of stormwater network to better identify priority items,
- Capital works expenditure to be further refined/ investigated,
- Incorporate any relevant components as a result of the Urban Drainage Act 2013 noting a key requirement being the development of Stormwater System Management Plan for the urban area within 6 years which is to specify:
 - i) Plans for the management of any assets used for the delivery of a stormwater service
 - ii) The level of risk from flooding for each urban stormwater catchment
 - iii) Any other matters prescribed in the regulations or that the council considers appropriate.

Questions you may have

What is this plan about?

This asset management plan covers the infrastructure assets that serve the Northern Midlands Council community's stormwater needs. These assets include stormwater pipes and associated pits throughout the community that enable people to live without water inundation where possible.

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 stormwater network was constructed by developers and 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.

Our present funding levels are sufficient to continue to provide existing services at current levels in the medium term.

What options do we have?

Resolving any 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, renewing and replacing existing 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 stormwater 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.

What happens if we don't manage any shortfall?

It is likely that we will have to reduce service levels in some areas, unless new sources of revenue are found to fund any shortfall. For stormwater, the service level reduction may include open drains in urban areas, some flash flooding in heavy rain events.



What can we do?

We can develop options, costs and priorities for future stormwater 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.

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 over a 20 year planning period.

The asset management plan follows the format for AM Plans recommended in Section 4.2.6 of the International Infrastructure Management Manual¹.

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

- 'Mapping Our Direction' – 2007-2017 Strategic Plan Volumes 1 & 2
This document outlines Council's vision and guiding principles to meet strategic objectives.
- Annual / Financial Report
This outlines Council's activities and achievements for the financial year compared to its annual plan and strategic objectives, it also reports on the financial performance and position of Council.
- Annual Plan
A detailed plan of projects and financial commitments for each year.
- Asset Management Policy & Strategy
These documents outline Council's commitment to Asset Management.
- 10 Year Financial Plan
This plan details Council's planned financial operating results, financial position and cash flows for each of the next 10 years. It outlines all aspects the key financial strategy objectives, funding parameters and commitments.
- 10 Year Capital Works Plan
A detailed list of scheduled capital works projects for each year for the next 10 years.

This infrastructure assets covered by this asset management plan are shown in Table 2.1. These assets are used to provide stormwater services to the community.

Table 2.1: Assets covered by this Plan

Asset category	Dimension	Replacement Value
Drainage Mains	90.842 kms (2,690 recorded assets)	\$28,880,912
• Pits (including Gross Pollutant Traps, headwalls, grated pits, manholes and side entry pits)	2,661 recorded assets	\$5,837,362
TOTAL		\$34,045,073.

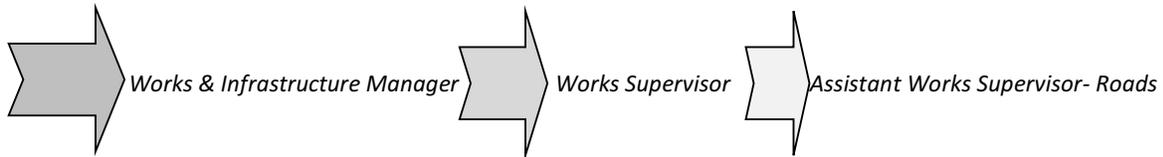
Key stakeholders in the preparation and implementation of this asset management plan are: Shown in Table 2.1.1.

¹ IPWEA, 2011, Sec 4.2.6, *Example of an Asset Management Plan Structure*, pp 4|24 – 27.

Table 2.1.1: Key Stakeholders in the AM Plan

Key Stakeholder	Role in Asset Management Plan
Councillors/Board Members	<ul style="list-style-type: none"> • Represent needs of community/shareholders, • Allocate resources to meet the organisation’s objectives in providing services while managing risks, • Ensure organisation is financial sustainable.
CEO/General Manager	<ul style="list-style-type: none"> • To maintain a proactive approach to customer requests and • To maintain asset management systems and procedures which can better inform decisions by Councillors
Community	<ul style="list-style-type: none"> • The business community and residents in general (reporting perceived shortcomings, damage, safety concerns etc) • Tourists and visitors to the area
Emergency Services	<ul style="list-style-type: none"> • Emergency services reporting concerns with the current infrastructure in relation to their needs
Governments	<ul style="list-style-type: none"> • Governments providing input with regard to overall infrastructure performance in conjunction with infrastructure under their jurisdiction
Utility Services	<ul style="list-style-type: none"> • Utility companies providing input with regard to access to their assets
Developers	<ul style="list-style-type: none"> ▪ Developers providing input with regard to their interests in future investment in the infrastructure
Neighbouring Councils	<ul style="list-style-type: none"> ▪ Neighbouring councils with maintaining a dialogue in regard to asset management practices, construction standards, resource sharing etc

Our organisational structure for service delivery from infrastructure assets is detailed below,



2.2 Goals and Objectives of Asset Management

The organisation exists to provide services to its community. Some of these services are provided by infrastructure assets. We have acquired infrastructure assets by ‘purchase’, by contract, construction by our staff and by donation of assets constructed by developers and others to meet increased levels of service.

Our goal in managing infrastructure assets is to meet the defined level of service (as amended from time to time) in the most cost effective manner for present and future consumers. 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, and
- Having a long-term financial plan which identifies required, affordable expenditure and how it will be financed.²

² Based on IPWEA, 2011, IIMM, Sec 1.2 p 1|7.

2.3 Plan Framework

Key elements of the plan are

- Levels of service – specifies the services and levels of service to be provided by the organisation,
- Future demand – how this will impact on future service delivery and how this is to be met,
- Life cycle management – how Council will 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,
- Monitoring – how the plan will be monitored to ensure it is meeting organisation’s objectives,
- Asset management improvement plan.

A road map for preparing an asset management plan is shown below.

2.4 Core and Advanced Asset Management

This asset management plan is prepared as a 'core' asset management plan over a 20 year planning period in accordance with the International Infrastructure Management Manual³. 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.

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

2.5 Community Consultation

In all cases, the asset functionality and asset maintenance targets need to be clearly defined with the community (users) and the asset service provider (Council) to determine the "line of best fit" having regard to practicality and economics. That is, a level of service provided within a reasonable duty of care in an affordable financially sustainable manner that considers community expectations in regard to safety and overall condition of the stormwater network.

Consultation with the community has been developed as a two-way process in order to encourage feedback and to assist with the corporate decision making process in determining future and strategic direction.

Council operates a Local District Committee Structure for the towns and villages of Ross, Campbell Town, Avoca/Royal George, Perth, Cressy, Longford and Evandale that is designed to measure and compare community satisfaction with Council and its services and provides data to ensure continuous improvement. These forums provide Council advice of a wide range of issues in their area.

In addition the Council's Customer Request System is tracked to determine the level of dissatisfaction with Council's local stormwater systems.

Council uses this information in developing the Strategic Management Plan and in allocation of resources in the annual budget.

3. LEVELS OF SERVICE

3.1 Customer Research and Expectations

Council engineers and technical officers have traditionally worked to the provision of a level of service that is assumed to be the community's expectation.

During any future consultation process Council will test this assumption to make sure that it is correct or amend it accordingly. The assumptions are that the stormwater network will provide for:

- Adequate drainage for roads and streets,
- Drainage for public open spaces to ensure the safety of the public and allow use of these areas at all times of year
- Adequate drainage for properties and businesses;
- Acceptable water quality at point of discharge;
- The use of Water Sensitive Urban Design Principles including re-use of stormwater and reducing the amount of stormwater discharged to the stormwater system.

In the future consideration could be given to formally research customer expectations with respect to stormwater drainage assets. This may be investigated for future updates of the asset management plan.

³ IPWEA, 2011, IIMM.

3.2 Strategic and Corporate Goals

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

Council’s vision is:

Northern Midlands communities will be vibrant, sustainable and resilient, promoting their diversity and conserving the heritage values of our towns. Our competitive strengths will attract more people to the municipality, increase employment, business activity and property values. Our community pride will be based on co-operation and self help, evident by our leadership in environmental management. Each community’s needs will be met with fair and appropriate quality services, creating high community satisfaction with Council’s performance and high employee morale and well-being.

Council’s mission is:

Northern Midlands is committed to providing effective, innovative and efficient service to the community it represents. It aims to encourage active local communities of distinct character and to foster a sense of pride in the Northern Midlands area.

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

Table 1.2: Council Goals and how these are addressed in this Plan

Goal	Objective	How Goal and Objectives are addressed in the Asset Management Plan (AMP)
Improved governance and accountability	To demonstrate to owners, customers and stakeholders that services are being managed sustainably and delivered effectively and efficiently	This will be addressed with the successful completion and adoption of this AMP by Council
Enhanced service management and customer satisfaction	To identify current service levels and target levels to work towards	This will be an ongoing task to be monitored and reviewed with future revisions of this AMP
Improved risk management	To identify and address all known significant risks to Stormwater assets	The Risk Management Plan will document a structured approach to the identification and management of significant risks
Improved financial efficiency	To model and identify financial efficiencies within the asset category	This will be an ongoing task to be monitored and reviewed with future revisions of this AMP
Sustainability	Improved decision making	To consider all viable options (including demand management) and all aspects of decisions

The organisation will exercise its duty of care to ensure public safety is accordance with the infrastructure risk management plan prepared in conjunction with this AM Plan. Management of infrastructure risks is covered in Section 5.2

3.3 Legislative Requirements

The organisation has to meet many legislative requirements including Australian and State legislation and State regulations. These include:

Table 3.3: Legislative Requirements

Legislation	Requirement
Local Government 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.
Sewers and Drains Act 1954	An Act to make better provision for schemes and systems of drainage.
Local Government (Highways) Act and Regulations	An Act concerning the functions with respect to highways and certain other ways and places open to the public
Occupational Health, Safety and Welfare Act & Regulations	Setting out minimum requirements in regard to the safety and wellbeing of workers and the public in and around infrastructure work sites
Work, Health and Safety Act 2012	Sets out requirements in regards to the safety and wellbeing of workers and the public in and around work sites.
Road and Jetties Act (1935)	An Act to consolidate and amend certain enactments relating to roads and jetties and to make provision for the establishment and maintenance of aerodromes.

