Canterbury City Council

City of Canterbury
City of Cultural Diversity

Stormwater Drainage

Asset Management Plan

Scenario 2 Version 1.01 - Draft

July 2013

Document Control	

Document ID: canterbury_amp_stormwater_2013_v1.01					
Rev No	Date	Revision Details	Author	Reviewer	Approver
1.01	10 July 2013	Version 1 – Draft for comment	CL (JRA)		

TABLE OF CONTENTS

1. EXECUTIVE SUMMARY

Context

The City of Canterbury is located in NSW 17km southwest of the Sydney CBD. The City has an area of 34 square kilometres and is largely residential, comprising 17 suburbs including open space corridors. The City has a very high population density which is forecast to continue to increase by approximately 1.2% per year. The City is geographically well placed, close to services and major transport links with the Sydney CBD just a short drive or train ride away.

Council provides a stormwater drainage network to prevent flooding and inundation of public and private property during storm events and minimise water pollution.

The Stormwater Drainage Service

The stormwater drainage network comprises:

- Gross Pollution Traps
- Pipes
- Pits

These infrastructure assets have a replacement value of $79.9M.

Asset Plan Methodology

One of the important aspects of the asset management plan is the forecast of existing asset renewal requirements. For the Canterbury Buildings Asset Management Plan three scenarios have been considered when developing the forecast.

Scenario 1 uses the council's asset register valuation data to project the renewal costs. In this scenario the acquisition year of an asset is added to the useful life of the asset to estimate the year when renewal is due. The cost to renew the asset category can be aggregated to estimate the total renewal requirements for each year of the planning period.

Scenario 2 uses capital renewal expenditure projections assessed by technical staff. This assessment uses a combination of detailed technical analysis and an estimate of the average network renewals required.

Scenario 3 is the reality of the situation when the capital renewal expenditures that can be achieved are with available funds in the Long Term Financial Plan.

The results for the 3 scenarios described are included in this asset management plan and they reveal some inconsistencies.

Scenario 1 indicates that the funds to meet the forecast renewal requirements can be met by the current funding being planned and that the condition of the network is good. The assessment under Scenario 1 is inconsistent with the community feedback on the satisfaction with Infrastructure and also with the technical estimates made of the network renewals required.

Scenario 2 was prepared using the technical estimates of what renewal is required to sustain the current levels of service, and this estimated that the renewal requirements will be beyond the current funding capacity of council. This position is more consistent with the community feedback and the overall assessment of the network made by Canterbury Technical staff

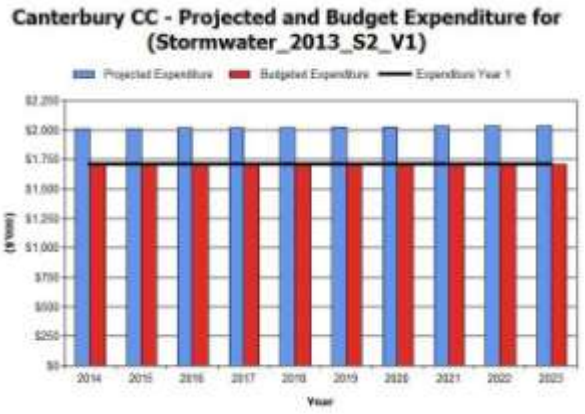
Scenario 3 is a reflection of the actual funding available. The difference between Scenario 2 and Scenario 3 represents "what we can't do". The discussion about this "gap" will lead us into a much better informed community discussion about what are achievable and acceptable service levels, as well as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

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

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 $20,235,000 or $2,024,000 on average per year.

Estimated available funding for this period is $17,100,000 or $1,710,000 on average per year which is 84% of the cost to provide the service. This is a funding shortfall of $314,000 on average per year. 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.



What we will do

We plan to provide stormwater drainage services for the following:

- Operation, maintenance, renewal and upgrade of stormwater drainage network infrastructure to meet service levels set by Council in annual budgets.
- Prioritise renewal of stormwater drainage infrastructure to meet levels of service set with Council and the Community and appropriately manage risk within the 10 year planning period.

What we cannot do

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

- Provision of all the additional stormwater drainage assets to support the services desired by the community.
- Maintain renewal of stormwater drainage infrastructure to maintain the current levels of service given the available budget.

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:

- Deterioration of the network to a lower service standard and higher risk position, this has the potential to increase the risk of damage to the environment in the event of failure
- Risk to town stormwater posed by under capacity pipes not catering for a 20% AEP storm event
- Pipe breakages causing flooding both in vicinity and upstream
- Network overflows due to insufficient downstream drainage causing property damage

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

- Improve documentation of service level risk and utilisation to develop maintenance priorities
- Ensuring a prioritised routine inspection and maintenance regimen is undertaken within the budget limitations
- Implementing a hierarchy of lines and placing those priority items in long-term financial plans
- Putting works on long-term financial plans including works to increase the capacity of the system in high priority areas

Confidence Levels

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

The Next Steps

The actions resulting from this asset management plan are:

- Maintain the current assets in a safe condition
- Prioritise renewal and upgrade works based on risk
- Develop a greater understanding of the consequences in terms of service levels and risk for various funding scenarios
- Establishing appropriate service levels in conjunction with the community.
- Refining the information on stormwater asset expenditure so that there is a clearer understanding of the costs relating to operations, maintenance, renewals and new assets
- Further analysis of the gap required to fund stormwater assets at the desired service levels, and detail the consequences on service level and risk should additional funding not be provided. This further analysis will enable the relative costs and priorities to be balanced with the funding provided in Council's Long Term Financial Plan, and for consultation with the community

Questions you may have

What is this plan about?

This asset management plan covers the infrastructure assets that serve the Canterbury community's stormwater drainage needs. These assets include pipes, pits and GPTS throughout the community area that protects people and property from flooding, to minimise damage, and to maintain access to facilities.

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 organisation's stormwater drainage 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 insufficient to continue to provide existing services at current levels in the medium term.

What options do we have?

Resolving the funding shortfall involves several steps:

1. Improving asset knowledge so that data accurately records the asset inventory, how assets are performing and when assets are not able to provide the required service levels,
2. Improving our efficiency in operating, maintaining, 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 drainage services and costs meet community needs and are affordable,
7. Developing partnership with other bodies, where available to provide services,
8. Seeking additional funding from governments and other bodies to better reflect a 'whole of government' funding approach to infrastructure services.

What happens if we don't manage the shortfall?

It is likely that we will have to reduce service levels in some areas, unless new sources of revenue are found. For stormwater drainage infrastructure, the service level reduction may include an inability for the network to operate safely at optimal capacity.

Example of asset identified as being in poor condition

What can we do?

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

What can you do?

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

2. INTRODUCTION

2.1 Background

This asset management plan is to demonstrate responsive management of assets (and services provided from assets), compliance with regulatory requirements, and to communicate funding needed to provide the required levels of service 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 Manual[1].

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

- NSW DLG Integrated Planning and Reporting Guidelines and Manual, 2013
- Asset Management Strategy and Policy
- Community Strategic Plan 2014-2023
- Council Delivery Program 2014-2017
- Resource Strategy 2014-2023
- Annual Budget 2013-2014

The infrastructure assets covered by this asset management plan are shown in Table 2.1. These assets are used to provide drain stormwater away from roads and protect the community and property from localised flooding during storm events.

Table 2.1: Assets covered by this Plan

Asset Category	Asset Subcategory	Replacement Value
Stormwater Drainage	Gross Pollution Traps	$850,000
Stormwater Drainage	Pipes	$49,746,340
Stormwater Drainage	Pits	$25,392,640
TOTAL (Existing Technical Asset Register Prior to Last Revaluation)		**$75,988,980**
TOTAL (Based on Asset Valuation – AssetVal Totals)		**$79,911,531**

The variation indicates that the technical register used for the scenario 1 in this version of the asset management plan has not yet been updated with the results of the most recent valuation. Ensuring the technical register is up to date and linking and maintaining the technical and financial registers is a key item in the improvement plan.

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

Table 2.1.1: Key Stakeholders in the AM Plan

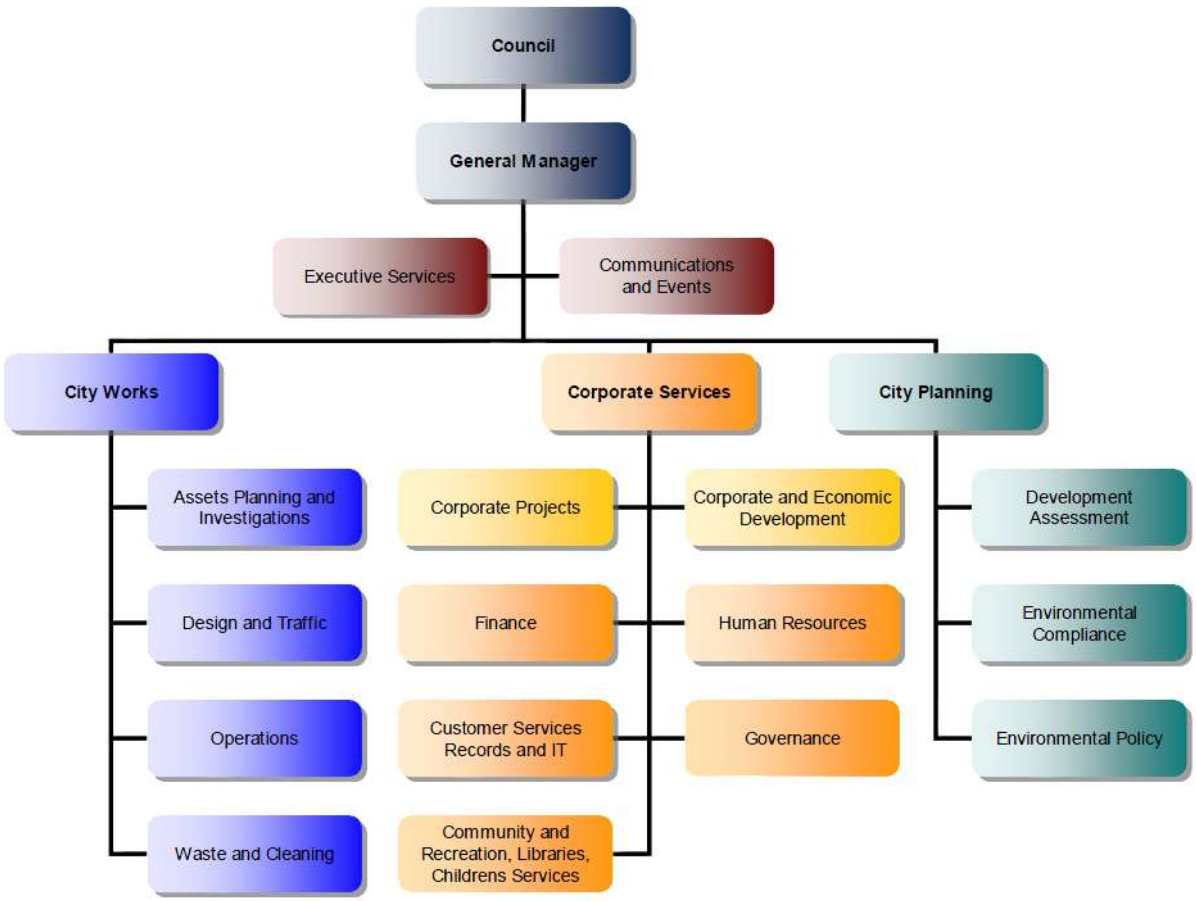
Key Stakeholder	Role in Asset Management Plan
Councillors/Board Members	• Represent needs of community/shareholders, • Allocate resources to meet the organisation's objectives in providing services while managing risks, • Ensure organisation is financial sustainable.
Senior Management	Endorse the development of asset management plans and provide the resources required to complete this task. Set high level priorities for asset management development in Council and raise the awareness of this function among Council staff and contractors. Support the implementation of actions resulting from this plan and prepared to make changes to a better way of managing assets and delivering services. Support for an asset management driven budget and LTFP.

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

Key Stakeholder	Role in Asset Management Plan
Corporate Services	Consolidating the asset register and ensuring the asset valuations are accurate. Development of supporting policies such as capitalisation and depreciation. Preparation of asset sustainability and financial reports incorporating asset depreciation in compliance with current Australian accounting standards. AM and GIS support and admin.
Field Services Staff	Provide local knowledge level detail on all parks assets. They verify the size, location and condition of assets. They can describe the maintenance standards deployed and Council's ability to meet technical and customer levels of service.
Asset Management Consultants	Provide support for the development of asset management plans and the implementation of effective asset management principles within Council. Also independently endorse asset revaluation methodology.
External Parties	• Community residents & businesses; • Tourist and Visitors (as occasional users); • Neighbouring Council's; • Emergency services; • Developers & Utility companies; • Local Businesses and; • Federal and State Government authorities & agencies such as RTA, local law enforcement and land use/development planning.

