

2017/18

STORMWATER
ASSET MANAGEMENT PLAN



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The Institute of Public Works Engineering Australasia.

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1. EXECUTIVE SUMMARY

What is the purpose of the plan?

This asset management plan sets out the level of service Wagga Wagga City Council provides the community in relation to stormwater assets. It uses financial information and technical asset data compared with the service levels to identify funding shortfalls associated with managing the assets.

What does the plan cover?

The following assets are included in this plan.

Asset category	Dimension	Replacement Value
Pipes and trunk drains	401,524m	\$155,914,064
Stormwater pits	12,709 pits	\$25,676,600
Open drains	625,991m ³	\$32,292,346
Detention basins	251,891m ³	\$9,799,381
Levees	259,213m	\$29,016,706
Gross Pollutant Traps	1 unit	\$102,810
TOTAL		\$252,801,907

What does it cost?

The total cost to maintain the network and renew and upgrade assets as identified in the plan is estimated to be \$44,627,589 over the next 10 years. This includes the following:

- \$1,675,000 to assess condition and clean identified pipes, box culverts and open drains,
- \$1,400,117 to maintain the levee system,
- \$13,254,429 to maintain pump stations, gross pollutant traps, open drains and pits,
- \$2,176,843 to renew 4.6km of pipes and box culverts identified for remediation (based on current unit rates developed in the 205 revaluation of drainage assets),
- \$23,250,000 to upgrade the main city levee,
- \$2,500,000 to upgrade pumps, and
- \$121,200 to upgrade pits lids.

The cost to remediate flood hotspots identified in the Major Overland Flow Flood study are not included above costings.

The total renewal cost of pipes is unknown for the network until condition inspections are conducted and are therefore also not included in the above at this stage.

What is the challenge?

Wagga Wagga City Council is like many local governments; it manages assets on behalf of the community worth in

excess of a billion dollars. There is an ever increasing emphasis on local governments to provide the community with services needed in a financially sustainable manner. The challenge for local government is there are limited finances and assets are ageing, requiring replacement and there is continuous demand for new and enhanced services and assets.

What is the budget?

The following table shows how much funding is available in the Long Term Financial Plan compared to the estimated cost of managing the assets to meet the service levels in this asset management plan.

Activity	Funding Level
Condition assessment of pipe network	0%
Maintain the levee system	100%
Maintain pump stations, gross pollutant traps, open drains, pipes and pits	100%
Renew pipes identified for renewal as at January 2017	50%
Renew pipes identified in condition assessments	unknown
Upgrade the main city levee	100%
Upgrade pumps	0%
Remediate flooding hotspots	0%
Upgrade pit lids	0%

What is Wagga Wagga City Council doing?

Council will continue to:

- maintain, renew and upgrade stormwater assets to meet service levels set by annual budgets,
- deliver the current level of maintenance across the stormwater infrastructure network, and
- prioritise the renewal of existing stormwater assets based on condition data and the budgets in the Long Term Financial Plan.

What are the consequences?

There are maintenance and capital activities unable to be undertaken within the next 10 years given the current budgets. They are:

- condition assessments and therefore renewal plans based on accurate data,
- renewal of all pipes and box culverts identified,
- remediate issues identified in the Major Overland Flow Flood Study,
- upgrade pit lids, and
- upgrade identified pumps and purchase additional units.

What is the next step?

The next important step is to develop solutions for the renewal and maintenance funding shortfalls for stormwater assets.

Questions you may have

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.

What is this plan about?

This asset management plan covers the infrastructure stormwater assets that protect the community from flooding in storm events and from the river. These assets include pipes, trunk drains, box culverts, open drains, pump stations, detention basins and the levee.

What options do we have?

Resolving the funding shortfall involves several options.