The organisation will exercise its duty of care to ensure public safety in accordance with the infrastructure risk management plan linked to this AM Plan. Management of risks is discussed in Section 5.2.

3.4 Levels of Service

Service levels are defined service levels in two terms, customer levels of service and technical levels of service.

Community Levels of Service measure how the community receives the service and whether the organisation is providing community value.

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/Responsiveness	Is the service over or under used?

The organisation's current and expected community service levels are detailed in Tables 3.4 and 3.5. Table 3.4 shows the agreed expected community levels of service based on resource levels in the current long-term financial plan and community consultation/engagement.

Table 3.4: Community Level of Service

Key Performance Measure	Level of Service	Performance Measure Process	Performance Target	Current Performance
COMMUNITY LEVELS OF SERVICE				
Quality	Provide stormwater drainage system that meets community expectations by adequate collection and disposal	Number of customer service requests / complaints	<1 per month	No. of reported incidents ??
Function	Drainage point for all properties in town areas	No of properties where there is no stormwater discharge point	1 in 500 properties have to pump stormwater from property	Nil properties not meeting standard
Safety	Minimise flooding of roads and properties and ponding of stormwater for long periods	Inspections during rainfall events – number of reports of inconvenience claims, health or ponding.	<5 per annum	No. of requests ?? pa
Responsiveness	Council's response to various community raised issues ranging from calls about problems, handling correspondence and service applications	(a) Provision of a 24 hour, 7 day per week call-out service to attend to issues (b) Percentage of issues responded to in set timeframes	100% of time 95% of time	
TECHNICAL LEVELS OF SERVICE				
Condition	Undertake inspections, routine maintenance tasks and repairs in a timely manner	Frequency of inspections, maintenance or repairs	Inspect every 24 months and repair within 3 months. Monthly cleaning of pits during autumn.	Not programmed
Accessibility	Ensure adequate stormwater drainage services are available within declared drainage districts	Number of reported property / road inundation events within serviced area following rain greater than 1in10 year event and discharge options exist	Flooding no more than one time in average 10 year period unless an upgrade or improvement program exists and a connection point or discharge option can be devised	Not currently measured
Cost Effectiveness	Provide services in a cost effective manner	Benchmarking against other councils or contractors	Validate cost of council compared to contractor undertaking works or cost to maintain system is < or = to that of other municipalities	On a case by case basis. No current benchmarking against other Councils.
Safety	Ensure stormwater infrastructure poses low risk to community and provides physical barriers or signage to identify and protect from hazards. Grates and covers are installed on stormwater entry pits.	Number of injury / damage claims, defect and condition survey results and site specific risk assessments	Less than 1 claim for compensation per 10 km of network and any high risks identified are addresses within 3 months	No currently measured

3.5 Technical Levels of Service

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 organisation undertakes to best achieve the desired community outcomes and demonstrate effective organisational performance.

Service and asset managers plan, implement and control technical service levels to influence the customer service levels.⁴

Table 3.5 shows the technical level of service expected to be provided under this AM Plan. The agreed sustainable position in the table documents the position agreed by the Council/Board following community consultation and trade-off of service levels performance, costs and risk within resources available in the long-term financial plan.

Table 3.5: Technical Levels of Service

Key Performance Measure	Level of Service	Performance Measure Process	Performance Target	Current Performance
TECHNICAL LEVELS OF SERVICE				
Condition	Undertake inspections, routine maintenance tasks and repairs in a timely manner	Frequency of inspections, maintenance or repairs	Inspect every 24 months and repair within 3 months. Monthly cleaning of pits during autumn.	Not programmed
Accessibility	Ensure adequate stormwater drainage services are available within declared drainage districts	Number of reported property / road inundation events within serviced area following rain greater than 1in10 year event and discharge options exist	Flooding no more than one time in average 10 year period unless an upgrade or improvement program exists and a connection point or discharge option can be devised	Not currently measured
Cost Effectiveness	Provide services in a cost effective manner	Benchmarking against other councils or contractors	Validate cost of council compared to contractor undertaking works or cost to maintain system is < or = to that of other municipalities	On a case by case basis. No current benchmarking against other Councils.
Safety	Ensure stormwater infrastructure poses low risk to community and provides physical barriers or signage to identify and protect from hazards. Grates and covers are installed on stormwater entry pits.	Number of injury / damage claims, defect and condition survey results and site specific risk assessments	Less than 1 claim for compensation per 10 km of network and any high risks identified are addresses within 3 months	No currently measured

⁴ IPWEA, 2011, IIMM, p 2.22

4. FUTURE DEMAND

4.1 Demand Drivers

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

4.2 Demand Forecast

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

4.3 Demand Impact on Assets

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

Table 4.3: Demand Drivers, Projections and Impact on Services

Demand factor	Present position	Projection	Impact on services
Population	12,775 as at 31/12/2015		Increase in population require an extension of the stormwater system to drain new properties and businesses
Demographics	Median age of 40 as at June 2011	Continued increase in median age	Increased median age may lead to more unit developments which will increase pressure on the existing system
Climate Change	Can be hotter, wetter, and windier.	May increase seasonal extremes in rainfall, temperature, winds and pressure systems	What was once a 1 in 20 year system may be 1 in 10 year system. May require review of service levels and capital upgrades.
Density	Smaller land sizes	Likely to increase number of multiple tenancies, gated communities for retirees	Consider impact and possible overloading of stormwater assets
Planning Scheme	Revised Development Plans	Changes to zoning to facilitate new domestic subdivisions	Implications on existing infrastructure, consider need to redirect, detain, reuse, upgrade – or limit development
Water Quality	Limit structures to make improvements to public environmental awareness	Greater demand on treating stormwater runoff to higher standards	Increase in cost to install, maintain and replace a stormwater system that reduces pollution
Defective Plumbing connections to sewer	Number of occurrences where stormwater enters into the sewer system	Ben Lomond Water to require rectification	May increase costs and require extensions for collection of stormwater from previously unserved areas.

4.4 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.

Non-asset solutions focus on providing the required service without the need for the organisation to own the assets and management actions including reducing demand for the service, reducing the level of service (allowing some assets to deteriorate beyond current service levels) or educating customers to accept appropriate asset failures⁵.

⁵ IPWEA, 2011, IIMM, Table 3.4.1, p 3 |58.

Examples of non-asset solutions include providing services from existing infrastructure such as aquatic centres and libraries that may be in another community area or public toilets provided in commercial premises.

Opportunities identified to date for demand management are shown in Table 4.4. Further opportunities will be developed in future revisions of this asset management plan.

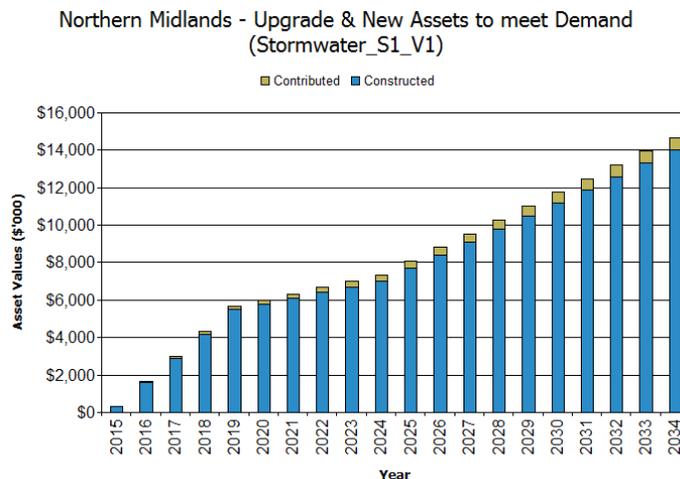
Table 4.4: Demand Management Plan Summary

Service Activity	Demand Management Plan
Development controls	<p>Require land developers to assess the impact of their developments on the capacity of existing infrastructure and to upgrade it if required.</p> <p>Consider implementation of developer contribution for upgrade of existing council infrastructure to cope with increased inflow of proposed development (eg \$ per new lot created). Also known as a "headworks charge".</p> <p>Consider measures to encourage greater level of on-site retention of stormwater (eg use of permeable paving, on-site retention systems etc).</p> <p>Consider greater restriction on developable land with respect to stormwater drainage issues.</p>
Infrastructure design	<p>Consider increasing the design standard of new / upgraded stormwater infrastructure</p> <p>Have to consider new/old infrastructure interface. e.g Investigate new construction techniques/materials such as open, permanent channels/swales in place of underground piping.</p> <p>Increase use of sediment/pollutant traps.</p>
Renewal / Upgrade programming	<p>Audit current system capacity to identify weaknesses in network.</p> <p>Continue to investigate alternative renewal treatments to lower lifecycle costs (eg pipe relining).</p>

4.5 Asset Programs to meet Demand

The new assets required to meet growth will be acquired free of cost from land developments and constructed/acquired by the organisation. New assets constructed/acquired by the organisation are discussed in Section 5.5. The cumulative value of new contributed and constructed asset values are summarised in Figure 1.