Our organisation's organisational structure for service delivery from infrastructure assets is detailed below:

Organisation structure



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]

2.3 Plan Framework

Key elements of the plan are

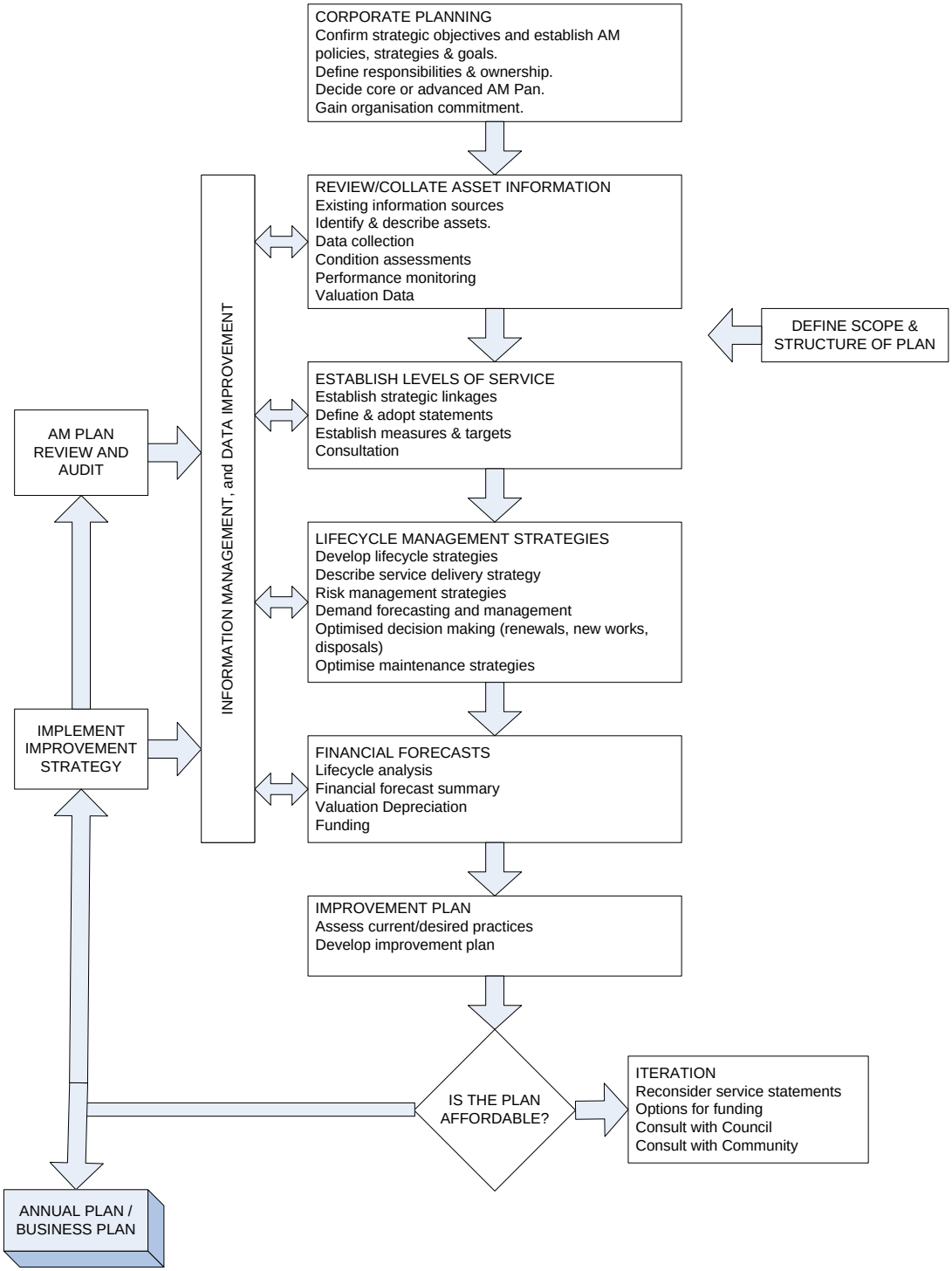
Levels of service – specifies the services and levels of service to be provided by the organisation,
Future demand – how this will impact on future service delivery and how this is to be met,
Life cycle management – how we will manage our existing and future assets to provide defined levels of service,
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 the organisation's objectives,
Asset management improvement plan.

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

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

Road Map for preparing an Asset Management Plan

Source: IPWEA, 2006, IIMM, Fig 1.5.1, p 1.11.



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 Manual[3]. 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.

2.5 Community Consultation

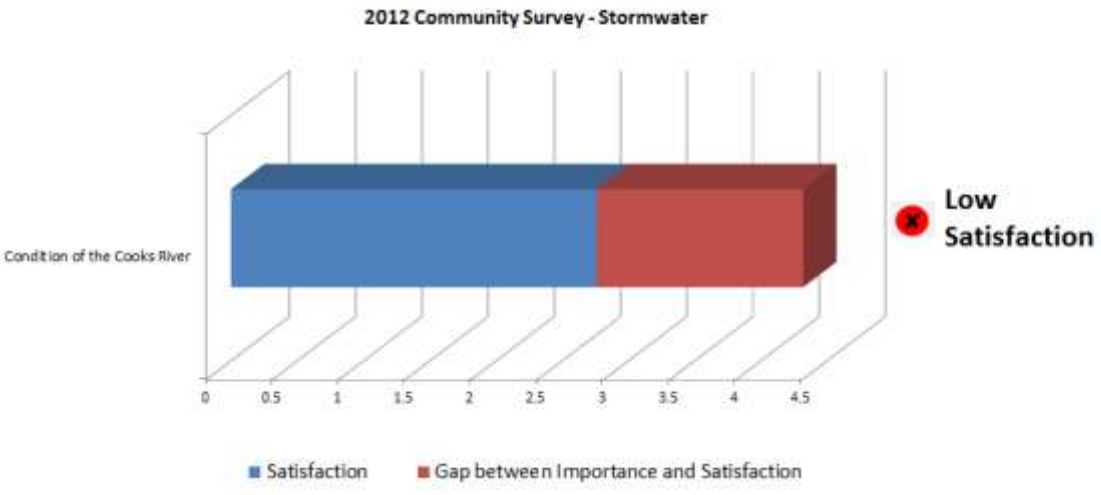
This 'core' asset management plan is prepared to facilitate community consultation initially through feedback on public display of draft asset management plans prior to adoption by the Council/Board. Future revisions of the asset management plan will incorporate community consultation on service levels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

3. LEVELS OF SERVICE

3.1 Customer Research and Expectations

The survey was conducted using IRIS Research's Computer Aided Telephone Interviewing (CATI) facilities during the period of 16th November – 27th November 2012. A total of 606 interviews were completed with residents of the Canterbury local government area. This telephone survey polls a sample of residents on their level of satisfaction with the organisation's services. The most recent customer satisfaction survey reported satisfaction levels for the services pertaining to Council's stormwater drainage network.

Table 3.1: Community Satisfaction Survey Results



The organisation uses this information in developing its Strategic Plan and in allocation of resources in the budget.

3.2 Strategic and Corporate Goals

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

Our vision is:

[3] IPWEA, 2011, IIMM.

"The City of Canterbury is a great place to live and work"

Our mission is:

"We are responsible to council and our community through the City Strategic Plan to achieve real improvements in quality of life for people living and working in the City of Canterbury."

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

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

Strategic Plan Themes	Objective	How Goal and Objectives are addressed in AM Plan
Theme 1 – Attractive city	1.1 Attractive Streetscapes	A primary objective of the asset management plan is to develop a lifecycle approach to the provision of infrastructure. This aims to minimise the life cycle cost of assets while maximising the service that is delivered
	1.2 Balanced urban development	The provision of the appropriate infrastructure to support the community is an integral aspect of development. Infrastructure will be impacted by the development that occurs. The asset Management Plans consider the long term impacts of infrastructure growth created by development.
	1.3 Prosperous local economy	Economic sustainability and growth is linked to the services provided by infrastructure. The Asset Management Plans will provide guidance as to the assets required, and the long term sustainability of these services.
Theme 2 – Stronger community	2.1 Embrace diversity	The provision and maintenance of infrastructure is an important component contributing to the cultural and social needs of the community
	2.2 Health and safety	The provision and maintenance of infrastructure is an important component contributing to the health and safety of the community
	2.3 Access to facilities and services	Infrastructure assets exist to support and provide services to the community. Planning and long term management of these assets is essential to the sustainability of these services.
Theme 3 – Sustainable environment	3.1 Transport alternatives that work	Infrastructure is provided to support services. Getting the correct infrastructure appropriate to the needs of the community is a primary goal of Asset Management Planning.
	3.2 Responsible use of resources	Council has limited resources. The Asset Management Planning provides a way in which the community can be engaged in setting the priorities and allocation of these resources.
	3.3 Healthy natural environment	Provision of the appropriate infrastructure to support the natural environment will continue to be a long term consideration in Asset Management Planning
Theme 4 – Strategic leadership	4.1 Healthy finances	The Asset Management Plan in conjunction with Long Term Financial Plans are the tools by which Council assesses the long term financial sustainability of council's infrastructure assets Planning long term sustainable infrastructure is important to enable the appropriate resources to be identified and provided Planning long term sustainable infrastructure is important to enable Council to meet its statutory requirements

Strategic Plan Themes	Objective	How Goal and Objectives are addressed in AM Plan
	4.2 Engaged community	Development of the service levels provided by infrastructure, and the balancing of this with the available funding and acceptable risk will require communication and consultation with the community A primary objective of the first asset management plans prepared by Council is to establish the position in relation to maintaining the current infrastructure at a level which will sustain the current standard of services. Once the current sustainability position is established community discussion can be sought to identify acceptable changes to services.
	4.3 Effective governance	Provide facilities that support community needs. Communicate options for future planning Achieve lowest life cycle cost by appropriate planning. Manage and control risk
Theme 5 – Improving organisation	5.1 Efficient services	Planning long term sustainable infrastructure is important for meeting the future needs of the community
	5.2 Responsible employer	Involvement in the long term management of infrastructure, with understanding of the consequences of various funding scenarios is essential for the roles of the community, Council and staff to be understood.
	5.3 Well maintained equipment	An objective of Asset Management Planning is that services are provided by appropriate, adequate and functional assets including equipment.

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

3.3 Legislative Requirements

We have 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.
Local Government Amendment (Planning and Reporting) Act 2009	Local Government Amendment (Planning and Reporting) Act 2009 includes the preparation of a long term financial plan supported by asset management plans for sustainable service delivery.

Legislation	Requirement
Disability Discriminations Act, 1992	The Federal *Disability Discrimination Act 1992* (D.D.A.) provides protection for everyone in Australia against discrimination based on disability. It encourages everyone to be involved in implementing the Act and to share in the overall benefits to the community and the economy that flow from participation by the widest range of people. (a) to eliminate, as far as possible, discrimination against persons on the ground of disability in the areas of: (i) work, accommodation, education, access to premises, clubs and sport; and (ii) the provision of goods, facilities, services and land; and (iii) existing laws; and (iv) the administration of Commonwealth laws and programs; and (b) to ensure, as far as practicable, that persons with disabilities have the same rights to equality before the law as the rest of the community; and to promote recognition and acceptance within the community of the principle that persons with disabilities have the same fundamental rights as the rest of the community.
Work Health & Safety Act 2011	Sets out roles and responsibilities to secure the health, safety and welfare of persons at work and covering injury management, emphasising rehabilitation of workers particularly for return to work. Council is to provide a safe working environment and supply equipment to ensure safety.
Environmental Planning and Assessment Act 1979	An Act to institute a system of environmental planning and assessment for the State of New South Wales. Among other requirements the Act outlines the requirement for the preparation of Local Environmental Plans (LEP), Development Control Plans (DCP), Environmental Impact Assessments (EIA) and Environmental Impact Statements.
Plant Protection Act 1989	This act sets out requirements in respect to Flora Protection
Environmental Protection Act 1994	This act sets out requirements in respect to environmental protection
Threatened Species Conservation Act, 1995	An Act to conserve threatened species, populations and ecological communities of animals and plants. Under the terms of this Act Council is required to ensure the long term survival of the species identified.
Rivers and Foreshores Improvements Act, 1948	An Act to provide for the carrying out of works for the removal of obstructions from and the improvement of rivers and foreshores and the prevention of erosion of lands by tidal and non-tidal waters
Protection of the Environment Operations Act 1997	Council is required to exercise due diligence to avoid environmental impact and among others are required to develop operations emergency plans and due diligence plans to ensure that procedures are in place to prevent or minimise pollution.
National Parks and Wildlife Act (1974)	An Act relating to the establishment, preservation and management of national parks, historic sites and certain other areas and the protection of certain fauna, native plants and Aboriginal objects
Native Vegetation Act 2003	This Act regulates the clearing of native vegetation on all land in NSW, except for excluded land listed in Schedule 1 of the Act. The Act outlines what landowners can and cannot do in clearing native vegetation.
Public Works Act 1912	Sets out the role of Council in the planning and construction of new assets.

Legislation	Requirement
Road Transport (General) Act 2005	Provides for the administration and enforcement of road transport legislation. It provides for the review of decisions made under road transport legislation. It makes provision for the use of vehicles on roads and road related areas and also with respect to written off and wrecked vehicles.
Road Transport (Safety and Traffic Management) Act 1999	Facilitates the adoption of nationally consistent road rules in NSW, the Australian Road Rules. It also makes provision for safety and traffic management on roads and road related areas including alcohol and other drug use, speeding and other dangerous driving, traffic control devices and vehicle safety accidents.
Roads Act 1993	Sets out rights of members of the public to pass along public roads, establishes procedures for opening and closing a public road, and provides for the classification of roads. It also provides for declaration of the RTA and other public authorities as roads authorities for both classified and unclassified roads, and confers certain functions (in particular, the function of carrying out roadwork) on the RTA and other roads authorities. Finally it provides for distribution of functions conferred by this Act between the RTA and other roads authorities, and regulates the carrying out of various activities on public roads.
Local Government (Highways) Act 1982	An Act to consolidate with amendments certain enactments concerning the functions of the corporations of municipalities with respect to highways and certain other ways and places open to the public.
NSW Road Rules 2008	A provision of road rules that are based on the Australian Road Rules so as to ensure that the road rules applicable in this State are substantially uniform with road rules applicable elsewhere in Australia.
Valuation of Land Act 1916	This act sets out requirements in respect Land Valuation
Crown Lands Act, 1989	An Act to provide for the administration and management of Crown land in the Eastern and Central Division of the State of NSW Council has large holdings of Crown land under it care, control and management.
Heritage Act, 1977	An Act to conserve the environmental heritage of the State. Several properties are listed under the terms of the Act and attract a high level of maintenance cost, approval and monitoring.
Building Code of Australia	The goal of the BCA is to enable the achievement of nationally consistent, minimum necessary standards of relevant, health, safety (including structural safety and safety from fire), amenity and sustainability objectives efficiently.
Building Fire and Safety Regulation 1991	This Act sets out the regulations for things such as means of escape, Limitation of people in buildings, Fire and evacuation plans and testing of special fire services and installations.
Electrical Safety Act 2002	This act sets out the installation, reporting and safe use with electricity
Building Regulation 2003	This act sets out requirements in respect to Building Requirements
Plumbing and Drainage Act 2002	This act sets out requirements in respect to Plumbing Requirements
Rural Fires Act, 1997	An Act to establish the NSW Rural Fire Service and define its functions; to make provision for the prevention, mitigation and suppression of rural fires. Under the terms of this Act Council is required to mitigate any fire that emanate from bushland.
Dangerous Goods Safety Management Act 2001	This act sets out the safe use, storage and disposal of dangerous goods
Fire and Rescue Service Act 1990	This act sets out requirements in respect to Emergency Services for Fire and Rescue
Public Records Act 2002	This act sets out requirements in respect maintaining Public Records
Surveillance Devices Act	This act sets out requirements in respect use of Surveillance Devices
Civil Liability Act, 2002	An Act to make provision in relation to the recovery of damages for death or personal injury caused by the fault of a person

Legislation	Requirement
Companion Animals Act, 1998	An Act to provide for the identification and registration of companion animals and for the duties and responsibilities of their owners. Under the terms of the Act Council is required to provide and maintain at least one off leash area. It currently has eleven areas identified as off leash.
Rural Fires Act, 1997	An Act to establish the NSW Rural Fire Service and define its functions; to make provision for the prevention, mitigation and suppression of rural fires. Under the terms of this Act Council is required to mitigate any fire that emanate from bushland.