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 savings in future operations and maintenance costs.
6. Consulting with the community to ensure that stormwater asset services and costs meet community needs and are affordable.
7. Developing partnerships with other bodies, where available, to provide services.
8. Seeking additional funding from governments and other bodies to better reflect a 'whole of government' funding approach to infrastructure services.
9. Seek to raise additional funding through a Special Rate Variation lodged with IPART.

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 assets, the service level reduction may include not remediating assets in condition 4 and 5, postponing upgrades which would increase the capacity of the network to manage flood waters or not making improvements to the infrastructure. This could lead to an increase in the cost of managing the assets, as they are required to be renewed rather than maintained.

What can we do?

We can develop options, costs and priorities for future stormwater assets. We can consult with the community to plan future services to match the community service needs with the 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 mix of services to ensure that the appropriate level of service can be provided to the community within the available funding.

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 noncritical assets.

Current replacement cost (CRC)

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

Deferred maintenance

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

Depreciable amount

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

Depreciated replacement cost (DRC)

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

Depreciation / amortisation

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

Economic life

See useful life definition.

Expenditure

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

Expenses

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

Fair value

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

Financing gap

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

Heritage asset

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

Impairment Loss

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

Infrastructure assets

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

Investment property

Property held to earn rentals or for capital appreciation or both, rather than for:

- (a) use in the production or supply of goods or services or for administrative purposes; or
- (b) sale in the ordinary course of business.

Key performance indicator

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

Level of service

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

Life Cycle Cost *

1. **Total LCC** The total cost of an asset throughout its life including planning, design, construction, acquisition, operation, maintenance, rehabilitation and disposal costs.
2. **Average LCC** The life cycle cost (LCC) is average cost to provide the service over the longest asset life cycle. It comprises average operations, maintenance expenditure plus asset consumption expense, represented by depreciation expense projected over 10 years. The Life Cycle Cost does not indicate the funds required to provide the service in a particular year.

Life Cycle Expenditure

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

Loans / borrowings

See borrowings.

Maintenance

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

- **Planned maintenance**
Repair work that is identified and managed through a maintenance management system (MMS). MMS activities include inspection, assessing the condition against failure/breakdown criteria/experience, prioritising scheduling, actioning the work and reporting what was done to develop a maintenance history and improve maintenance and service delivery performance.
- **Reactive maintenance**
Unplanned repair work that is carried out in response to service requests and management/ supervisory directions.
- **Specific maintenance**
Maintenance work to repair components or replace sub-components that needs to be identified as a specific maintenance item in the maintenance budget.
- **Unplanned maintenance**
Corrective work required in the short-term to restore an asset to working condition so it can continue to deliver the required service or to maintain its level of security and integrity.

Maintenance expenditure *

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

Materiality

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

Modern equivalent asset

Assets that replicate what is in existence with the most cost-effective asset performing the same level of service. It is the most cost efficient, currently available asset which will provide the same stream of services as the existing asset is

capable of producing. It allows for technology changes and, improvements and efficiencies in production and installation techniques.

Net present value (NPV)

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

Non-revenue generating investments

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

Operations

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

Operating expenditure

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

Operating expense

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

Operating expenses

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

Operations, maintenance and renewal financing ratio

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

Operations, maintenance and renewal gap

Difference between budgeted expenditures in a long term financial plan (or estimated future budgets in absence of a long term financial plan) and projected expenditures for operations, maintenance and renewal of assets to achieve/maintain specified service levels, totalled over a defined time (e.g. 5, 10 and 15 years).

Pavement management system (PMS)

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

PMS Score

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

Rate of annual asset consumption *

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

Rate of annual asset renewal *

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

Rate of annual asset upgrade/new *

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

Recoverable amount

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

Recurrent expenditure

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

Recurrent funding

Funding to pay for recurrent expenditure.

Rehabilitation

See capital renewal expenditure definition above.

Remaining useful life

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

Renewal

See capital renewal expenditure definition above.

Residual value

The estimated amount that an entity would currently obtain from disposal of the asset, after deducting the estimated costs of disposal, if the asset were already of the age and in the condition expected at the end of its useful life.