Figure 1: Upgrade and New Assets to meet Demand



Acquiring these new assets will commit the organisation to fund 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. *Projected expenditure after 10 years is based on average projected expenditure for the first 10 year period in the model.*

5. LIFECYCLE MANAGEMENT PLAN

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

5.1 Background Data

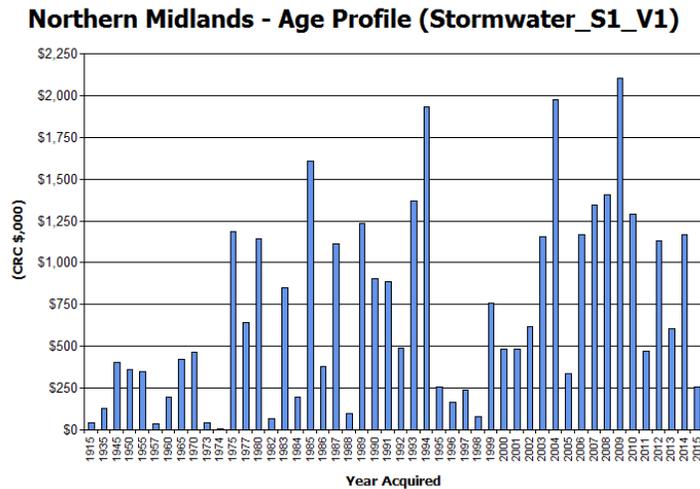
5.1.1 Physical parameters

The assets covered by this asset management plan are shown below (also refer Table 2.1).

- Mains 90.842 kms (2,690 individual assets)
- Pits, manholes etc 2,661 units

The age profile of the assets include in this AM Plan is shown in Figure 2.

Figure 2: Asset Age Profile



The data for age profile is sourced from Council’s asset register. While ages of assets acquired prior to 1993 are largely based on estimates - this is considered to be accurate enough given the long lifecycle of stormwater assets.

5.1.2 Asset capacity and performance

The organisation’s services are generally provided to meet design standards where these are available.

Locations where deficiencies in service performance are known are detailed in Table 5.1.2.

Table 5.1.2: Known Service Performance Deficiencies

Location	Service Deficiency
Drummond Street, Perth	An open drain maintained by State Growth runs along the southern side of Drummond Street. Due to the flat nature of the land in the Drummond Street area it is not possible to drain surface water from some properties to the stormwater system and localised flooding occurs in the yards of these properties.
West Perth	Refer West Perth Drainage Study
Translink Precinct	Refer Translink Stormwater Improvement Study

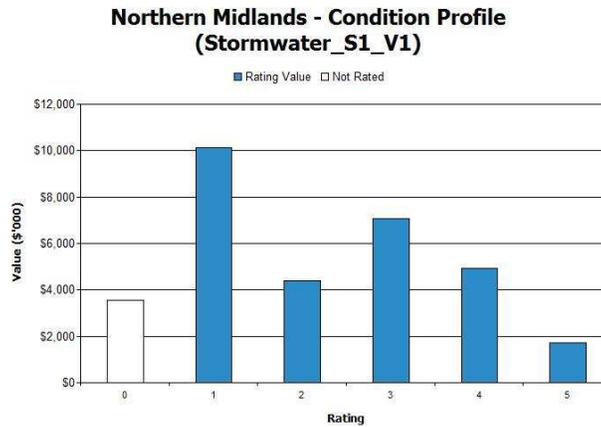
The above service deficiencies were identified from customer requests and inspections carried out by Council officers during rainfall events.

5.1.3 Asset condition

Council had not undertaken an asset condition of its underground stormwater infrastructure, although given the relative newness of the systems in their lifecycle it is expected condition rating will general be rates as 3 or better. For this reason the assets remaining life (useful life minus age) has been used as the most appropriate basis on which to model future renewals expenditure. It should be noted that, whilst this approach provides robust results for the network as a whole, it is less than ideal when considering any particular individual asset.

The condition profile of our assets is shown in Figure 3.

Fig 3: Asset Condition Profile



Condition is measured using a 1 – 5 grading system⁶ as detailed in Table 5.1.3.

Table 5.1.3: Simple Condition Grading Model

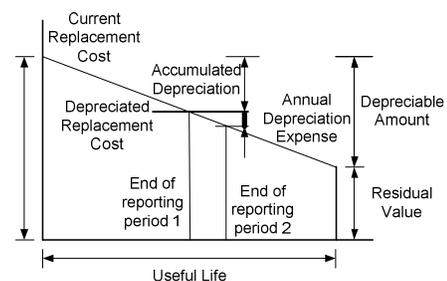
Condition Grading	Description of Condition
1	Very Good: only planned maintenance required
2	Good: minor maintenance required plus planned maintenance
3	Fair: significant maintenance required
4	Poor: significant renewal/rehabilitation required
5	Very Poor: physically unsound and/or beyond rehabilitation

5.1.4 Asset valuations

The value of assets recorded in the asset register as at 1 July 2015 covered by this asset management plan is shown below. Assets were last revalued at 1 July 2015. Assets are valued at fair value to replace service capacity.

Replacement Cost	\$34,045,073
Depreciable Amount	\$25,593,208
Depreciated Replacement Cost ⁷	\$25,593,208
Annual Depreciation Expense	\$403,693

Useful lives were reviewed in June 2013 by Pitt & Sherry (consultants).



⁶ IPWEA, 2011, IIMM, Sec 2.5.4, p 2|79.

⁷ Also reported as Written Down Current Replacement Cost (WDCRC).

Key assumptions made in preparing the valuations were:

- Depth of stormwater mains, and
- Age of stormwater mains.

There were no major changes from previous valuations.

Various ratios of asset consumption and expenditure have been prepared to help guide and gauge asset management performance and trends over time.

Rate of Annual Asset Consumption (Depreciation/Depreciable Amount)	1.6%
Rate of Annual Asset Renewal (Capital renewal exp/Depreciable amount)	0.20%

In 2015/16 the organisation plans to renew assets at 14.6% of the rate they are being consumed and will be increasing its asset stock by 1.3% in the year.

5.1.5 Historical Data

Council has made substantial improvement to urban stormwater systems over recent years and the expenditure breakdown for the last 5 year period is detailed in Table 5.1.5.

Table 5.1.5: Stormwater Asset Capital Expenditure History

Year	New Assets	Replacement Value
2010/11	\$70,082	\$404,161
2011/12	\$146,450	\$86,161
2012/13	\$257,278	\$77,681
2013/14	\$299,248	\$nil
2014/15	\$584,563	\$nil
TOTAL	\$1,357,621	\$568,003

5.2 Infrastructure Risk Management Plan

An assessment of risks⁸ 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' to the organisation. 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 'Very High' - requiring immediate corrective action and 'High' – requiring prioritised corrective action identified in the Infrastructure Risk Management Plan, together with the estimated residual risk after the selected treatment plan is operational are summarised in Table 5.2. These risks are reported to management and Council.

Table 5.2: Critical Risks and Treatment Plans

Asset at Risk	What can Happen	Risk Rating (VH, H)	Risk Treatment Plan
Property flooding	Significant property damage/ minor injury	VH	Replace aged or damaged infrastructure Regular inspections of pits and grates to prevent blockages.

			Assesment of all new developments to ensure that the capacity of the system is sufficient.
Road flooding	Traffic delays, vehicular accident	H	Replace aged or damaged infrastructure Regular inspections of pits and grates to prevent blockages. Assesment of all new developments to ensure that the capacity of the system is sufficient.
Flooding or ponding in public open space	Minor injuries (e.g. slips trips or falls)	H	Regular inspection of pits and grates to remove blockages. Inspections during and after rainfall events
Discharge of pollutants into river system	Risk to downstream of river Damage to marine life and river eco-systems	H	Installation of gross pollutant traps if required Encourage implementation of water sensitive urban design principles Impose planning conditions on potential polluters to control pollutants at source with interceptor traps or other control methods
Road failure due to failure of stormwater system	Pavement failure / defects	H	Regular inspections Replacement of aged or damage infrastructure
Property (private and council)	Flooding due to restriction, capacity shortfall or excessive flow	Medium	Timely clearing of restrictions, sandbags, owner awareness, system upgrades
Roads (due to stormwater system failure or excessive water)	Isolation, aquaplaning, damage to roads, person or property	Medium	This is a regular occurrence in some communities and learned to be lived with. Road users to be responsible for their own actions regarding driving conditions and circumstances. Council to consider system upgrades, installation of signage, repairs etc.
Persons	Health issues due to stormwater in sewerage system causing sewer overflows, injury or drowning	Medium	Flooding generally poses no greater risk to community than normal function of creeks, drains, rivers etc. Responsible adults are expected to appropriately educate and manage children's exposure and decision making in relation to risks and their own behaviour.

Note * The residual risk is the risk remaining after the selected risk treatment plan is operational.

5.3 Routine Operations and Maintenance Plan

Operations include regular activities to provide services such as public health, safety and amenity, eg cleansing, 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.

5.3.1 Operations and Maintenance Plan

Maintenance includes reactive, planned and cyclic 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.

Cyclic maintenance is replacement of higher value components/sub-components of assets that is undertaken on a regular cycle including repainting, building roof replacement, etc. This work generally falls below the capital/maintenance threshold.

Actual past maintenance expenditure is shown in Table 5.3.1.

Table 5.3.1: Maintenance Expenditure Trends

Year	Maintenance Expenditure	
	Planned and Specific	Unplanned
2011/12	\$60,953	Not separated
2012/13	\$88,620	Not separated
2013/14	\$109,643	Not separated
2014/15	\$85,174	Not separated

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 AM Plan and service risks considered in the Infrastructure Risk Management Plan.

Assessment and prioritisation of reactive maintenance is undertaken by Council staff using experience and judgement.

5.3.2 Operations and Maintenance Strategies

The organisation 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 operations 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/Board,
- Review current and required skills base and implement workforce training and development to meet required operations and maintenance needs,
- Review asset utilisation to identify underutilised assets and appropriate remedies, and over utilised 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 Council is obtaining best value for resources used.