3.4 Current Levels of Service

We have defined service levels in two terms.

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?
Capacity/Utilisation	Is the service over or under used?

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.

Technical service measures are linked to annual budgets covering:

Operations – the regular activities to provide services such as opening hours, cleansing frequency, mowing frequency, etc.

Maintenance – the activities necessary to retain an asset as near as practicable to an appropriate service condition (eg road patching, unsealed road grading, building and structure repairs),

Renewal – the activities that return the service capability of an asset up to that which it had originally (eg frequency and cost of road resurfacing and pavement reconstruction, pipeline replacement and building component replacement),

- Upgrade – the activities to provide an higher level of service (eg widening a road, sealing an unsealed road, replacing a pipeline with a larger size) or a new service that did not exist previously (eg a new library).

Asset managers plan, implement and control technical service levels to influence the customer service levels.[4]

Our current service levels are detailed in Table 3.4.

Table 3.4: Current and Desired Service Levels

Key Performance Measure	Level of Service Objective	Performance Measure Process	Current Level of Service	Optimal Level of Service
COMMUNITY LEVELS OF SERVICE				
Quality	Don't get flooded No Overflow through private property	Customer surveys Customer requests % of network that is	To be provided from the Resident Survey Most of network in good condition	Requests received should not increase annually Level of service as agreed with community to manage budget allocations while

[4] IPWEA, 2011, IIMM, p 2.22

Key Performance Measure	Level of Service Objective	Performance Measure Process	Current Level of Service	Optimal Level of Service
	Not inconvenienced No property damage No environmental damage to receiving waters Reuse stormwater	poor or very poor condition/quality	Current % poor / very poor: 5% 10Yr Projected % Poor / very poor (Low Confidence) based on maintaining existing levels of expenditure: 16%	maintaining an acceptable level of risk and service provision for stormwater drainage network. This level of service is yet to be identified and will be reported in future versions of the AMP.
Function	Water drained by stormwater system	Customer surveys Customer requests	To be provided from the Resident Survey Current % poor / very poor: 17% 10Yr Projected % Poor / very poor (Low Confidence) based on maintaining existing levels of expenditure: 22%	Requests received should not increase annually Level of service as agreed with community to manage budget allocations while maintaining an acceptable level of risk and service provision for stormwater drainage network. This level of service is yet to be identified and will be reported in future versions of the AMP.
Capacity/ Utilisation	No flooding of roads No excessive backing up in large storm events	Inspections during/after major storm events	Flooding of roads occurs on areas with poor drainage during peak events less than 20% AEP Current % poor / very poor: 15% 10Yr Projected % poor / very poor (Low Confidence) based on maintaining existing levels of expenditure: 20%	No loss of capacity of road network during events up to and including 20% AEP No surcharging of pits greater than 50m3 in a 20% AEP event Level of service as agreed with community to manage budget allocations while maintaining an acceptable level of risk and service provision for stormwater drainage network. This level of service is yet to be identified and will be reported in future versions of the AMP.
Safety	Free from hazards	Number of injury accidents (Accident History)	Should commence monitoring trend to determine if accidents are increasing	Accidents attributable to stormwater systems should be reduced annually
TECHNICAL LEVELS OF SERVICE				
Operations	Ensure Infrastructure is meeting the community	Service Requests	Require improved service request	Reduce the frequency and number of service requests

Key Performance Measure	Level of Service Objective	Performance Measure Process	Current Level of Service	Optimal Level of Service
	needs Cleaned regularly to reduce the risk of blockages	Inspections Studies Trials	system No Inspection Register Hierarchy Identified	More regular and frequent inspections undertaken
Operations Budget			$360,000 pa	Will need to increase by 0.45% per year to continue the current operational levels of service due to the addition of new assets
Maintenance	Routine maintenance of Stormwater network maintenance and repairs	Inspections Service requests	Reactive maintenance to limit of budget allocation.	Regular Inspections
Maintenance Budget			$600,000 pa	Will need to increase by 0.75% per year to continue the current maintenance levels of service due to the addition of new assets
Renewal	Infrastructure replaced when no longer fit for purpose	Replacement cycle Inspections, as required	Renewal cycle will not be fully met in the long term Network in relatively good condition. Increasing renewal required in medium to longer term, due to the age and condition of the stormwater network.	Replacement of all drainage assets when reach a condition rating of 4 or greater Replace panels or other infrastructure as required
Renewal Budget			$600,000 pa	$800,000 average pa required for renewals during the next 10 years. This is based on estimated requirements by technical staff
Upgrade/New	Provide additional and upgraded stormwater assets in accordance with adopted policy position Minimise flooding of properties in large storm events and ensure system allows for this Stormwater assets updated/ upgraded if usage or AEP requirement changes	Cost, Corporate Strategy	Achieved by a combination of Council and Contract works	Achieved by a combination of Council and Contract works

Key Performance Measure	Level of Service Objective	Performance Measure Process	Current Level of Service	Optimal Level of Service
Upgrade/New Budget			$150,000 pa	Assumed constant at $250,000 pa estimated requirements by technical staff

3.5 Desired Levels of Service

Indications of desired levels of service are obtained from community consultation/engagement. The asset management planning process includes the development of 3 scenarios to develop levels of service that are financially sustainable.

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 drivers	Present position	Projection	Impact on services
Population	Estimated Resident Population for 2011 was 144,751	The LGA's population growth is projected to grow at an average annual rate of 0.5% over the next 20 years, the same as that of the Southern Sydney region.	There is potential for population growth to place higher demands on infrastructure provision. However, given the high degree of urbanisation within the City of Canterbury it is most likely that the demands will not be for major extension of the infrastructure network, but more likely on the levels of service provided via infrastructure.
Demographics	The City of Canterbury has a significantly higher population density than all other Councils in NSW with total populations over 100,000 (except City of Sydney). A greater percentage of Canterbury residents (14.3%) utilise trains to travel to work than is generally true across the Sydney Region (8.0%).	The area's population is forecast to increase to 137,652, and increase of 1,620 people (1.2%) (Lawrence Consulting, 2007).	The analysis of this profile will be critical to the management planning process. It will enable Council to better understand its community and is an important basis for determining priorities and resource allocation and service delivery in the years ahead.
Environment and Climate Change Sea level change	It is widely accepted that climate is changing There is a strong desire from the community for increased environmental responsibility and the reuse of Stormwater runoff	Future is uncertain but is likely that climate change will impact on the delivery of the services provided by infrastructure. Weather extremes and rising sea levels will have significant impact on Stormwater infrastructure Community expectations will continue to increase	Some services such as the Stormwater network may be impacted by climate/rainfall and severe events. Additional costs will be imposed to fund environmental initiatives e.g. carbon trading and retrofitting of water quality infrastructure Existing networks are not suitable for the purpose
Increasing Costs	The cost to construct, maintain and renew infrastructure is increasing at a rate greater than council's revenue	Anticipated to continue Cost of renewing Stormwater systems is increasing	The need to carefully target and plan infrastructure is increasing in importance as maximising the service that can

Demand drivers	Present position	Projection	Impact on services
			be delivered within the funding limitations will be under pressure.
Environment and Climate Change	Current position is known	Future is uncertain but is likely to change	Carbon Tax may be imposed and increase costs

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 failures[5]. 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

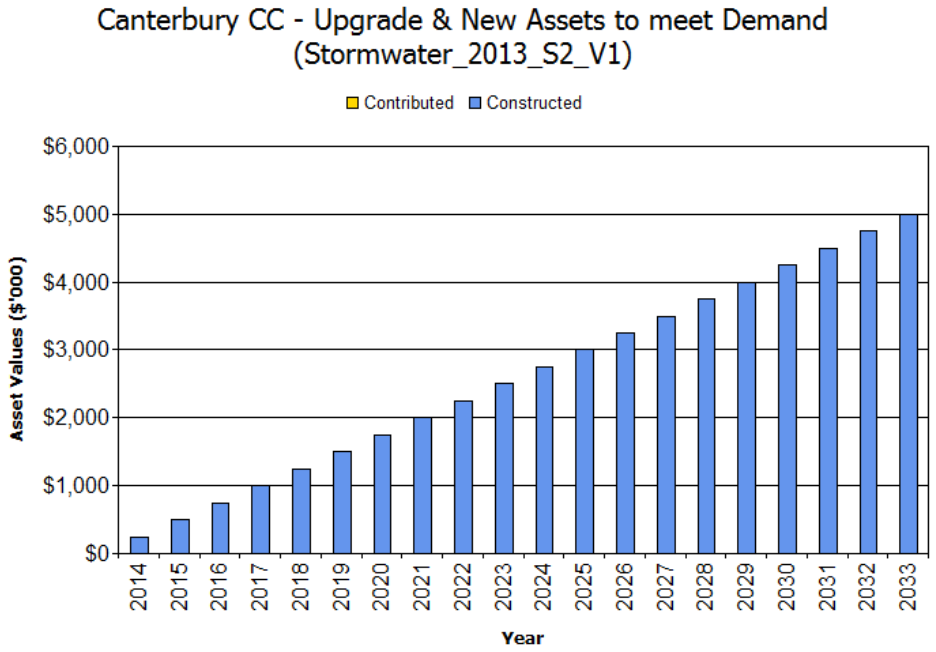
Service Activity	Demand Management Plan
All infrastructure assets	Analyse cost of providing service
	Assess current capacity to fund at the current level of service
	Monitor community expectations
	Link asset management plans to long term financial plans
	Balance priorities for infrastructure with what the community is prepared to pay for
	Communicate service levels and financial capacity with the community

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

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.

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.

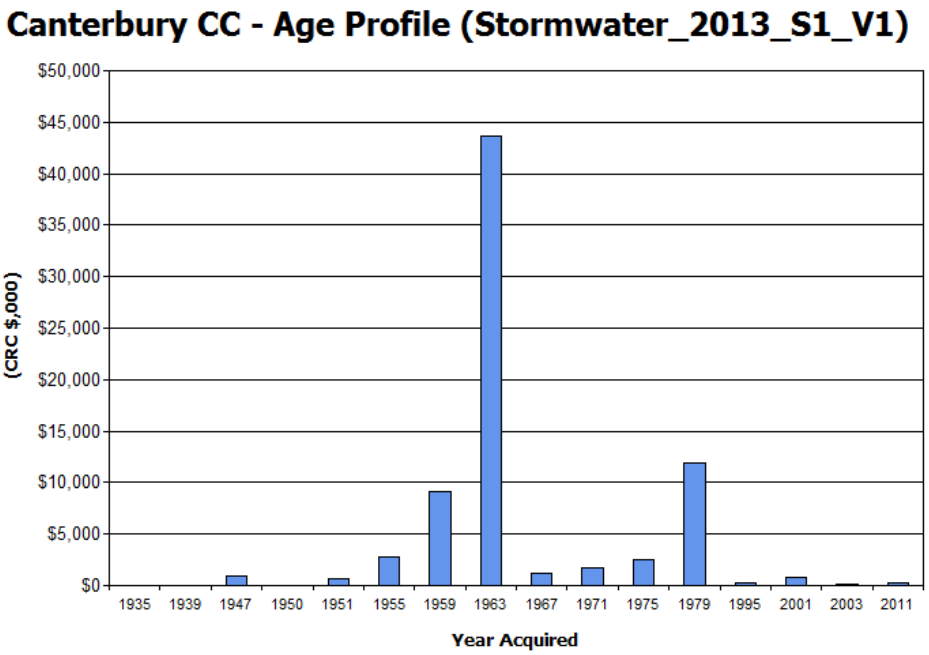
5.1 Background Data

5.1.1 Physical parameters

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

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

Figure 2: Asset Age Profile



The age profile information in Figure 2 is based on the data in council's technical asset register.

The Year Acquired has been estimated using condition to estimated age. It will be important to improve the useful life estimates. The profile also indicates that the age data on infrastructure requires development. Peaks and gaps in the data are indicative that age has been estimated or determined from a broad condition assessment and by using an estimated life.

Whilst this is quite satisfactory for broad analysis further refinement of this data will improve the quality of information available for future planning decisions, in particular for developing a program of works for the 10 year long term financial plan.