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, organisations can target and refine investigative activities, maintenance plans and capital expenditure plans 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 Table 5.3.2.1.

Table 5.3.2.1: Critical Assets and Service Level Objectives

Critical Assets	Critical Failure Mode	Operations & Maintenance Activities
Mains	Not yet identified	
Pits	Not yet identified	

Standards and specifications

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

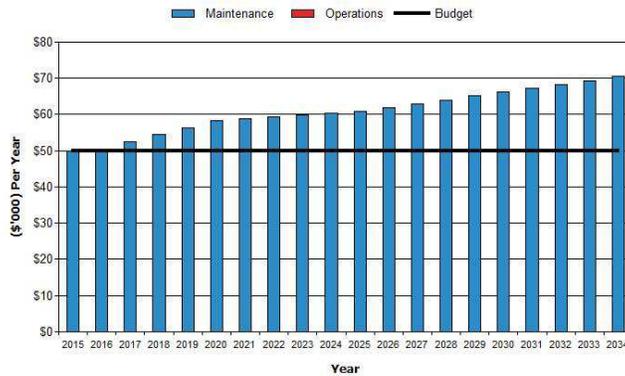
- Municipal Standards
- Municipal Specifications
- Subdivison guidelines
- Plumbing Codes (AS 3500 etc.)
- IPWEA Municipal Standards and Specification

5.3.3 Summary of future operations and maintenance expenditures

Future operations and maintenance expenditure is forecast to trend in line with the value of the asset stock as shown in Figure 4. Note that all costs are shown in current 2015 dollar values (ie real values).

Figure 4: Projected Operations and Maintenance Expenditure

Northern Midlands - Projected Operations & Maintenance Expenditure (Stormwater_S1_V1)



Deferred maintenance, ie 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 6.2.

5.4 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 or lesser required service potential. Work over and above restoring an asset to original service potential is upgrade/expansion or new works expenditure.

5.4.1 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.

The useful lives of assets used to develop projected asset renewal expenditures are shown in Table 5.4.1. Asset useful lives were last reviewed on 1 July 2013.⁹

Table 5.4.1: Useful Lives of Assets

Asset (Sub)Category	Useful life
Mains	100 Years
Pits	80 Years

5.4.2 Renewal and Replacement Strategies

The organisation 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 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 evaluation criteria adopted by the organisation, and
 - 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/Board,
- 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 Council is obtaining best value for resources used.

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 (eg replacing a bridge that has a 5 t load limit), or
- To ensure the infrastructure is of sufficient quality to meet the service requirements (eg roughness of a road).¹⁰

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 a high utilisation and subsequent impact on users would be greatest,
- The total value represents the greatest net value to the organisation,
- Have the highest average age relative to their expected lives,
- Are identified in the AM Plan as key cost factors,
- Have high operational or maintenance costs, and
- Where replacement with modern equivalent assets would yield material savings.¹¹

The ranking criteria used to determine priority of identified renewal and replacement proposals is detailed in Table 5.4.2.

Table 5.4.2: Renewal and Replacement Priority Ranking Criteria

Criteria	Weighting	Ranking
Risk/Safety Risk priority is assessed in accordance with Council's Infrastructure Risk Management process which is based on probability and consequence of failure	25%	0 - 4
Technical Technical priority is assessed based on the project's ability to improve stormwater drainage capacity	20%	0 - 5
Corporate Corporate priority is linked to whether the projects are commitments through a Council resolution or included in Council policy and strategic plan.	20%	0 - 3
Social Community Impact Priority based on amount of community benefit through project completion	15%	0 - 3
Environment Environmental impact is assessed based on the significant of the surrounding environment.	20%	0 - 3
Total	100%	

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 cost less than replacement cost.

Examples of low cost renewal include directional drilling, which avoids the additional costs associated with excavation in sensitive areas such as roads or private properties.

Renewal and replacement standards

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

- Sewers and Drains act 1954
- Local Government Highways Act
- Northern Midlands Council Standard Drawings
- State Growth standards and specifications
- Traffic Control AS1742.3 – Manual of uniform Traffic Control Devices. Part 3 Traffic Control Devices for Works on Roads

5.4.3 Summary of future renewal and replacement expenditure

¹⁰ IPWEA, 2011, IIMM, Sec 3.4.4, p 3|60.

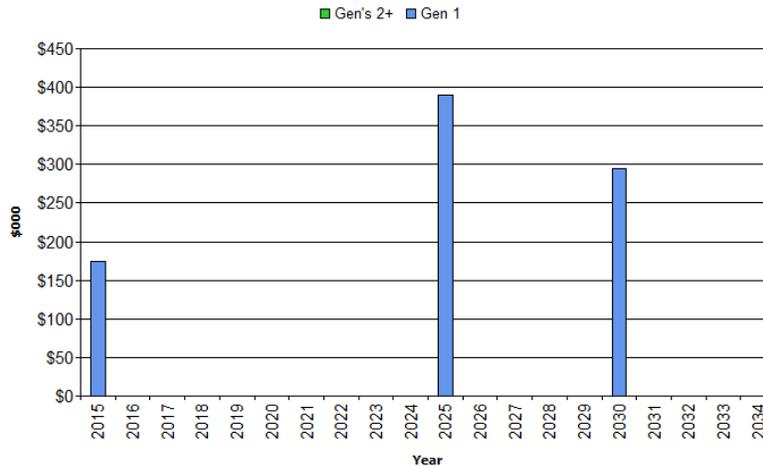
¹¹ Based on IPWEA, 2011, IIMM, Sec 3.4.5, p 3|66.

Projected future renewal and replacement expenditures are forecast to increase over time as the asset stock increases from growth. The expenditure is summarised in Fig 5. Note that all amounts are shown in real values.

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

Fig 5: Projected Capital Renewal and Replacement Expenditure

Northern Midlands - Projected Capital Renewal Expenditure (Stormwater_S1_V1)



Deferred renewal and replacement, ie 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 organisation's capital works program will be accommodated in the long term financial plan. This is further discussed in Section 6.2.

5.5 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 organisation from land development. These assets from growth are considered in Section 4.4.

5.5.1 Selection criteria

New assets and upgrade/expansion of existing assets are identified from various sources such as councillor/director or community requests, proposals identified by strategic plans or partnerships with other organisations. 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. The priority ranking criteria is detailed Table 5.4.2.

5.5.2 Capital Investment Strategies

The organisation will plan capital upgrade and new projects to meet level of service objectives by:

- 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,

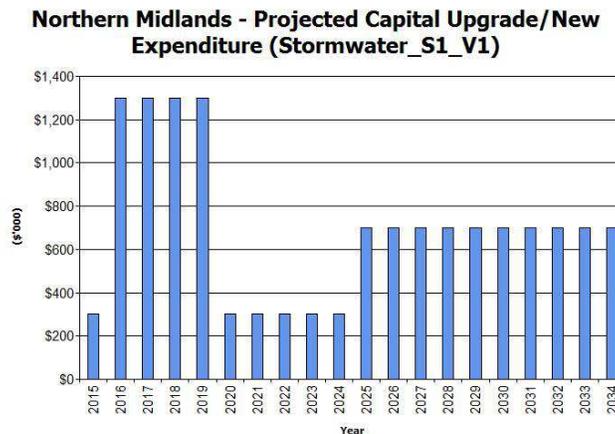
- the project objectives to rectify the deficiency including value management for major projects,
- the range of options, estimated capital and life cycle costs for each options that could address the service deficiency,
- management of risks associated with alternative options,
- and evaluate the options against evaluation criteria adopted by Council, and
- 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 5.4.2.

5.5.3 Summary of future upgrade/new assets expenditure

Projected upgrade/new asset expenditures are summarised in Fig 6. The projected upgrade/new capital works program is shown in Appendix C. All amounts are shown in real values.

Fig 6: Projected Capital Upgrade/New Asset Expenditure



Expenditure on new assets and services in the organisation’s capital works program will be accommodated in the long term financial plan. This is further discussed in Section 6.2.

5.6 Disposal Plan

Disposal includes any activity associated with disposal of a decommissioned asset including sale, demolition or relocation. Assets identified for possible decommissioning and disposal are shown in Table 5.6, 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 revenue gained from asset disposals is accommodated in Council’s long term financial plan.

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

Table 5.6: Assets Identified for Disposal

Asset	Reason for Disposal	Timing	Disposal Expenditure	Operations & Maintenance Annual Savings

Pipes & pits	Redundancy due to duplication	As needed	Nil revenue	Nil savings
Pipes & pits	Redundancy due to incorrect location or depth	As needed	Nil revenue	Nil savings
Pipes & pits	Redundancy due to upgrades (eg. new kerb and channel in a street)	As needed	Nil revenue	Nil savings
Pipes & pits	Redundancy due to capacity shortfall	As needed	Nil revenue	Nil savings

5.7 Service Consequences and Risks

The organisation has prioritised decisions made in adopting this AM Plan to obtain the optimum benefits from its available resources. Decisions were made based on the development of 3 scenarios of AM Plans.

Scenario 1 - What we would like to do based on asset register data

Scenario 2 – What we should do with existing budgets and identifying level of service and risk consequences (ie what are the operations and maintenance and capital projects we are unable to do, what is the service and risk consequences associated with this position). This may require several versions of the AM Plan.

Scenario 3 – What we can do and be financially sustainable with AM Plans matching long-term financial plans.

The development of scenario 1 and scenario 2 AM Plans provides the tools for discussion with the Council/Board and community on trade-offs between what we would like to do (scenario 1) and what we should be doing with existing budgets (scenario 2) by balancing changes in services and service levels with affordability and acceptance of the service and risk consequences of the trade-off position (scenario 3).

5.7.1 What we cannot do

There are some operations and maintenance activities and capital projects that are unable to be undertaken within the next 10 years. These include:

- Project not yet identified
- Project not yet identified.

5.7.2 Service consequences

Operations and maintenance activities and capital projects that cannot be undertaken will maintain or create service consequences for users. These include:

- Not yet identified
- Not yet identified

5.7.3 Risk consequences

The operations and maintenance activities and capital projects that cannot be undertaken may maintain or create risk consequences for the organisation. These include:

- Not yet identified
- Not yet identified

These risks have been included with the Infrastructure Risk Management Plan summarised in Section 5.2 and risk management plans actions and expenditures included within projected expenditures.

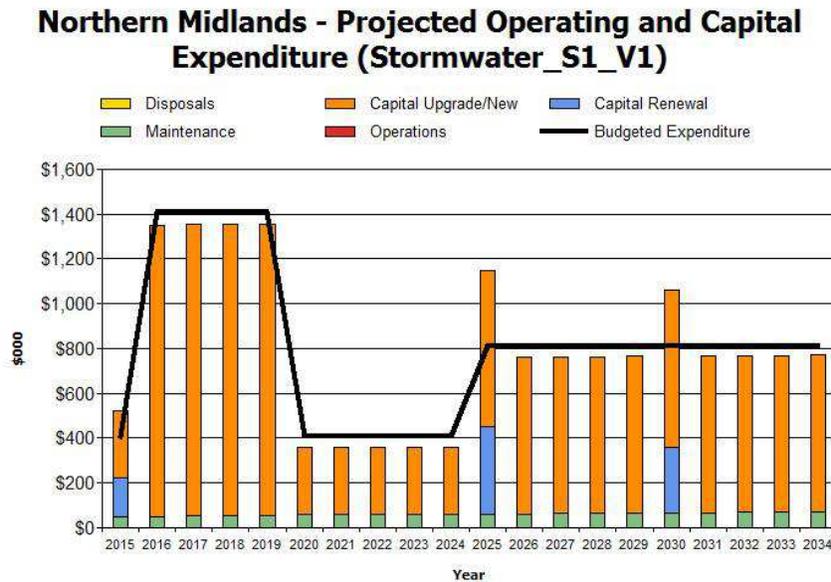
6. FINANCIAL SUMMARY

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.

6.1 Financial Statements and Projections

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

Fig 7: Projected Operating and Capital Expenditure



6.1.1 Sustainability of service delivery

There are four key indicators for service delivery sustainability that have been considered in the analysis of the services provided by this asset category, these being the asset renewal funding ratio, long term life cycle costs/expenditures and medium term projected/budgeted expenditures over 5 and 10 years of the planning period.

Asset Renewal Funding Ratio

Asset Renewal Funding Ratio¹² 291%

The Asset Renewal Funding Ratio is the most important indicator and reveals that over the next 10 years, Council is forecasting that it will have all of the funds required for the optimal renewal and replacement of its assets.

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 asset life cycle. Life cycle costs include operations and maintenance expenditure and asset consumption (depreciation

¹² AIFMG, 2012, Version 1.3, Financial Sustainability Indicator 4, Sec 2.6, p 2.16

expense). The life cycle cost for the services covered in this asset management plan is \$467,000 per year (average operations and maintenance expenditure plus depreciation expense projected over 10 years).

Life cycle costs can be compared to life cycle expenditure to give an initial indicator of affordability of projected service levels when considered with age profiles. Life cycle expenditure includes operations, maintenance and capital renewal expenditure. Life cycle expenditure will vary depending on the timing of asset renewals. The life cycle expenditure over the 10 year planning period is \$110,000 per year (average operations and maintenance plus capital renewal budgeted expenditure in LTFP over 10 years).

A shortfall between life cycle cost and life cycle expenditure is the life cycle gap. The life cycle gap for services covered by this asset management plan is negative (surplus) \$357,000 per year (-ve = gap, +ve = surplus).

Life cycle expenditure is 24% of life cycle costs.

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.

The projected operations, maintenance and capital renewal expenditure required over the 10 year planning period is \$73,000 on average per year.

Estimated (budget) operations, maintenance and capital renewal funding is \$110,000 on average per year giving a 10 year funding surplus of \$37,000 per year. This indicates that Council expects to have 150% of the projected expenditures needed to provide the services documented in the asset management plan.

Medium Term – 5 year financial planning period

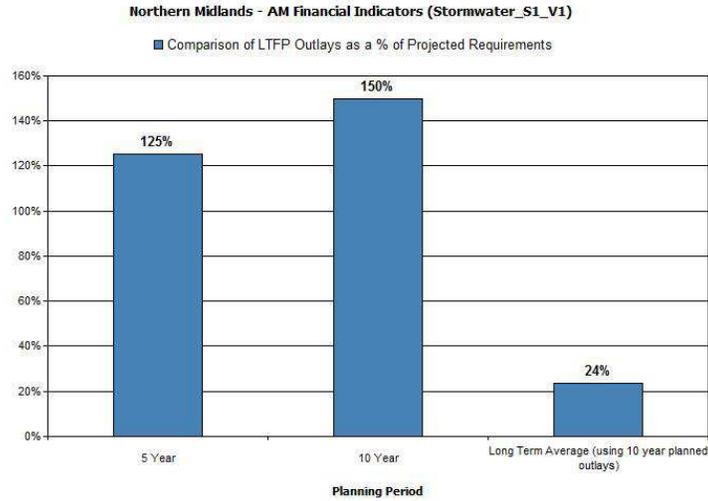
The projected operations, maintenance and capital renewal expenditure required over the first 5 years of the planning period is \$88,000 on average per year.

Estimated (budget) operations, maintenance and capital renewal funding is \$110,000 on average per year giving a 5 year funding surplus of \$22,000. This indicates that Council expects to have 125% of projected expenditures required to provide the services shown in this asset management plan.

Asset management financial indicators

Figure 7A shows the asset management financial indicators over the 10 year planning period and for the long term life cycle.

Figure 7A: Asset Management Financial Indicators



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

Figure 8 shows the projected asset renewal and replacement expenditure over the 20 years of the AM Plan. The projected asset renewal and replacement expenditure is compared to renewal and replacement expenditure in the capital works program, which is accommodated in the long term financial plan

Figure 8: Projected and LTFP Budgeted Renewal Expenditure

Northern Midlands - Projected & LTFP Budgeted Renewal Expenditure (Stormwater_S1_V1)

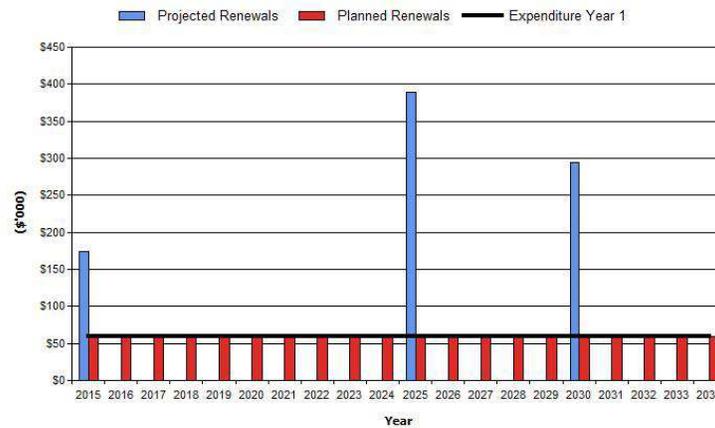


Table 6.1.1 shows the shortfall between projected renewal and replacement expenditures and expenditure accommodated in long term financial plan. Budget expenditures accommodated in the long term financial plan or extrapolated from current budgets are shown in Appendix D.

Table 6.1.1: Projected and LTFP Budgeted Renewals and Financing Shortfall

Year	Projected Renewals (\$000)	LTFP Renewal Budget (\$000)	Renewal Financing Shortfall (\$000) (-ve Gap, +ve Surplus)	Cumulative Shortfall (\$000) (-ve Gap, +ve Surplus)
2015	\$175	\$60	-\$115	-\$115
2016	\$0	\$60	\$60	-\$55
2017	\$0	\$60	\$60	\$5
2018	\$0	\$60	\$60	\$65
2019	\$0	\$60	\$60	\$125
2020	\$0	\$60	\$60	\$185
2021	\$0	\$60	\$60	\$245
2022	\$0	\$60	\$60	\$305
2023	\$0	\$60	\$60	\$365
2024	\$0	\$60	\$60	\$425
2025	\$390	\$60	-\$330	\$96
2026	\$0	\$60	\$60	\$156
2027	\$0	\$60	\$60	\$216
2028	\$0	\$60	\$60	\$276
2029	\$0	\$60	\$60	\$336
2030	\$294	\$60	-\$234	\$102
2031	\$0	\$60	\$60	\$162
2032	\$0	\$60	\$60	\$222
2033	\$0	\$60	\$60	\$282
2034	\$0	\$60	\$60	\$342

Note: A negative shortfall indicates a financing gap, a positive shortfall indicates a surplus for that year.

Providing services in a sustainable manner will require matching of projected asset renewal and replacement expenditure to meet agreed service levels with **the corresponding** capital works program accommodated in the long term financial plan.

A gap between **projected asset renewal/replacement expenditure and amounts accommodated in the LTFP** indicates that **further work is required on reviewing service levels in the AM Plan (including possibly revising the LTFP)** before finalising the asset management plan to manage required service levels and funding to **eliminate any funding gap**.

We will manage any 'gap' by developing this asset management plan to provide guidance on future service levels and resources required to provide these services, and review future services, service levels and costs with the community.

6.1.2 Projected expenditures for long term financial plan

Table 6.1.2 shows the projected expenditures for the 10 year long term financial plan.

Expenditure projections are in 2015 real values.