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
None identified in this revision of the stormwater AMP	

5.1.3 Asset condition

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

Fig 3.1: Asset Condition Profile (Using Asset Register)

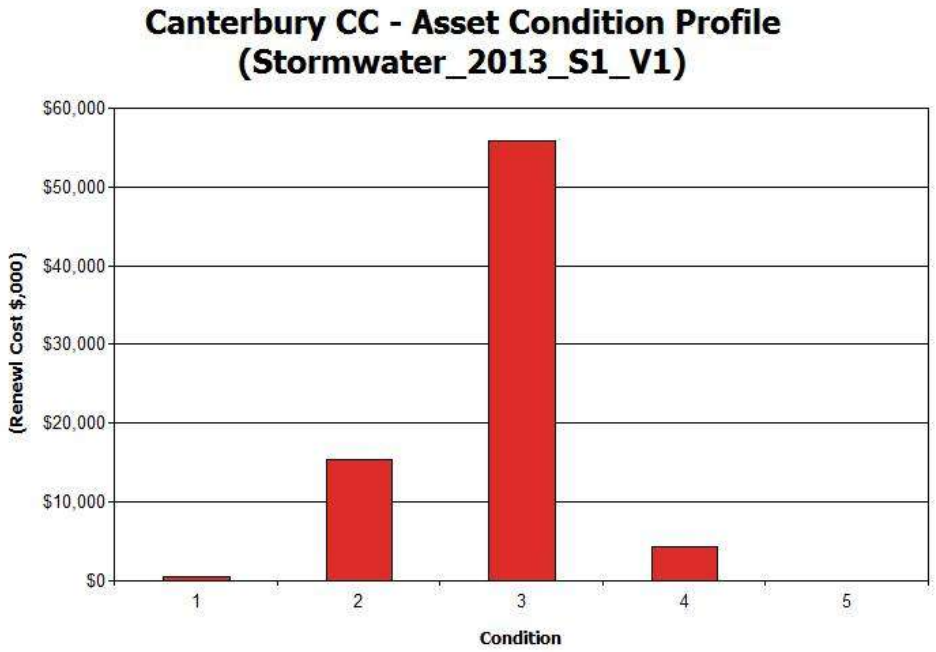
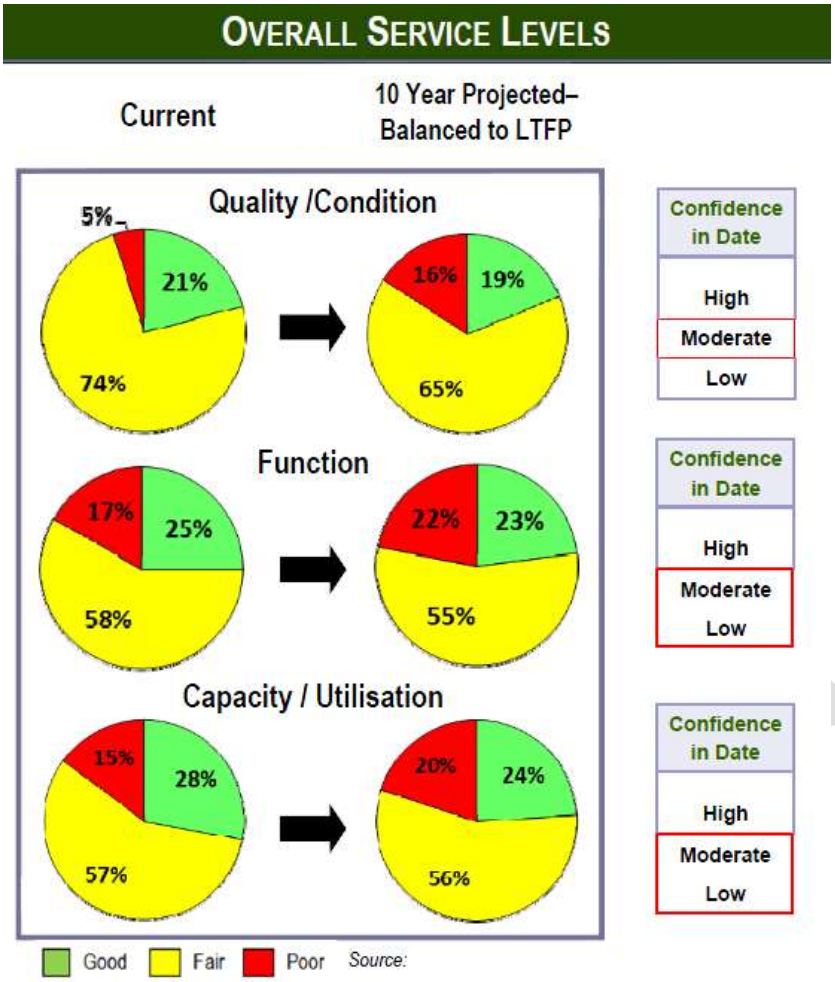


Fig 3.S2: Asset Condition/Function/Capacity Profiles provided by Council technical staff for Dashboards



Condition is measured using a 1 – 5 grading system[6] as detailed in Table 5.1.3.

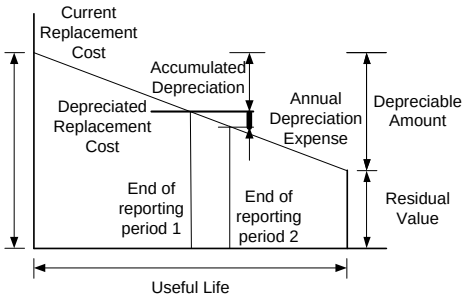
Table 5.1.3: Simple Condition Grading Model

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 2012/13 covered by this asset management plan is shown below. Assets were last revalued by AssetVal and the totals are shown below. Assets are valued at replacement cost.

Current Replacement Cost	$79,911,531
Depreciable Amount	$79,911,531
Depreciated Replacement Cost[7]	$35,161,074



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

Annual Depreciation Expense $799,115

Useful lives were based on industry averages.

Key assumptions made in preparing the valuations were:

- Use of existing valuation technical register for scenario 1, this has not been updated with the latest valuation data.

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%
Rate of Annual Asset Renewal (Capital renewal exp/Depreciable amount)	0.8%
Rate of Annual Asset Upgrade/New (Capital upgrade exp/Depreciable amount)	0.3%
Rate of Annual Asset Upgrade/New (including contributed assets)	0.3%

In 2012 the organisation plans to renew assets at 75.1% of the rate they are being consumed and will be increasing its asset stock by 0.3% in the year.

5.1.5 Historical Data

Based on the existing asset register

5.2 Infrastructure Risk Management Plan

An assessment of risks 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/Board.

Table 5.2: Critical Risks and Treatment Plans

Service or Asset at Risk	What can Happen	Risk Rating (VH, H)	Risk Treatment Plan	Treatment Costs
Stormwater Maintenance	Increasing maintenance requirements	High	Continue to improve data Documented service level risks and utilisation for establishing future maintenance priorities	Staff Time
Stormwater Renewal	Stormwater drainage deteriorates to a lesser service	High	Continue to improve data Future planning improvements can be made by	Staff Time

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

Service or Asset at Risk	What can Happen	Risk Rating (VH, H)	Risk Treatment Plan	Treatment Costs
	standard and higher risk situation		further documented service level risks and utilisation of these in establishing future renewal priorities	
Stormwater Damage	Damage to drainage network as a result of major storm events	Very High	At present cannot be managed within councils resourcing. Continue to improve data	Staff Time
Urban stormwater system	Pipe breakages causing flooding both in vicinity and upstream Network overflows due to insufficient downstream drainage causing property damage	High	Know and model the Drainage System and critical locations. Design and implement improvements. Conduct Routine inspections of network Place High Priority Items in Financial plan	Ongoing staff time Detailed Cost to be identified beyond value of assets in poor / very poor condition

5.3 Routine Operations and Maintenance Plan

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

Operations activities affect service levels including quality and function through street sweeping and grass mowing frequency, intensity and spacing of street lights and cleaning frequency and opening hours of building and other facilities.

Maintenance includes all actions necessary for retaining an asset as near as practicable to an appropriate service condition including regular ongoing day-to-day work necessary to keep assets operating, eg road patching but excluding rehabilitation or renewal. Maintenance may be classifies into reactive, planned and specific maintenance work activities.

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

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

Specific maintenance is replacement of higher value components/sub-components of assets that is undertaken on a regular cycle including repainting, replacing air conditioning units, etc. This work falls below the capital/maintenance threshold but may require a specific budget allocation.

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	$	$63,000
2012	$	$600,000
2013	$	$600,000

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

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

Assessment and prioritisation of reactive maintenance is undertaken by the organisation's 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 the organisation is obtaining best value for resources used.

Asset hierarchy

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

The organisation's service hierarchy is shown is Table 5.3.2.

Table 5.3.2: Asset Service Hierarchy

Service Hierarchy	Service Level Objective
Stormwater Pipes	The stormwater network controls minor issues related to flooding, provide access, protect persons and property and improve safety.
Stormwater Pits	
Gross Pollutant Traps (GPT)	

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 refines 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
Not yet identified within the stormwater Asset Management Plan, but there are likely to be specific stormwater assets that are critical to Council operations	Condition/Function degradation	Intervention maintenance (reactive and planned)

Standards and specifications

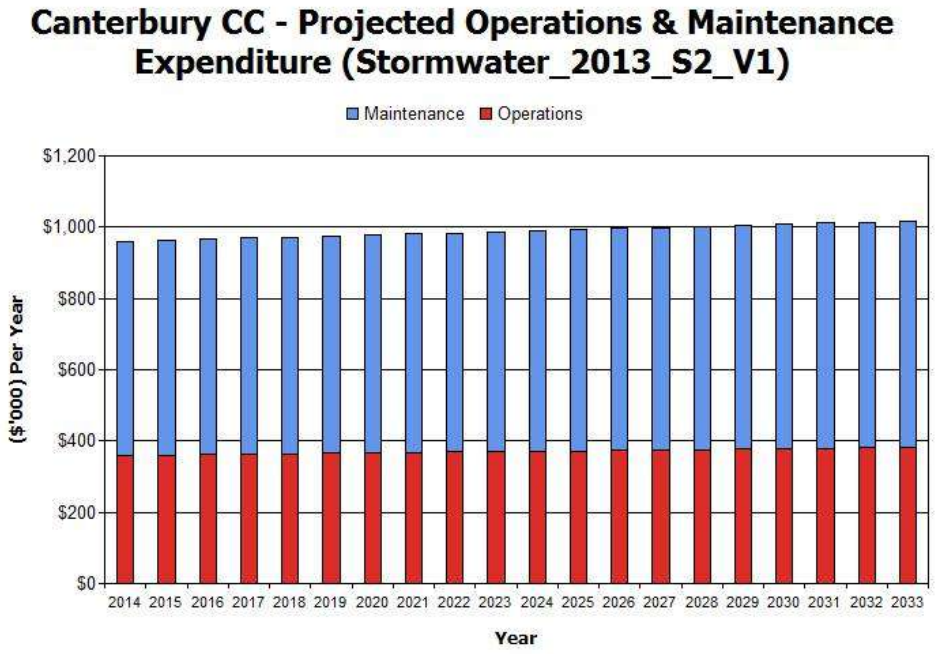
Maintenance work is carried out in accordance with the following Standards and Specifications.

- City of Canterbury Infrastructure Specification for Roadwork, Drainage and Miscellaneous Works.
- Relevant Australian Standards

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 dollar values (ie real values).

Figure 4: Projected Operations and Maintenance Expenditure



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'.

A combination of these methods was used to prepare the 3 renewal scenarios included in 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 as part of the valuation process.

Table 5.4.1: Useful Lives of Assets

Asset (Sub)Category	Useful life
Gross Pollutant Traps (GPT)	50
Pipes	80
Pits	80

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 the 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 the organisation 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).[8]

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

Have a high consequence of failure,
Have 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.[9]

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
Available budget	No weighting criteria adopted
Condition	No weighting criteria adopted
Risk	No weighting criteria adopted
Regulatory Standards	No weighting criteria adopted
Total	**100%**

Renewal and replacement standards

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

- City of Canterbury Infrastructure Specification for Roadwork, Drainage and Miscellaneous Works.
- Relevant Australian Standards

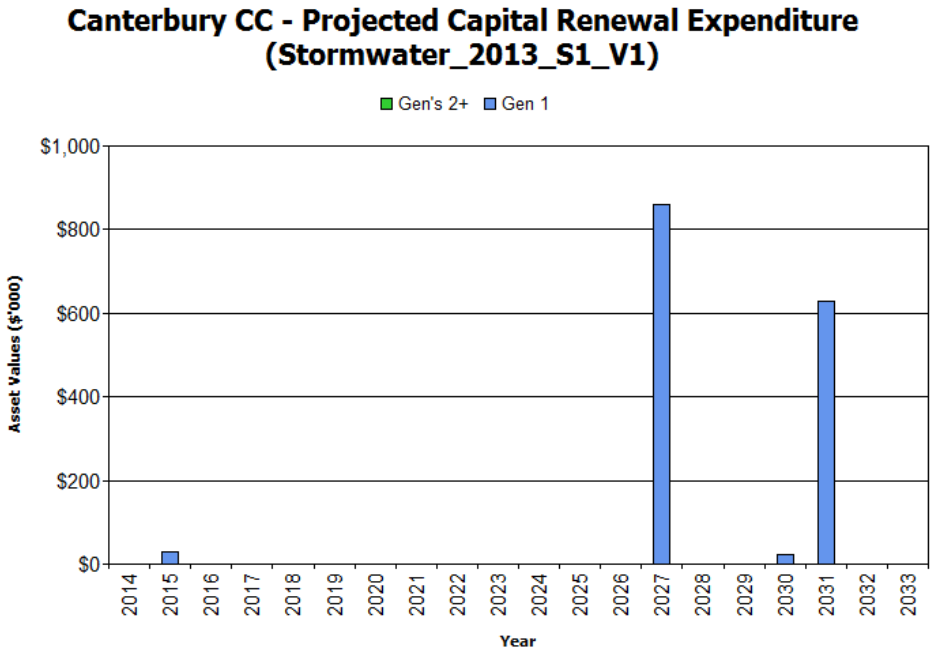
5.4.3 Summary of future renewal and replacement expenditure

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 5.1, 5.2 and 5.3 for the three scenarios. Note that all amounts are shown in real values.

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

Fig 5.1: Projected Capital Renewal and Replacement Expenditure (Scenario 1 – Using Asset Register)

[8] IPWEA, 2011, IIMM, Sec 3.4.4, p 3|60.
[9] Based on IPWEA, 2011, IIMM, Sec 3.4.5, p 3|66.