Table 6.1.2: Projected Expenditures for Long Term Financial Plan (\$000)

Year	Operations (\$000)	Maintenance (\$000)	Projected Capital Renewal (\$000)	Capital Upgrade/ New (\$000)	Disposals (\$000)
2015	\$0	\$50	\$175	\$300	\$0
2016	\$0	\$50	\$0	\$1,300	\$0
2017	\$0	\$52	\$0	\$1,300	\$0
2018	\$0	\$54	\$0	\$1,300	\$0
2019	\$0	\$56	\$0	\$1,300	\$0
2020	\$0	\$58	\$0	\$300	\$0
2021	\$0	\$59	\$0	\$300	\$0

2022	\$0	\$59	\$0	\$300	\$0
2023	\$0	\$60	\$0	\$300	\$0
2024	\$0	\$60	\$0	\$300	\$0
2025	\$0	\$61	\$390	\$700	\$0
2026	\$0	\$62	\$0	\$700	\$0
2027	\$0	\$63	\$0	\$700	\$0
2028	\$0	\$64	\$0	\$700	\$0
2029	\$0	\$65	\$0	\$700	\$0
2030	\$0	\$66	\$294	\$700	\$0
2031	\$0	\$67	\$0	\$700	\$0
2032	\$0	\$68	\$0	\$700	\$0
2033	\$0	\$69	\$0	\$700	\$0
2034	\$0	\$70	\$0	\$700	\$0

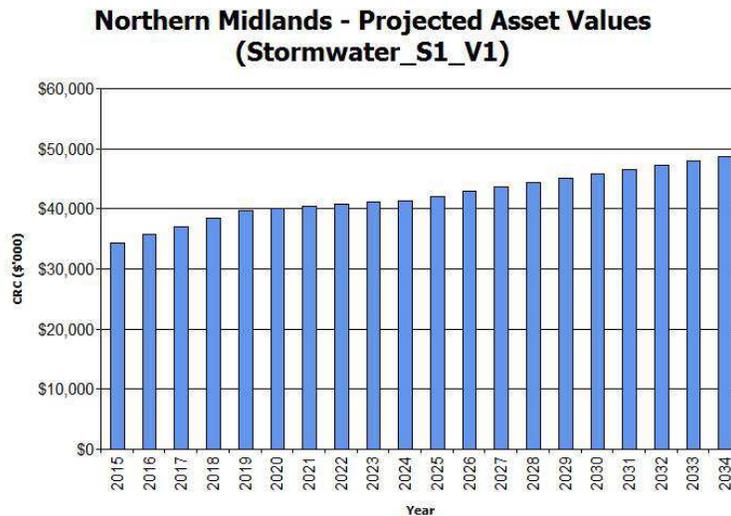
6.2 Funding Strategy

After reviewing service levels, as appropriate to ensure ongoing financial sustainability projected expenditures identified in Section 6.1.2 will be accommodated in the Council’s 10 year long term financial plan.

6.3 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. Figure 9 shows the projected replacement cost asset values over the planning period in real values.

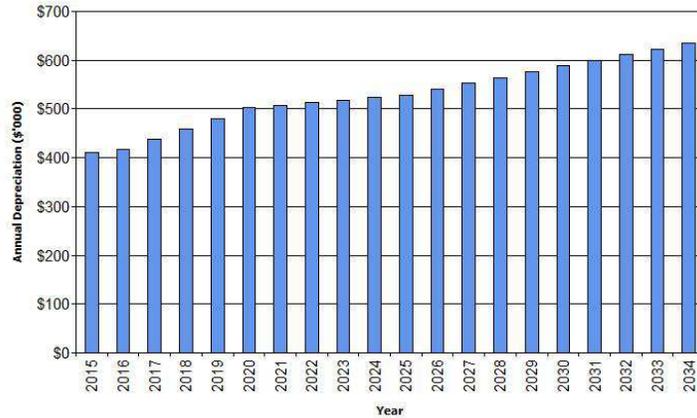
Figure 9: Projected Asset Values



Depreciation expense values are forecast in line with asset values as shown in Figure 10.

Figure 10: Projected Depreciation Expense

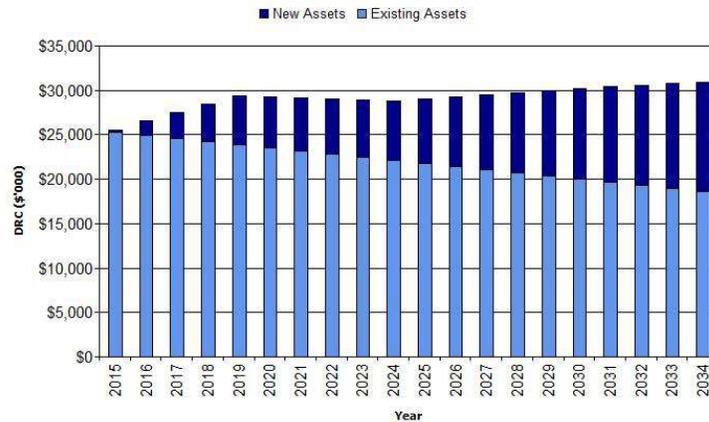
Northern Midlands - Projected Depreciation Expense (Stormwater_S1_V1)



The depreciated replacement cost will vary over the forecast period depending on the rates of addition of new assets, disposal of old assets and consumption and renewal of existing assets. Forecast of the assets’ depreciated replacement cost is shown in Figure 11. The depreciated replacement cost of contributed and new assets is shown in the darker colour and in the lighter colour for existing assets.

Figure 11: Projected Depreciated Replacement Cost

Northern Midlands - Projected Depreciated Replacement Cost (Stormwater_S1_V1)



6.4 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 and risks that these may change are shown in Table 6.4.

Table 6.4: Key Assumptions made in AM Plan and Risks of Change

Key Assumptions	Risks of Change to Assumptions
-----------------	--------------------------------

<ul style="list-style-type: none"> ▪ Average population growth over the planning period to be consistent with current level 	Minimal effect on AM Plan
<ul style="list-style-type: none"> ▪ Population density to remain reasonably stable 	Minimal effect on AM Plan
<ul style="list-style-type: none"> ▪ Asset construction costs to remain stable in real terms (current dollars) 	Minimal effect on AM Plan

6.5 Forecast Reliability and Confidence

The expenditure and valuations projections in this AM Plan are based on best available data. Currency and accuracy of data is critical to effective asset and financial management. Data confidence is classified on a 5 level scale¹³ in accordance with Table 6.5.

Table 6.5: Data Confidence Grading System

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

The estimated confidence level for and reliability of data used in this AM Plan is shown in Table 6.5.1.

Table 6.5.1: Data Confidence Assessment for Data used in AM Plan

Data	Confidence Assessment	Comment
Demand drivers	Reliable	
Growth projections	Reliable	
Operations expenditures	Highly reliable	
Maintenance expenditures	Highly reliable	
Projected Renewal exps.	Reliable	
- Asset values		
- Asset residual values	Reliable	
- Asset useful lives	Uncertain	
- Condition modelling	Uncertain	
- Network renewals	Uncertain	
- Defect repairs	Uncertain	
Upgrade/New expenditures	Reliable	
Disposal expenditures	Uncertain	

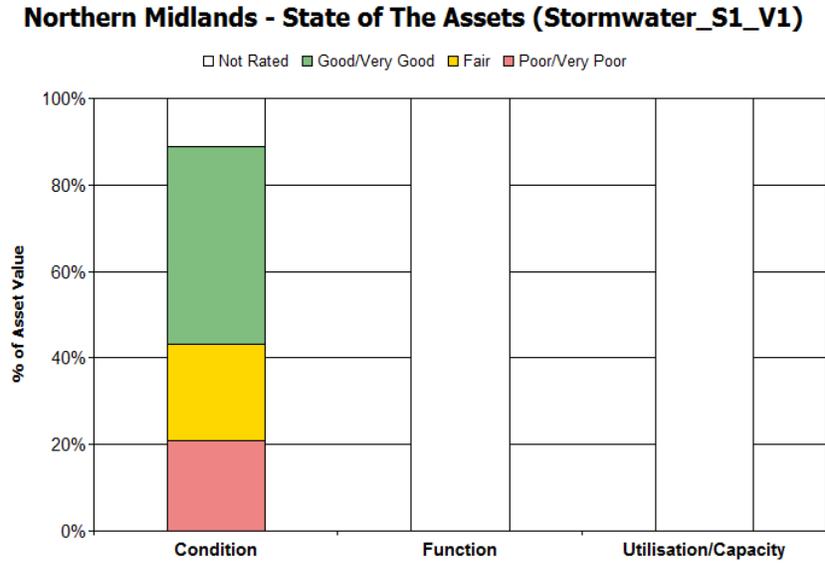
Over all data sources the data confidence is assessed as medium confidence level for data used in the preparation of this AM Plan.

Accuracy of future financial forecasts may be improved in future revisions of this stormwater asset management plan by the following actions - Capital Works programs to be reviewed with preliminary designs.

¹³ IPWEA, 2011, IIMM, Table 2.4.6, p 2|59.

Figure 13 shows a picture of the State of the Northern Midlands Council stormwater assets as at the start of the planning period. Figure 13 shows the percentage of asset value rated as being in very good/good, fair and poor/very poor for their condition, function and utilisation/capacity.

Figure 13: State of the Assets



7. PLAN IMPROVEMENT AND MONITORING

7.1 Status of Asset Management Practices

7.1.1 Accounting and financial systems

The Corporate Services Department is responsible for the set up and operation of Council's financial systems. Council operates OpenOffice Solution (Finesse) software to manage its accounting functions. This system includes a fully integrated creditor, debtor, payroll, general ledger, receipting modules. The system has a fully integrated asset system however it is only used for fleet operating management.

Council is required to prepare its annual financial report in accordance with Australian Accounting Standards and other authoritative pronouncements of the Australian Accounting Standards Board and the Local Government Act 1993 (as amended).

AASB 116 Property, plant and equipment, AASB 136 Impairment of Assets, AASB 140 Investment Property and AASB 5 Non-current Assets held for Sale and Discontinued Operations are applied when preparing council's annual financial statements.

The cost method of accounting is used for the initial recording of all assets acquired. Cost is determined as the fair value of the assets given as consideration plus cost incidental to the acquisition including architects fees, engineering design fees, consulting fees, administration charges and all other costs incurred in getting the assets ready for use. In addition the cost of non-current assets constructed by Council, 'cost' includes all material used in construction, direct labour used on the project and an appropriate proportion of overheads.

Non-monetary assets received in the form of grants and donations are recognised as assets and revenues at their fair value at the date of receipt. Fair value means the amount for which an asset could be exchanged between knowledgeable, willing parties in an arm's length transaction.

Generally maintenance, repair costs and minor renewals are charged as expenditure when incurred unless the total value exceeds 10% of the assets written down value or increase the economic life by more than 10%. Road reseals, reconstructions, and resheeting are capitalised. Road shouldering, roadside drainage and hotmix patching are expensed.

Expenditure is capitalised when it provides a future economic benefits which extends beyond one year and can be measured reliably. A \$5,000 limit applies to the recognition of the acquisition of new stormwater assets.

7.1.2 Accounting standards and regulations

The asset management policies and references used by Northern Midlands Council include:

- Northern Midlands Asset Management Policy – March 2016
- Northern Midlands Asset Management Strategy – March 2016
- International Infrastructure Management Manual, Association of Local Government Engineering new Zealand & Institute of Public Works Engineering Australia 2006
- Australian Infrastructure Financial Management Guidelines, Institute of Public Works Engineering Australia 2009

7.1.3 Capital/maintenance threshold

Capital/maintenance asset thresholds are detailed in the Northern Midlands Council Accounting Policy.

7.1.4 Asset management system

Northern Midlands Council currently has four software systems utilised for managing asset data. These are: TechnologyOne 'ECM' Customer Request System; OpenOffice 'Community - Finesse' Financial System; Intramaps; Geographic Information System for electronic mapping; and 'Moloney Asset Management' System for data storage and asset registers. These four systems contribute to the overall management of the long term planning of its infrastructure assets in order to:

Know what and where its assets are;

Know their condition;

Establish suitable operational, maintenance and renewal regimes to suit the assets and level of services required of them by present and future customers;

Establish asset function and asset maintenance to meet the needs of the present and future customers;

Review maintenance practices and optimising operational procedures;

Implement management strategies for resources and work programs;

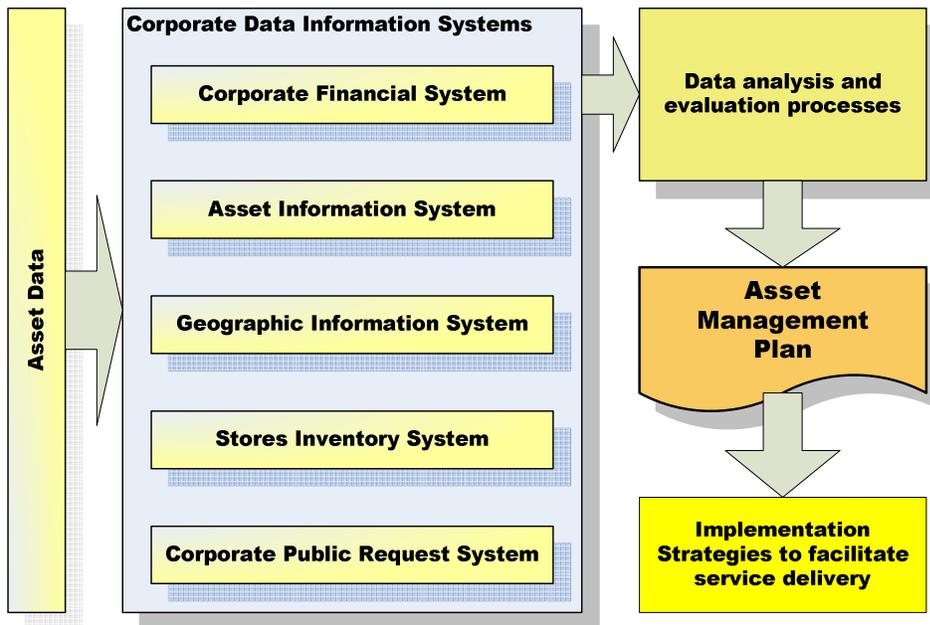
Improve risk management techniques; and

Identify the true cost of operations and maintenance and predict future capital investments and maintenance expenditure required to optimise the asset function and lifecycle.

The Moloney Asset Management System is not linked to the accounting system, however it is constantly reconciled to the Finesse system.

The ongoing responsibility of the Asset Management system is primarily that of the Asset Management Officer, including the annual valuation adjustments, upkeep of the existing and new/acquired assets, and depreciation calculations of the assets.

The following chart illustrates the relationship of the information systems:



7.1.5 Information Flow Requirements and Processes

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;

Data on new assets acquired by council.

The key information flows from this asset management plan are:

The assumed Works Program 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.

One of the essential aspects of asset management is to maintain data records to ensure that they are up to date and accurate. Asset Managers are responsible for updating and maintaining the asset data to meet the organisations operational and financial requirements in delivering efficient and effective asset management.

7.2 Improvement Plan

The asset management improvement plan generated from this asset management plan is shown in Table 7.2.

Table 7.2: Improvement Plan

Task No	Task	Responsibility	Resources Required	Timeline
1	Review condition assessments to increase condition data for better understanding of asset useful lives			
2	Improved system capital works upgrade/new expenditure with project ranking consistent with agreed criteria			
3	Investigation to determine reporting requirements in regard to the breakdown of maintenance expenditure			
4	Improving and automating the data collection/ inspection processes			
5	Formalise and document the data entry process specific to each asset			
6	Review need for Pollutant traps at strategic river outfalls			
7	Catchment modelling to identify deficiencies			
8	Assess benefits of piping any open drain systems			
9	Completion of Stormwater Management Plans and assessment of recommendations/issues raised			
10				

7.3 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 2 years of each Council election.

7.4 Performance Measures

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

- The degree to which the required projected expenditures identified in this asset management plan are incorporated into Council's long term financial plan,
- The degree to which 1-5 year detailed works programs, budgets, business plans and organisational 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 Council's Strategic Plan and associated plans,
- **The Asset Renewal Funding Ratio achieving the target of 1.0.**

8. REFERENCES

IPWEA, 2006, 'International Infrastructure Management Manual', Institute of Public Works Engineering Australasia, Sydney, www.ipwea.org/IIMM

IPWEA, 2008, 'NAMS.PLUS Asset Management', Institute of Public Works Engineering Australasia, Sydney, www.ipwea.org/namsplus.

IPWEA, 2009, 'Australian Infrastructure Financial Management Guidelines', Institute of Public Works Engineering Australasia, Sydney, www.ipwea.org/AIFMG.

IPWEA, 2011, 'International Infrastructure Management Manual', Institute of Public Works Engineering Australasia, Sydney, www.ipwea.org/IIMM

Sample Council, 'Strategic Plan 20XX – 20XX',

Sample Council, 'Annual Plan and Budget'.

9. APPENDICES

- Appendix A Maintenance Response Levels of Service

- Appendix B Projected 10 year Capital Renewal and Replacement Works Program

- Appendix C Projected 10 year Capital Upgrade/New Works Program

- Appendix D LTFP Budgeted Expenditures Accommodated in AM Plan

- Appendix E Abbreviations

- Appendix F Glossary

- Appendix G Translink Stormwater Upgrade

Appendix A Maintenance Response Levels of Service

Key Performance Measure	Level of Service	Performance Measure Process	Performance Target	Current Performance
COMMUNITY LEVELS OF SERVICE				
Quality	Provide stormwater drainage system that meets community expectations by adequate collection and disposal	Number of customer service requests / complaints	<1 per month	No. of reported incidents ??
Function	Drainage point for all properties in town areas	No of properties where there is no stormwater discharge point	1 in 500 properties have to pump stormwater from property	Nil properties not meeting standard
Safety	Minimise flooding of roads and properties and ponding of stormwater for long periods	Inspections during rainfall events – number of reports of inconvenience claims, health or ponding.	<5 per annum	No. of requests ?? pa
Responsiveness	Council's response to various community raised issues ranging from calls about problems, handling correspondence and service applications	(a) Provision of a 24 hour, 7 day per week call-out service to attend to issues (b) Percentage of issues responded to in set timeframes	100% of time 95% of time	
TECHNICAL LEVELS OF SERVICE				
Condition	Undertake inspections, routine maintenance tasks and repairs in a timely manner	Frequency of inspections, maintenance or repairs	Inspect every 24 months and repair within 3 months. Monthly cleaning of pits during autumn.	Not programmed
Accessibility	Ensure adequate stormwater drainage services are available within declared drainage districts	Number of reported property / road inundation events within serviced area following rain greater than 1in10 year event and discharge options exist	Flooding no more than one time in average 10 year period unless an upgrade or improvement program exists and a connection point or discharge option can be devised	Not currently measured
Cost Effectiveness	Provide services in a cost effective manner	Benchmarking against other councils or contractors	Validate cost of council compared to contractor undertaking works or cost to maintain system is < or = to that of other municipalities	On a case by case basis. No current benchmarking against other Councils.
Safety	Ensure stormwater infrastructure poses low risk to community and provides physical barriers or signage to identify and protect from hazards. Grates and covers are installed on stormwater entry pits.	Number of injury / damage claims, defect and condition survey results and site specific risk assessments	Less than 1 claim for compensation per 10 km of network and any high risks identified are addresses within 3 months	No currently measured