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

Fig 5.2: Projected Capital Renewal and Replacement Expenditure (Scenario 2 – Using Average Network Estimates)

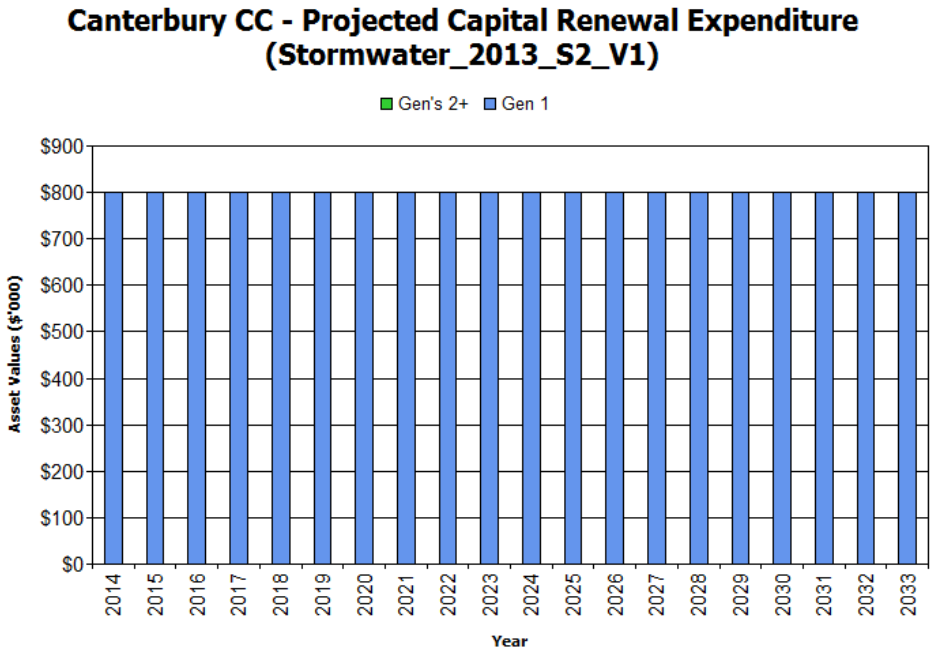
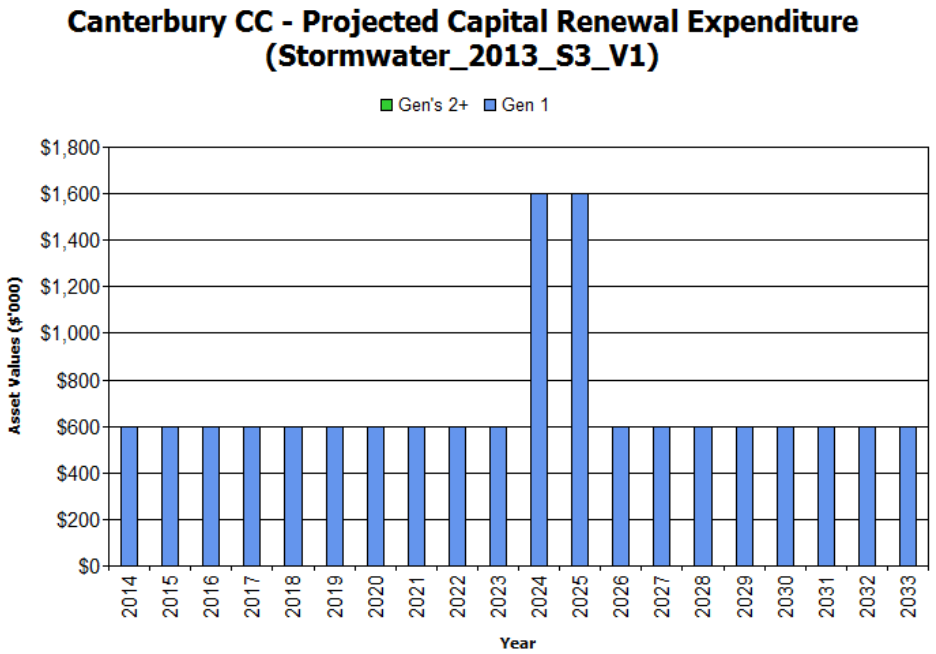


Figure 5.2 demonstrates the level of expenditure that would be required to maintain the current levels of service. The funding available is anticipated to be insufficient in the short term and Council has identified that the % by value of the stormwater drainage network in poor and very poor condition is expected to increase in the next 10 years. This expected deterioration in condition is likely to have associated reductions in service levels and increased risk.

Fig 5.3: Projected Capital Renewal and Replacement Expenditure (Scenario 3 - Balanced to Long Term Financial Plan)



The first 10 years of expenditure shown in Fig 5.3 matches the funding provision in the long term financial plan. The peaks in renewal outside of the 10 year long term financial planning period are indicative of what cannot be done.

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 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 below.

Table 5.5.1: New Assets Priority Ranking Criteria

Criteria	Weighting
Demand	No weighting criteria adopted
Flooding / Capacity	No weighting criteria adopted
Availability of funding	No weighting criteria adopted
Risk	No weighting criteria adopted
Identified in Corporate Plan	No weighting criteria adopted
Total	**100%**

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/Board, 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,

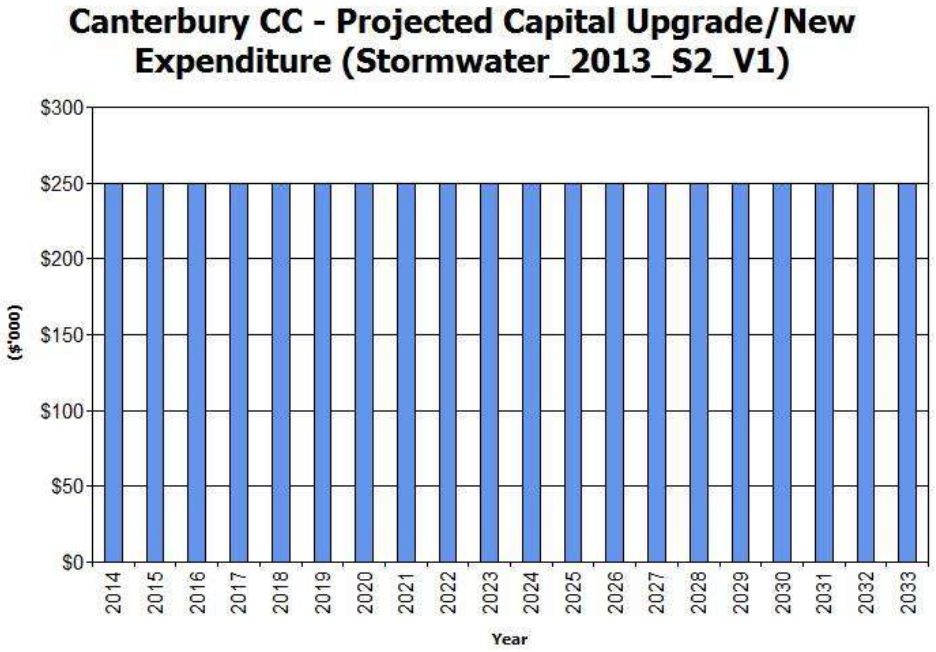
Review management of capital project management activities to ensure the organisation is obtaining best value for resources used.

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 the organisation'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
No assets identified for disposal in this asset management plan				

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:

Council's technical estimate that $200,000 pa over the available budget would be required to maintain current levels of service for the stormwater drainage network.

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:

- Assets deteriorating to a lesser service standard and a higher risk position
- Pipe breakages causing flooding both in vicinity and upstream
- Network overflows due to insufficient downstream drainage causing property damage

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:

Damage to environment and contamination of waterways due to wastewater main failure or overflow
Damage to public and private property due to network overflows

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.

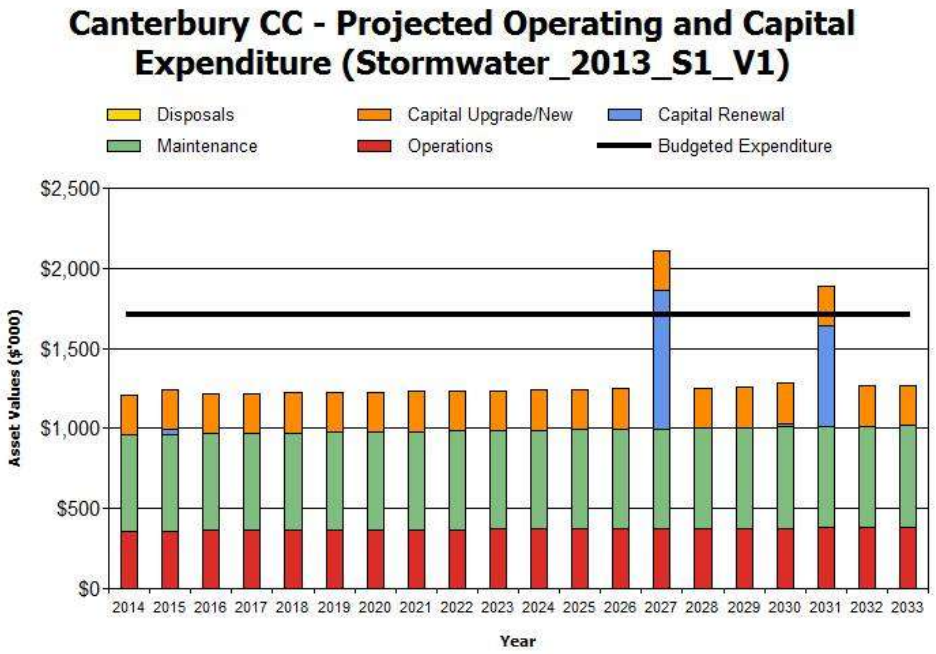
6. FINANCIAL SUMMARY

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

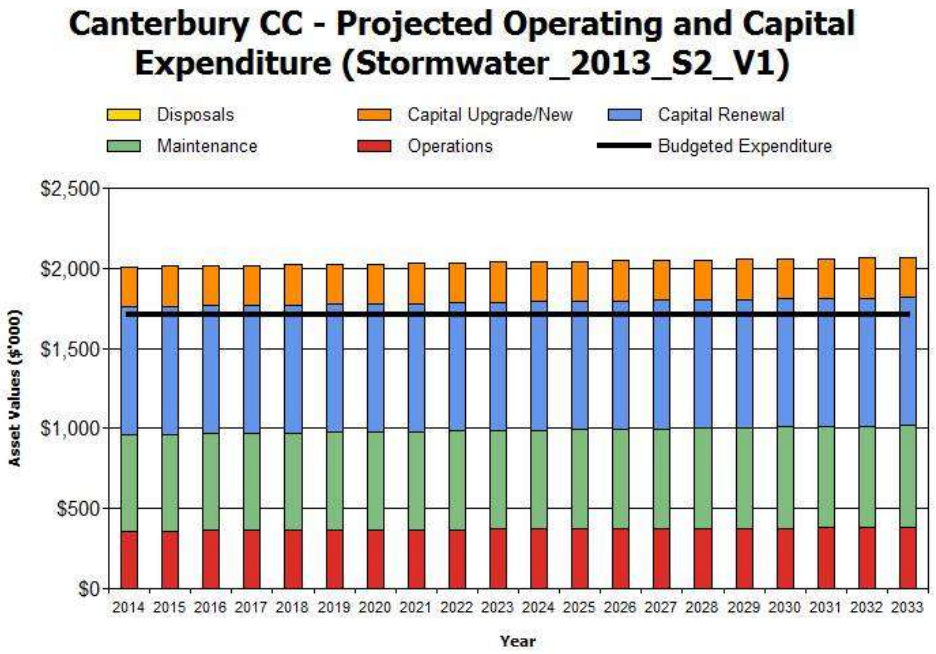
The financial projections are shown in Fig 7.1, 7.2 and 7.3 for projected operating (operations and maintenance) and capital expenditure (renewal and upgrade/expansion/new assets) for all 3 scenarios. Note that all costs are shown in real values.

Fig 7.1: Projected Operating and Capital Expenditure (Scenario 1 – Using Asset Register)



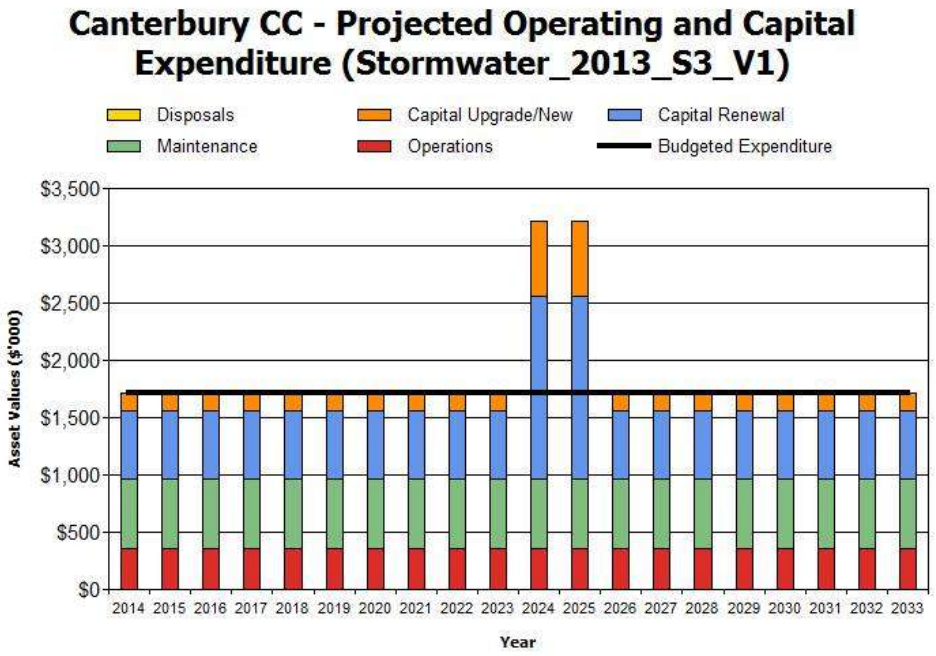
As discussed in Section 5.4 the expenditure projection (forecast) in Scenario 1 (Using the asset/valuation register) is not consistent with the required works program or the long term financial plan, and is indicative of the continuing work required to improve the asset register.