Appendix B Projected 10 year Capital Renewal and Replacement Works Program

Northern Midlands - Report 6 - Appendix B 10 year Renewal & Replacement Program (Stormwater_S1_V1)

Asset ID	Sub Category	Asset Name	From	To	Rem Life (Years)	Planned Renewal Year	Renewal Cost (\$)	Useful Life (Years)
2374	Pipe			Bridge Street	0	2015	\$1,296	80
479	Pipe			CNR High/Grant Street	0	2015	\$4,549	80
478	Pipe			CNR High/Grant Street	0	2015	\$3,499	80
180	Pipe			High Street	0	2015	\$6,317	80
1089	Pipe			High Street	0	2015	\$2,615	80
1088	Pipe			High Street	0	2015	\$252	80
1087	Pipe			High Street	0	2015	\$1,082	80
1086	Pipe			High Street	0	2015	\$1,195	80
485	Pipe			High Street	0	2015	\$11,325	80
2703	Pipe			Mulgrave Street	0	2015	\$3,059	80
844	Pipe			Old Bridge Road	0	2015	\$5,217	80
843	Pipe			Old Bridge Road	0	2015	\$11,355	80
74.1	Pipe			Smith Street	0	2015	\$12,522	80
74.2	Pipe		28	Smith Street	0	2015	\$2,210	80
2356	Pipe		61	Forster Street	0	2015	\$16,536	80
1412	Pipe	112		Summit Drive	0	2015	\$2,394	80
1254	Pipe	22		Wilson Street	0	2015	\$442	80
1255	Pipe	23		Wilson Street	0	2015	\$1,657	80
1256	Pipe	24		Wilson Street	0	2015	\$9,207	80
1257	Pipe	25		Wilson Street	0	2015	\$368	80
1258	Pipe	26		Wilson Street	0	2015	\$2,026	80
2386	Pipe	47	48	King Street	0	2015	\$1,399	80
2383	Pipe	49	50	King Street	0	2015	\$3,333	80
2380	Pipe	51	52	King Street	0	2015	\$6,629	80
2378	Pipe	53		Bridge Street	0	2015	\$1,158	80
179	Pipe	87		High Street	0	2015	\$17,435	80
2013	Pit			Arthur Street	0	2015	\$2,148	100
478	Pit			CNR High/Grant Street	0	2015	\$2,148	100
180	Pit			High Street	0	2015	\$2,864	100
1089	Pit			High Street	0	2015	\$1,841	100
1088	Pit			High Street	0	2015	\$1,841	100
1087	Pit			High Street	0	2015	\$1,841	100
1086	Pit			High Street	0	2015	\$1,841	100
485	Pit			High Street	0	2015	\$2,148	100
2547	Pit			Main Street	0	2015	\$2,148	100
2703	Pit			Mulgrave Street	0	2015	\$2,148	100
844	Pit			Old Bridge Road	0	2015	\$2,148	100
843	Pit			Old Bridge Road	0	2015	\$2,148	100
74.1	Pit			Smith Street	0	2015	\$2,148	100
74.2	Pit		28	Smith Street	0	2015	\$2,148	100
1412	Pit	112		Summit Drive	0	2015	\$1,841	100
1254	Pit	22		Wilson Street	0	2015	\$1,841	100
1255	Pit	23		Wilson Street	0	2015	\$1,841	100
1256	Pit	24		Wilson Street	0	2015	\$1,841	100
1257	Pit	25		Wilson Street	0	2015	\$1,841	100
1258	Pit	26		Wilson Street	0	2015	\$1,841	100
2449	Pit	39		Wellington Street	0	2015	\$2,148	100

179	Pit	87	High Street	0	2015	\$2,864	100
						Subtotal	\$174,702
						Program Total	\$174,702

Appendix C Projected Upgrade/Exp/New 10 year Capital Works Program

Projected Expenditure	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Capital Expenditure on Renewal/Replacement of existing assets	\$175	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Capital Expenditure on Upgrade/New assets	\$300	\$1,300	\$1,300	\$1,300	\$1,300	\$300	\$300	\$300	\$300	\$300
Operational cost of existing assets	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Maintenance cost of existing assets	\$50	\$50	\$50	\$50	\$50	\$50	\$50	\$50	\$50	\$50
Operational cost of New assets	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Maintenance cost of New assets	\$0	\$0	\$2	\$4	\$6	\$8	\$9	\$9	\$10	\$10
Disposal of Surplus assets	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

Appendix D Budgeted Expenditures Accommodated in LTFP

NAMS.PLUS3 Asset Management		Northern Midlands																			
© Copyright. All rights reserved. The Institute of Public Works Engineering Australasia																					
Stormwater_S1_V1		Asset Management Plan										 									
Stormwater		First year of expenditure projections 2015 (financial yr ending)																			
Asset values at start of planning period		Calc CRC from Asset Register										Operations and Maintenance Costs for New Assets					Existing %ages calculated from data in worksheet				
Current replacement cost	\$34,045 (000)	Calc CRC from Asset Register										Additional operations costs	% of asset value				0.00% of CRC (10 yr average)				
Depreciable amount	\$25,593 (000)	This is a check for you.										Additional maintenance	0.15%				0.15% of CRC (10 yr average)				
Depreciated replacement cost	\$25,593 (000)											Additional depreciation	1.61%				1.61% of Dep Amt				
Annual depreciation expense	\$411 (000)											Planned renewal budget (information only)					0.18% of CRC (Year 1 comparison)				
Planned Expenditures from LTFP		You may use these values calculated from your data or overwrite the links.																			
20 Year Expenditure Projections		Note: Enter all values in current 2015 values																			
Financial year ending	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	
	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	
Expenditure Outlays included in Long Term Financial Plan (In current \$ values)											Average of first 10 year Expenditure Outlays from LTFP										
Operations																					
Operations budget	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Management budget	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
AM systems budget	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Total operations	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Maintenance																					
Reactive maintenance budget	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Planned maintenance budget	\$50	\$50	\$50	\$50	\$50	\$50	\$50	\$50	\$50	\$50	\$50	\$50	\$50	\$50	\$50	\$50	\$50	\$50	\$50	\$50	
Specific maintenance items budget	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Total maintenance	\$50	\$50	\$50	\$50	\$50	\$50	\$50	\$50	\$50	\$50	\$50	\$50	\$50	\$50	\$50	\$50	\$50	\$50	\$50	\$50	
Capital																					
Planned renewal budget	\$60	\$60	\$60	\$60	\$60	\$60	\$60	\$60	\$60	\$60	\$60	\$60	\$60	\$60	\$60	\$60	\$60	\$60	\$60	\$60	
Planned upgrade/new budget	\$300	\$1,300	\$1,300	\$1,300	\$1,300	\$300	\$300	\$300	\$300	\$300	\$700	\$700	\$700	\$700	\$700	\$700	\$700	\$700	\$700	\$700	
Non-growth contributed asset value	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Asset Disposals																					
Est Cost to dispose of assets	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Carrying value (DRC) of disposed assets	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Additional Expenditure Outlays Requirements (e.g from Infrastructure Risk Management Plan)											Average of first 10 years Expenditure Outlays required from IRMP										
Additional Expenditure Outlays required and not included above	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	
	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	
Operations	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Maintenance	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Capital Renewal	to be incorporated into Forms 2 & 2.1 (where Method 1 is used) OR Form 2B Defect Repairs (where Method 2 or 3 is used)																				
Capital Upgrade	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
User Comments #2																					
Forecasts for Capital Renewal using Methods 2 & 3 (Form 2A & 2B) & Capital Upgrade (Form 2C)											Average of first 10 years Capital Renewal & Upgrade Forecasts										
Forecast Capital Renewal from Forms 2A & 2B	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	
	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	
Forecast Capital Upgrade from Form 2C	\$300	\$1,300	\$1,300	\$1,300	\$1,300	\$300	\$300	\$300	\$300	\$300	\$700	\$700	\$700	\$700	\$700	\$700	\$700	\$700	\$700	\$700	

Appendix E Abbreviations

AAAC	Average annual asset consumption
AM	Asset management
AM Plan	Asset management plan
ARI	Average recurrence interval
ASC	Annual service cost
BOD	Biochemical (biological) oxygen demand
CRC	Current replacement cost
CWMS	Community wastewater management systems
DA	Depreciable amount
DRC	Depreciated replacement cost
EF	Earthworks/formation
IRMP	Infrastructure risk management plan
LCC	Life Cycle cost
LCE	Life cycle expenditure
LTFP	Long term financial plan
MMS	Maintenance management system
PCI	Pavement condition index
RV	Residual value
SoA	State of the Assets
SS	Suspended solids
vph	Vehicles per hour
WDCRC	Written down current replacement cost

Appendix F 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

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 [AIFMG Financial Sustainability Indicator No 8].

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.

Core asset management

Asset management which relies primarily on the use of an asset register, maintenance management systems, job resource management, inventory control, condition assessment, simple risk assessment and defined levels of service, in order to establish alternative treatment options and long-term cashflow predictions. Priorities are usually established on the basis of financial return gained by carrying out the work (rather than detailed risk analysis and optimised decision- making).

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

Assets for which the financial, business or service level consequences of failure are sufficiently severe to justify proactive inspection and rehabilitation. Critical assets have a lower threshold for action than non-critical assets.

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.

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 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 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 arms 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.

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 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

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.

Loans / borrowings

See borrowings.

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, 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.

- **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

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

Regular activities to provide services such as public health, safety and amenity, eg 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, 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.

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 (eg 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 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).

Source: IPWEA, 2009, Glossary

Additional and modified glossary items shown *

Specific Maintenance

Replacement of higher value components/sub-components of assets that is undertaken on a regular cycle including repainting, 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.

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.

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.