Fig 7.2: Projected Operating and Capital Expenditure (Scenario 2 – Using Average Network Estimates)



The Scenario 2 renewal requirements are based on the technical judgement made by Canterbury City technical staff. This level of funding is not currently being achieved, and indicates a future reduction in services levels and increased risk is likely.

Fig 7.3: Projected Operating and Capital Expenditure (Scenario 3 - Balanced to Long Term Financial Plan)



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. Financial sustainability indicated in this section is based on scenario 2.

Asset Renewal Funding Ratio

Asset Renewal Funding Ratio[10] 75%

The Asset Renewal Funding Ratio is the most important indicator and reveals that over the next 10 years, the organisation is forecasting that it will have 75% 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 expense). The life cycle cost for the services covered in this asset management plan is $1,773,000 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 $1,560,000 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 -$213,000 per year (-ve = gap, +ve = surplus).

[10] AIFMG, 2009, Financial Sustainability Indicator 8, Sec 2.6, p 2.18

Life cycle expenditure is 88% 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 $1,774,000 on average per year.

Estimated (budget) operations, maintenance and capital renewal funding is $1,560,000 on average per year giving a 10 year funding shortfall of $214,000 per year. This indicates that the organisation expects to have 88% 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 $1,766,000 on average per year.

Estimated (budget) operations, maintenance and capital renewal funding is $1,560,000 on average per year giving a 5 year funding shortfall of $206,000. This indicates that the organisation expects to have 88% of projected expenditures required to provide the services shown in this asset management plan.

Asset management financial indicators

Figure 7A.1, 7A.2 and 7A.3 shows the asset management financial indicators over the 10 year planning period and for the long term life cycle for all 3 scenarios.

Figure 7A.1: Asset Management Financial Indicators (Scenario 1 – Using Asset Register)

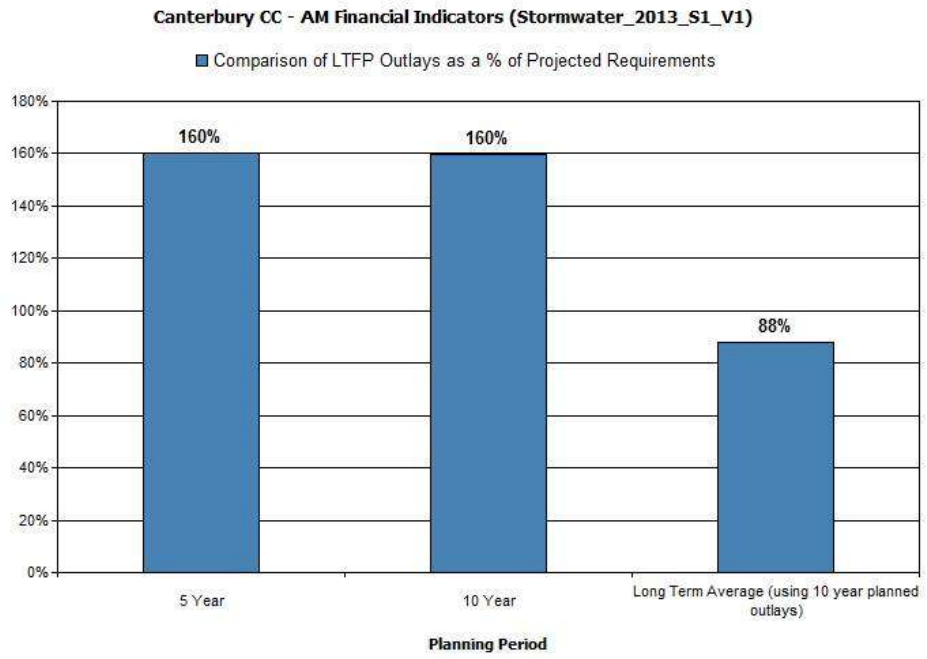


Figure 7A.2: Asset Management Financial Indicators (Scenario 2 – Using Average Network Estimates)

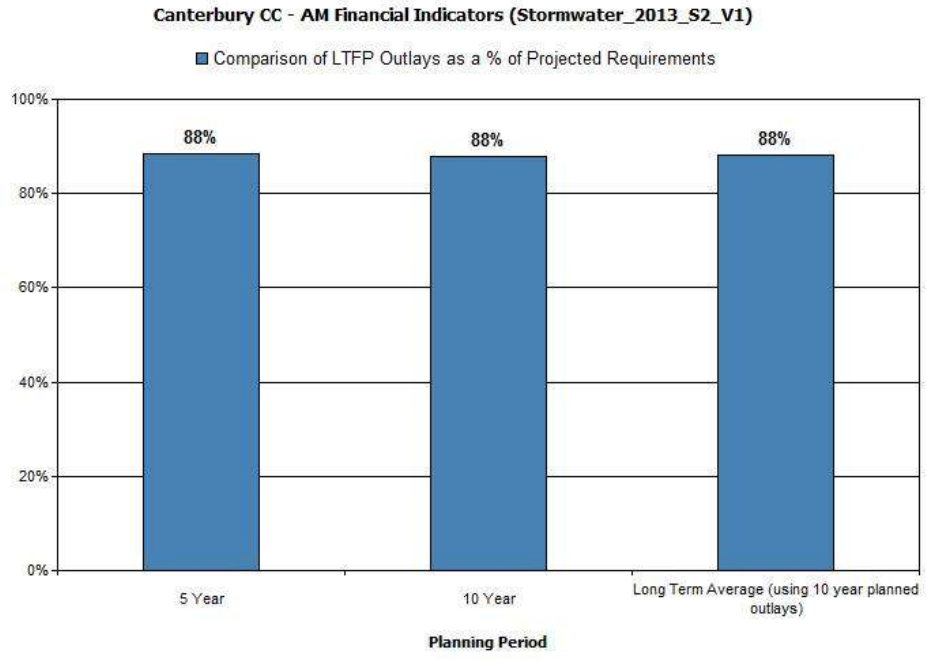
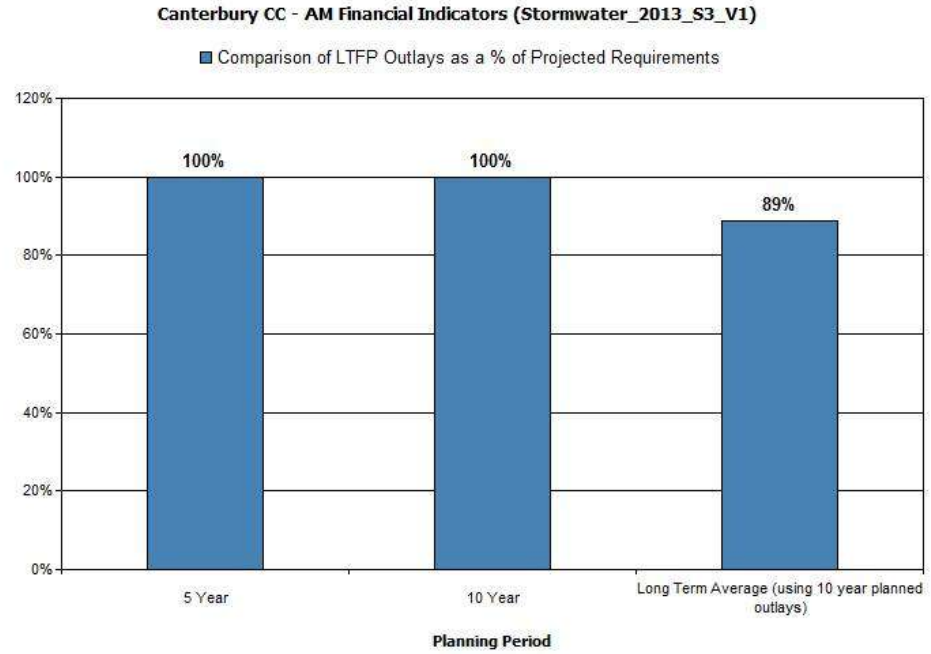


Figure 7A.3: Asset Management Financial Indicators (Scenario 3 - Balanced to Long Term Financial Plan)



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 8.1, 8.2 and 8.3 shows the projected asset renewal and replacement expenditure over the 20 years of the AM Plan for each of the three scenarios. 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 8.1: Projected and LTFP Budgeted Renewal Expenditure (Scenario 1 – Using Asset Register)

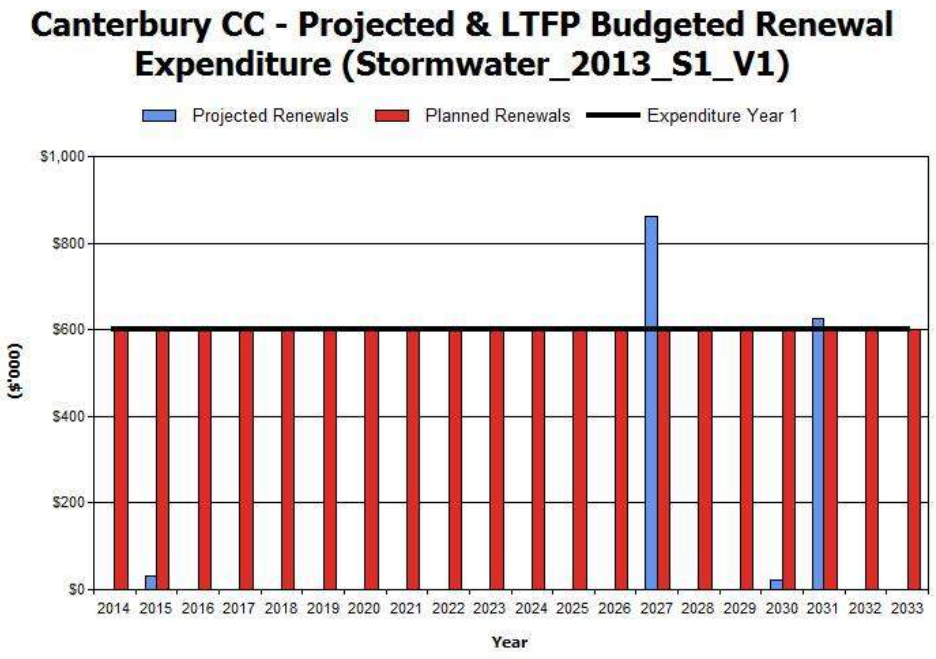


Table 6.1.1.S1 shows the shortfall between projected renewal and replacement expenditures and expenditure accommodated in long term financial plan. Budget expenditures accommodated in the long term financial plan or extrapolated from current budgets are shown in Appendix D.

Table 6.1.1.S1: Projected and LTFP Budgeted Renewals and Financing Shortfall (Scenario 1 – Using Asset Register)

Canterbury CC - Report 4 - Table 6.1.1 Renewals Financing (Stormwater_2013_S1_V1)				
Year End Jun-30	**Projected Renewals ($'000)**	**LTFP Renewal Budget ($'000)**	**Renewal Financing Shortfall ($'000) (- gap, + surplus)**	**Cumulative Shortfall($'000) (- gap, + surplus)**
2014	$0	$600	$600	$600
2015	$30	$600	$570	$1,170
2016	$0	$600	$600	$1,770
2017	$0	$600	$600	$2,370
2018	$0	$600	$600	$2,970
2019	$1	$600	$599	$3,569
2020	$0	$600	$600	$4,169
2021	$0	$600	$600	$4,769
2022	$0	$600	$600	$5,369
2023	$0	$600	$600	$5,969
2024	$0	$600	$600	$6,569
2025	$0	$600	$600	$7,169
2026	$0	$600	$600	$7,769
2027	$860	$600	-$260	$7,509
2028	$0	$600	$600	$8,109
2029	$0	$600	$600	$8,709
2030	$23	$600	$577	$9,286
2031	$627	$600	-$27	$9,259
2032	$0	$600	$600	$9,859
2033	$0	$600	$600	$10,459

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

Figure 8.2: Projected and LTFP Budgeted Renewal Expenditure (Scenario 2 – Using Average Network Estimates)

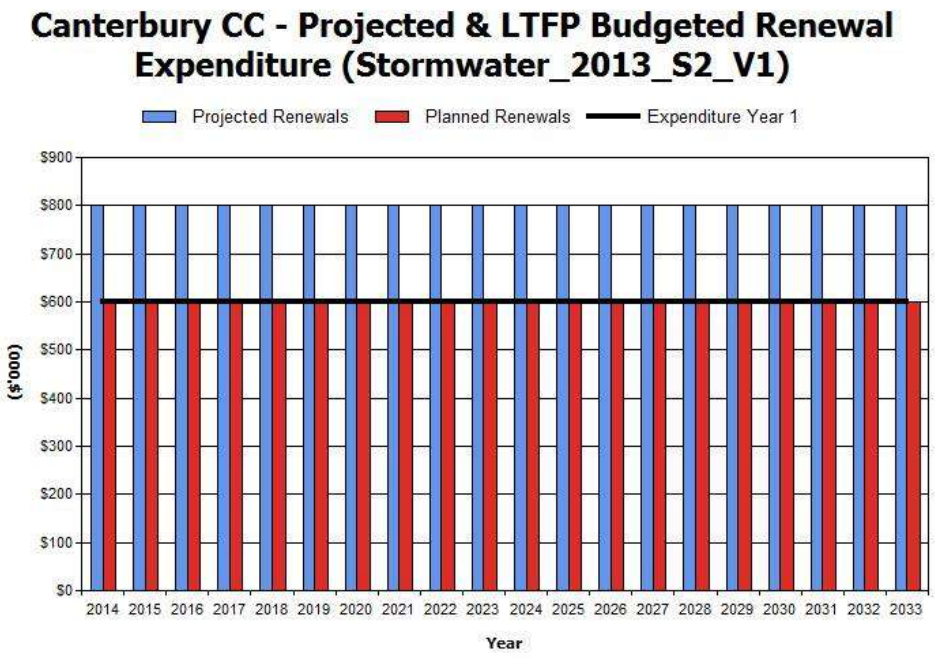


Table 6.1.1.S2 shows the shortfall between projected renewal and replacement expenditures and expenditure accommodated in long term financial plan. Budget expenditures accommodated in the long term financial plan or extrapolated from current budgets are shown in Appendix D.

Table 6.1.1.S2: Projected and LTFP Budgeted Renewals and Financing Shortfall (Scenario 2 – Using Average Network Estimates)

Canterbury CC - Report 4 - Table 6.1.1 Renewals Financing (Stormwater_2013_S2_V1)				
Year End Jun-30	**Projected Renewals ($'000)**	**LTFP Renewal Budget ($'000)**	**Renewal Financing Shortfall ($'000) (- gap, + surplus)**	**Cumulative Shortfall($'000) (- gap, + surplus)**
2014	$800	$600	-$200	-$200
2015	$800	$600	-$200	-$400
2016	$800	$600	-$200	-$600
2017	$800	$600	-$200	-$800
2018	$800	$600	-$200	-$1,000
2019	$800	$600	-$200	-$1,200
2020	$800	$600	-$200	-$1,400
2021	$800	$600	-$200	-$1,600
2022	$800	$600	-$200	-$1,800
2023	$800	$600	-$200	-$2,000
2024	$800	$600	-$200	-$2,200
2025	$800	$600	-$200	-$2,400
2026	$800	$600	-$200	-$2,600
2027	$800	$600	-$200	-$2,800
2028	$800	$600	-$200	-$3,000
2029	$800	$600	-$200	-$3,200
2030	$800	$600	-$200	-$3,400
2031	$800	$600	-$200	-$3,600
2032	$800	$600	-$200	-$3,800
2033	$800	$600	-$200	-$4,000

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

Figure 8.3: Projected and LTFP Budgeted Renewal Expenditure (Scenario 3 - Balanced to Long Term Financial Plan)

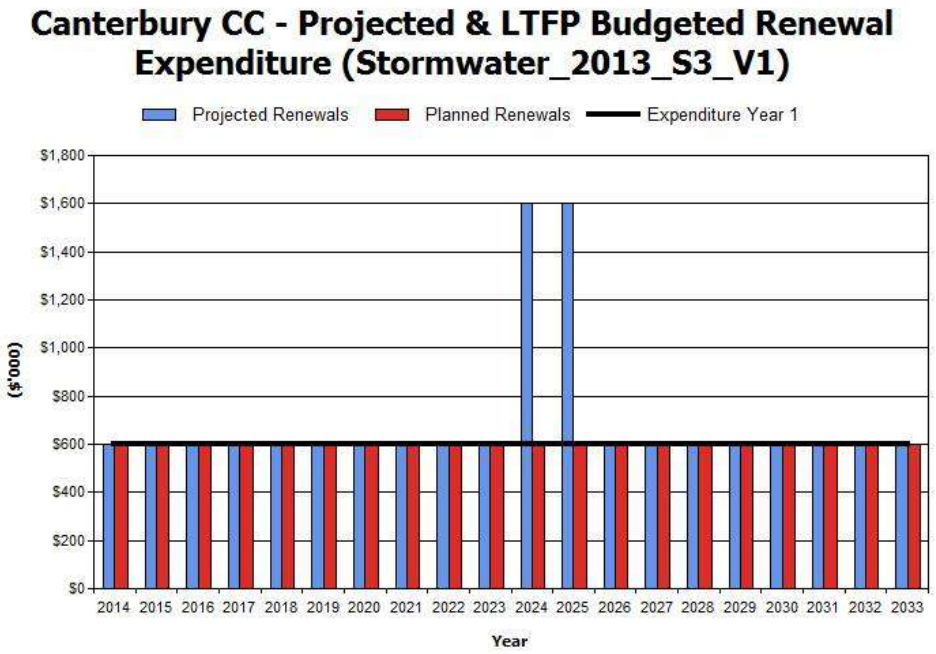


Table 6.1.1.S3 shows the shortfall between projected renewal and replacement expenditures and expenditure accommodated in long term financial plan. Budget expenditures accommodated in the long term financial plan or extrapolated from current budgets are shown in Appendix D.

Table 6.1.1.S3: Projected and LTFP Budgeted Renewals and Financing Shortfall (Scenario 3 - Balanced to Long Term Financial Plan)

Canterbury CC - Report 4 - Table 6.1.1 Renewals Financing (Stormwater_2013_S3_V1)				
Year End Jun-30	**Projected Renewals ($'000)**	**LTFP Renewal Budget ($'000)**	**Renewal Financing Shortfall ($'000) (- gap, + surplus)**	**Cumulative Shortfall($'000) (- gap, + surplus)**
2014	$600	$600	$0	$0
2015	$600	$600	$0	$0
2016	$600	$600	$0	$0
2017	$600	$600	$0	$0
2018	$600	$600	$0	$0
2019	$600	$600	$0	$0
2020	$600	$600	$0	$0
2021	$600	$600	$0	$0
2022	$600	$600	$0	$0
2023	$600	$600	$0	$0
2024	$1,600	$600	-$1,000	-$1,000
2025	$1,600	$600	-$1,000	-$2,000
2026	$600	$600	$0	-$2,000
2027	$600	$600	$0	-$2,000
2028	$600	$600	$0	-$2,000
2029	$600	$600	$0	-$2,000
2030	$600	$600	$0	-$2,000
2031	$600	$600	$0	-$2,000
2032	$600	$600	$0	-$2,000
2033	$600	$600	$0	-$2,000

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 the '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 current real values.

Table 6.1.2: Projected Expenditures for Long Term Financial Plan ($000) (Scenario 2 – Using Average Network Estimates)

Canterbury CC - Report 5 - Table 6.1.2 Long Term Financial Plan (Stormwater_2013_S2_V1)

Year	Operations	Maintenance	Projected Capital Renewal	Capital Upgrade/New	Disposals
2014	$360.00	$600.00	$800.00	$250.00	$0.00
2015	$361.13	$601.88	$800.00	$250.00	$0.00
2016	$362.25	$603.75	$800.00	$250.00	$0.00
2017	$363.38	$605.63	$800.00	$250.00	$0.00
2018	$364.51	$607.51	$800.00	$250.00	$0.00
2019	$365.63	$609.39	$800.00	$250.00	$0.00
2020	$366.76	$611.26	$800.00	$250.00	$0.00
2021	$367.88	$613.14	$800.00	$250.00	$0.00
2022	$369.01	$615.02	$800.00	$250.00	$0.00
2023	$370.14	$616.89	$800.00	$250.00	$0.00
2024	$371.26	$618.77	$800.00	$250.00	$0.00
2025	$372.39	$620.65	$800.00	$250.00	$0.00
2026	$373.51	$622.52	$800.00	$250.00	$0.00
2027	$374.64	$624.40	$800.00	$250.00	$0.00
2028	$375.77	$626.28	$800.00	$250.00	$0.00
2029	$376.89	$628.16	$800.00	$250.00	$0.00
2030	$378.02	$630.03	$800.00	$250.00	$0.00
2031	$379.15	$631.91	$800.00	$250.00	$0.00
2032	$380.27	$633.79	$800.00	$250.00	$0.00
2033	$381.40	$635.66	$800.00	$250.00	$0.00

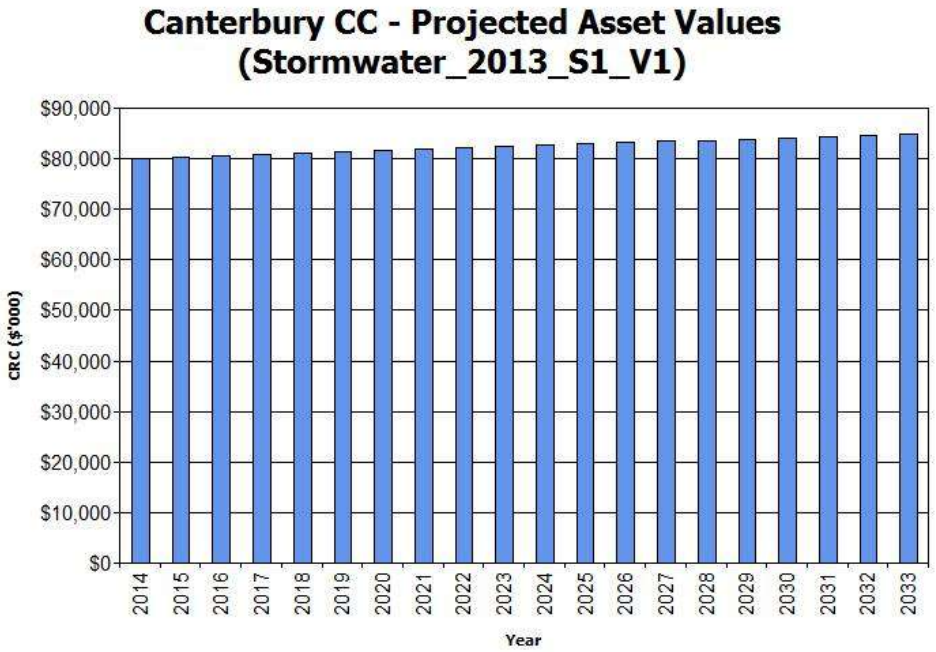
6.2 Funding Strategy

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

6.3 Valuation Forecasts

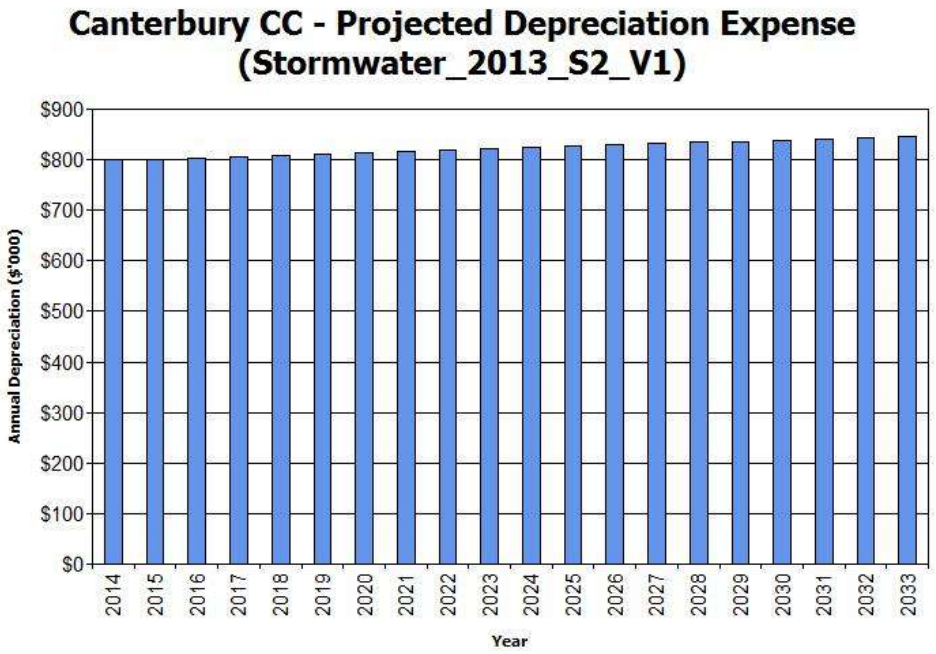
Asset values are forecast to increase as additional assets are added to the asset stock from construction and acquisition by the organisation and from assets constructed by land developers and others and donated to the organisation. Figure 9 shows the projected replacement cost asset values over the planning period in real values.

Figure 9: Projected Asset Values



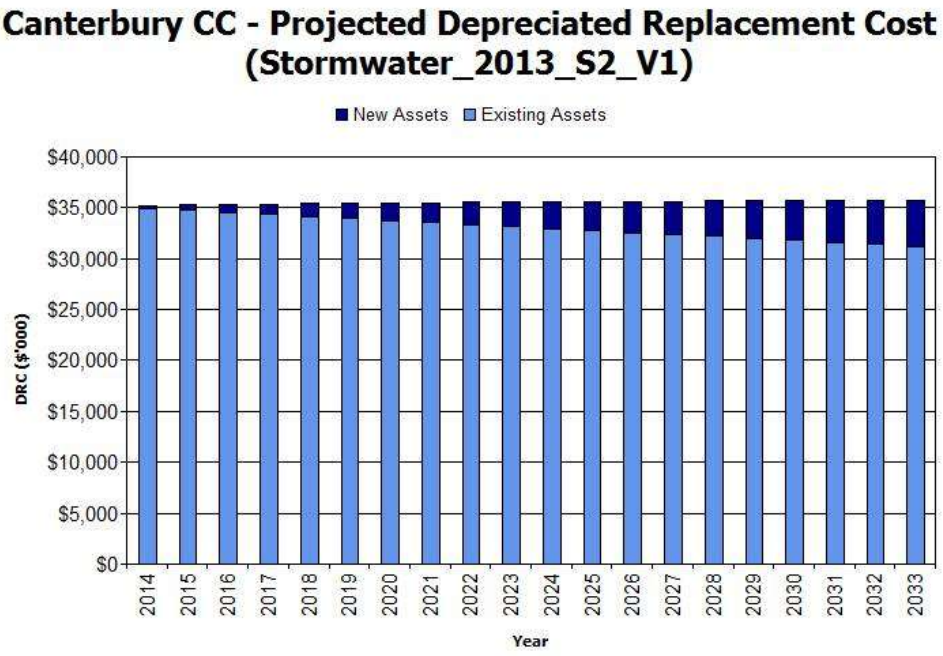
Depreciation expense values are forecast in line with asset values as shown in Figure 10.

Figure 10: Projected Depreciation Expense



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



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
Use of the existing inventory data (Scenario 1) including depreciation which is used for the Long Term sustainability assessments	High Risk
Use of technical judgement for renewal Requirements (Scenario 2)	Medium risk
Use of existing valuations, useful lives and remaining lives determined from the condition rating	Medium Risk
Use of current expenditure information as best as this can be determined	Medium Risk

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 scale[11] 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 ± 2%
B Reliable	Data based on sound records, procedures, investigations and analysis, documented properly but has minor shortcomings, for example some of the data is old, some documentation is missing and/or reliance is placed on unconfirmed reports or some extrapolation. Dataset is complete and estimated to be accurate ± 10%
C Uncertain	Data based on sound records, procedures, investigations and analysis which is incomplete or unsupported, or extrapolated from a limited sample for which grade A or B data are available. Dataset is substantially complete but up to 50% is extrapolated data and accuracy estimated ± 25%
D Very Uncertain	Data is based on unconfirmed verbal reports and/or cursory inspections and analysis. Dataset may not be fully complete and most data is estimated or extrapolated. Accuracy ± 40%
E Unknown	None or very little data held.

The estimated confidence level for and reliability of data used in this AM Plan is 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	C Uncertain	Estimated, further substantiation required for next revision of the AMP
Growth projections	C Uncertain	Estimated, further substantiation required for next revision of the AMP
Operations expenditures	C Uncertain	Direct from budget, but breakdown into operations and maintenance and renewal is estimated and requires development
Maintenance expenditures	C Uncertain	Direct from budget, but breakdown into operations and maintenance and renewal is estimated and requires development
Projected Renewal expenditures. - Asset values	B Reliable	Direct from budget, but breakdown into operations and maintenance and renewal is estimated and requires development
- Asset residual values	C Uncertain	Estimated at valuation. Further assessment required
- Asset useful lives	C Uncertain	Estimated using typical values. Further substantiation required for next revision of the AMP
- Condition modelling	C Uncertain	Estimated, further substantiation required for next revision of the AMP
- Network renewals	B Reliable	Estimated, further substantiation required for next revision of the AMP
- Defect repairs	B Reliable	Estimated, further substantiation required for next revision of the AMP
Upgrade/New expenditures	C Uncertain	Estimated, further substantiation required for next revision of the AMP
Disposal expenditures	B Reliable	Estimated, but not considered to be significant

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

[11] IPWEA, 2011, IIMM, Table 2.4.6, p 2|59.

7. PLAN IMPROVEMENT AND MONITORING

7.1 Status of Asset Management Practices

7.1.1 Accounting and financial systems

Canterbury City Council uses Authority Financials as its accounting and financial system.

Accountabilities for financial systems

The financial system is managed by Council's Finance and Information Services Division.

Accounting standards and regulations

In accounting for Council's assets, the following statutory requirements shall be adhered to:

- Local Government Amendment (Planning and Reporting) Act 2009
- NSW Code of Accounting Practice and Financial Reporting (updated annually)
- Local Government (Finance Plans and Reporting) Regulation 2010
- AASB116

Capital/maintenance threshold

Items of infrastructure, property, plant and equipment are not capitalised unless their cost of acquisition exceeds the following;

- Land
    - Council land - 100% Capitalised
    - Open space - 100% Capitalised
    - Land under roads (purchases after 30/6/08) - 100% Capitalised
- Plant & Equipment
    - Office furniture > $1,000
    - Office equipment > $1,000
    - Other plant & equipment > $1,000
- Buildings & Land Improvements
    - Park Furniture and equipment > $1,000
    - Buildings
        - Construction/extensions 100% Capitalised
        - Renovations > $10,000
    - Other Structures > $2,000
- Stormwater Assets
    - Drains & culverts > $1,000
    - Other > $1,000

- Transport Assets
    - Road Construction & reconstruction > $10,000
    - Reseal/Re-sheet & major repairs > $10,000
    - Bridge construction & reconstruction > $10,000

Required changes to accounting financial systems arising from this AM Plan

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

7.2.1 Asset management system

Council currently has a number of systems which hold asset data. These predominantly include spread sheets, data bases and the financial system.

Required changes to asset management system arising from this AM Plan

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

7.2 Improvement Program

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	Improve record and reporting on expenditures, with separate costs for operations, maintenance and capture capital expenditures as renewal or upgrade/new	Corporate (Technical & Financial)	Staff Time	
2	Continue the development of the corporate asset register, in which financial calculations including calculation of annual depreciation are undertaken by council.	Corporate (Technical & Financial)	Staff Time	
3	Linking of the customer service system to the corporate asset register to link requests to asset records	Corporate	Staff Time	
4	Continue to Improve project cost accounting to record costs against the asset component and develop valuation unit rates	Corporate (Technical & Financial)	Staff Time	
5	Review the accuracy and currency of asset data, in particular verify the existing condition assessment and the valuations of assets	Technical	Staff Time	
6	Review methodology for determining remaining life, with detail assessment for assets requiring renewal in the medium term (next 10-20 years) An outcome should be that the remaining lives from the asset register will generate a renewal scenario aligning with the Works Program and Long Term Financial Plan. (Scenario 1 described in this asset management plan will match Scenario 3)	Corporate (Technical & Financial)	Staff Time	
8	Develop procedures for maintaining and linking the Asset and Financial Registers	Corporate (Technical & Financial)	Staff Time	
9	Maintenance response levels should be documented and adopted.	Technical Services	Staff Time	

7.3 Monitoring and Review Procedures

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

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

The AM Plan has a life of 4 years (Council/Board election cycle) and is due for complete revision and updating within 12 months of each Council/Board 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 the organisation'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 organisation's Strategic Plan and associated plans,

The Asset Renewal Funding Ratio achieving the target of 1.0.

8. REFERENCES

Canterbury Annual Report 2011/12

Canterbury Community Strategic Plan 2012

Canterbury City Council Delivery Plan 2012

Canterbury City Council Operational Plan 2012 - 2013

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

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

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

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

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 Budgeted Expenditures Accommodated in LTFP

Appendix E Abbreviations

Appendix F Glossary

Appendix A Maintenance Response Levels of Service

To be developed.

Appendix B Projected 10 year Capital Renewal and Replacement Works Program

Canterbury CC

Projected Capital Renewal Works Program - Stormwater_2013_S2_V1

($000)

Year	Item	Description	Estimate
2014		**Network Renewals**	
	1	Estimated Renewal of Stormwater Drainage Required	$800
	2		
	3		
	4		
	5		
	6		
	7		
	8		
	9		
	10		
2014		**Total**	**$800**

2015		**Network Renewals**	
	1	Estimated Renewal of Stormwater Drainage Required	$800
	2		
	3		
	4		
	5		
	6		
	7		
	8		
	9		
	10		
2015		**Total**	**$800**

($000)

Year	Item	Description	Estimate
2016		**Network Renewals**	
	1	Estimated Renewal of Stormwater Drainage Required	$800
	2		
	3		
	4		
	5		
	6		
	7		
	8		
	9		
	10		
2016		**Total**	**$800**

2017		**Network Renewals**	Estimate
	1	Estimated Renewal of Stormwater Drainage Required	$800
	2		
	3		
	4		
	5		
	6		
	7		
	8		
	9		
	10		

Canterbury CC

Projected Capital Renewal Works Program - Stormwater_2013_S2_V1

($000)

Year	Item	Description	Estimate
2017		**Total**	**$800**

($000)

Year	Item	Description	Estimate
2018		**Network Renewals**	
	1	Estimated Renewal of Stormwater Drainage Required	$800
	2		
	3		
	4		
	5		
	6		
	7		
	8		
	9		
	10		
2018		**Total**	**$800**

2019		**Network Renewals**	
	1	Estimated Renewal of Stormwater Drainage Required	$800
	2		
	3		
	4		
	5		
	6		
	7		
	8		
	9		
	10		
2019		**Total**	**$800**

($000)

Year	Item	Description	Estimate
2020		**Network Renewals**	
	1	Estimated Renewal of Stormwater Drainage Required	$800
	2		
	3		
	4		
	5		
	6		
	7		
	8		
	9		
	10		
2020		**Total**	**$800**

2021		**Network Renewals**	
	1	Estimated Renewal of Stormwater Drainage Required	$800
	2		
	3		
	4		
	5		
	6		
	7		
	8		

Canterbury CC

Projected Capital Renewal Works Program - Stormwater_2013_S2_V1

($000)

Year	Item	Description	Estimate
	9		
	10		
2021		**Total**	**$800**

($000)

Year	Item	Description	Estimate
2022		**Network Renewals**	
	1	Estimated Renewal of Stormwater Drainage Required	$800
	2		
	3		
	4		
	5		
	6		
	7		
	8		
	9		
	10		
2022		**Total**	**$800**

2023		**Network Renewals**	
	1	Estimated Renewal of Stormwater Drainage Required	$800
	2		
	3		
	4		
	5		
	6		
	7		
	8		
	9		
	10		
2023		**Total**	**$800**

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

Canterbury CC

Projected Capital Upgrade/New Works Program - Stormwater_2013_S2_V1

($000)

Year	Item	Description	Estimate
2014	1	Stormwater Drainage Upgrades and renewals proposed	$250
	2		
	3		
	4		
	5		
	6		
	7		
	8		
	9		
	10		
2014		**Total**	**$250**

($000)

Year	Item	Description	Estimate
2015	1	Stormwater Drainage Upgrades and renewals proposed	$250
	2		
	3		
	4		
	5		
	6		
	7		
	8		
	9		
	10		
2015		**Total**	**$250**

($000)

Year	Item	Description	Estimate
2016	1	Stormwater Drainage Upgrades and renewals proposed	$250
	2		
	3		
	4		
	5		
	6		
	7		
	8		
	9		
	10		
2016		**Total**	**$250**

($000)

Year	Item	Description	Estimate
2017	1	Stormwater Drainage Upgrades and renewals proposed	$250
	2		
	3		
	4		
	5		
	6		
	7		
	8		
	9		

Canterbury CC

Projected Capital Upgrade/New Works Program - Stormwater_2013_S2_V1

($000)

Year	Item	Description	Estimate
	10		
2017		**Total**	**$250**

($000)

Year	Item	Description	Estimate
2018	1	Stormwater Drainage Upgrades and renewals proposed	$250
	2		
	3		
	4		
	5		
	6		
	7		
	8		
	9		
	10		
2018		**Total**	**$250**

($000)

Year	Item	Description	Estimate
2019	1	Stormwater Drainage Upgrades and renewals proposed	$250
	2		
	3		
	4		
	5		
	6		
	7		
	8		
	9		
	10		
2019		**Total**	**$250**

($000)

Year	Item	Description	Estimate
2020	1	Stormwater Drainage Upgrades and renewals proposed	$250
	2		
	3		
	4		
	5		
	6		
	7		
	8		
	9		
	10		
2020		**Total**	**$250**

($000)

Year	Item	Description	Estimate
2021	1	Stormwater Drainage Upgrades and renewals proposed	$250
	2		
	3		
	4		
	5		
	6		

Canterbury CC

Projected Capital Upgrade/New Works Program - Stormwater_2013_S2_V1

($000)

Year	Item	Description	Estimate
	7		
	8		
	9		
	10		
2021		**Total**	**$250**

($000)

Year	Item	Description	Estimate
2022	1	Stormwater Drainage Upgrades and renewals proposed	$250
	2		
	3		
	4		
	5		
	6		
	7		
	8		
	9		
	10		
2022		**Total**	**$250**

($000)

Year	Item	Description	Estimate
2023	1	Stormwater Drainage Upgrades and renewals proposed	$250
	2		
	3		
	4		
	5		
	6		
	7		
	8		
	9		
	10		
2023		**Total**	**$250**

Appendix D Budgeted Expenditures Accommodated in LTFP

NAMS.PLUS2 Asset Management **Canterbury CC**

Stormwater_2013_S2_V1 Asset Management Plan

First year of expenditure projections **2014** (yr ending 30 June)

Stormwater_2013

Asset values as at 30 June 2013

			Calc CRC from Asset Register	
Current replacement cost	$79,912	(000)	$0	(000)
Depreciable amount	$79,912	(000)	This is a check for you.	
Depreciated replacement cost	$35,161	(000)		
Annual depreciation expense	$799	(000)		

Operations and Maintenance Costs from New Assets

	% of asset value
Additional operations costs	0.45%
Additional maintenance	0.75%
Additional depreciation	1.00%
Planned renewal budget (information only)	

You may use these values calculated from your data or overwrite the links.

Planned Expenditures from LTFP

20 Year Expenditure Projections Note: Enter all values in current **2014** values

Year ending June	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**
	$000	$000	$000	$000	$000	$000	$000	$000	$000	$000
Expenditure Outlays included in Long Term Financial Plan (in current $ values)										
Operations										
Operations **budget**	$360	$360	$360	$360	$360	$360	$360	$360	$360	$360
Management **budget**	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
AM systems **budget**	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total operations	$360	$360	$360	$360	$360	$360	$360	$360	$360	$360
Maintenance										
Reactive maintenance **budget**	$600	$600	$600	$600	$600	$600	$600	$600	$600	$600
Planned maintenance **budget**	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Specific maintenance items **budget**	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total maintenance	$600	$600	$600	$600	$600	$600	$600	$600	$600	$600
Capital										
Planned renewal **budget**	$600	$600	$600	$600	$600	$600	$600	$600	$600	$600
Planned upgrade/new **budget**	$150	$150	$150	$150	$150	$150	$150	$150	$150	$150
Non-growth contributed asset value	$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
Carrying value (DRC) of disposed assets	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0

Additional Expenditure Outlays Requirements (e.g from Infrastructure Risk Management Plan)										
Additional Expenditure Outlays required and not included above	2014 $000	2015 $000	2016 $000	2017 $000	2018 $000	2019 $000	2020 $000	2021 $000	2022 $000	2023 $000
Operations	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Maintenance	$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
User Comments #2										

Forecasts for Capital Renewal using Methods 2 & 3 (Form 2A & 2B) & Capital Upgrade (Form 2C)										
	2014 $000	2015 $000	2016 $000	2017 $000	2018 $000	2019 $000	2020 $000	2021 $000	2022 $000	2023 $000
Forecast Capital Renewal from Forms 2A & 2B	$800	$800	$800	$800	$800	$800	$800	$800	$800	$800
Forecast Capital Upgrade from Form 2C	$250	$250	$250	$250	$250	$250	$250	$250	$250	$250

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
WDCRD	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 organisation, 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).

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 organisation.

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

Source: IPWEA, 2009, AIFMG Glossary

Additional and modified glossary items shown *