Revenue generating investments

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

Risk management

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

Section or segment

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

Service potential

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

Service potential remaining

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

Specific Maintenance

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

Strategic Longer-Term Plan

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

Sub-component

Smaller individual parts that make up a component part.

Useful life

Either:

- (a) the period over which an asset is expected to be available for use by an entity, or
- (b) the number of production or similar units expected to be obtained from the asset by the entity.

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

Value in Use

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

Source: IPWEA, 2009, Glossary

Additional and modified glossary items shown *

2. INTRODUCTION

Community Strategic Plan

The vision for the future from the Community Strategic Plan 2040 is “in 2040 Wagga Wagga will be a thriving, innovative, connected and inclusive community on the Murrumbidgee. Rich in opportunity, choice, learning and environment. Wagga is a place where paths cross and people meet.”

To ensure we achieve this community vision, we need to begin to embed elements of it in today’s planning. Four key words have been chosen by the community to be used as guiding principles in planning for our future. These four principles are – Thriving, Innovative, Connected and Inclusive.

In the Community Strategic Plan the community came up with a number of priorities which are really important. These have been categorised into 5 strategic directions for the city. Asset management fits into the environment strategic direction and relates to the objectives of:

- we plan for the growth of the city, and
- we create and maintain a functional, attractive and health promoting environment.

This Asset Management Plan relates to the outcomes of:

- we have sustainable urban development, and
- we create and maintain a functional, attractive and health promoting built environment.

The strategies from the Community Strategic Plan addressed in this asset management plan are:

- provide and maintain appropriate infrastructure and services that support current and future needs,
- maintain infrastructure assets, and
- implement asset management planning.

Fit for the Future

A Fit for the Future council is one that is:

- sustainable,
- efficient,
- effectively manages infrastructure and delivers services for communities, and
- has the scale and capacity to engage effectively across community, industry and government.

IPART in October 2015 deemed Wagga Wagga City Council ‘fit for the future’ as a stand-alone council, based on the actions and strategies identified in Council’s improvement proposal submitted to IPART in June 2015. The action plan outlines how Council is committed to a number of key improvement strategies to meet five of the benchmarks and trend towards the remaining two benchmarks by 2019/20. The improvement proposal can be accessed online at www.wagga.nsw.gov.au/fitforthefuture.

The key improvement strategies have included targeted efficiency (service) reviews of \$800,000 annually and increased revenue targets of \$300,000. Council will direct these funds towards the renewal of infrastructure and maintenance of assets, which will assist in reducing the infrastructure backlog.

A key consideration in Council’s decision-making as part of this improvement plan is the ongoing commitment to improving our financial position and sustainability. This includes maintaining and improving the working funds result as well as achieving a balanced or preferably a surplus budget each financial year.

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 the funding needed to provide the required levels of service, over a 10 year planning period.

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

The infrastructure assets covered by this asset management plan are shown in Table 1. These assets are used to provide protection from stormwater and riverine flooding to the community. The replacement costs included in Table 1 are based on unit rates developed in the 2015 revaluation of drainage assets.

Table 1: Assets covered by this Plan

Asset category	Dimension	Replacement Value
Stormwater pipes and trunk drains	401,524m	\$155,914,064
Stormwater pits	12,709 pits	\$25,676,600
Open drains	625,991m ³	\$32,292,346
Detention basins	251,891m ³	\$9,799,381
Levees	259,213m	\$29,016,706
Gross Pollutant Traps*	1 unit	\$102,810
TOTAL		\$252,801,907

Source: Wagga Wagga City Council asset register myData December 2016 and Wagga Wagga City Council General Purpose Financial Statements for the year end 30 June 2016

*not included in Note 9 of the Wagga Wagga City Council General Purpose Financial Statements for the year end 30 June 2016.

2.2 Goal 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 dedication 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 whole of 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 Council,
- future demand – how this will impact on future service delivery and how this is to be met,

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

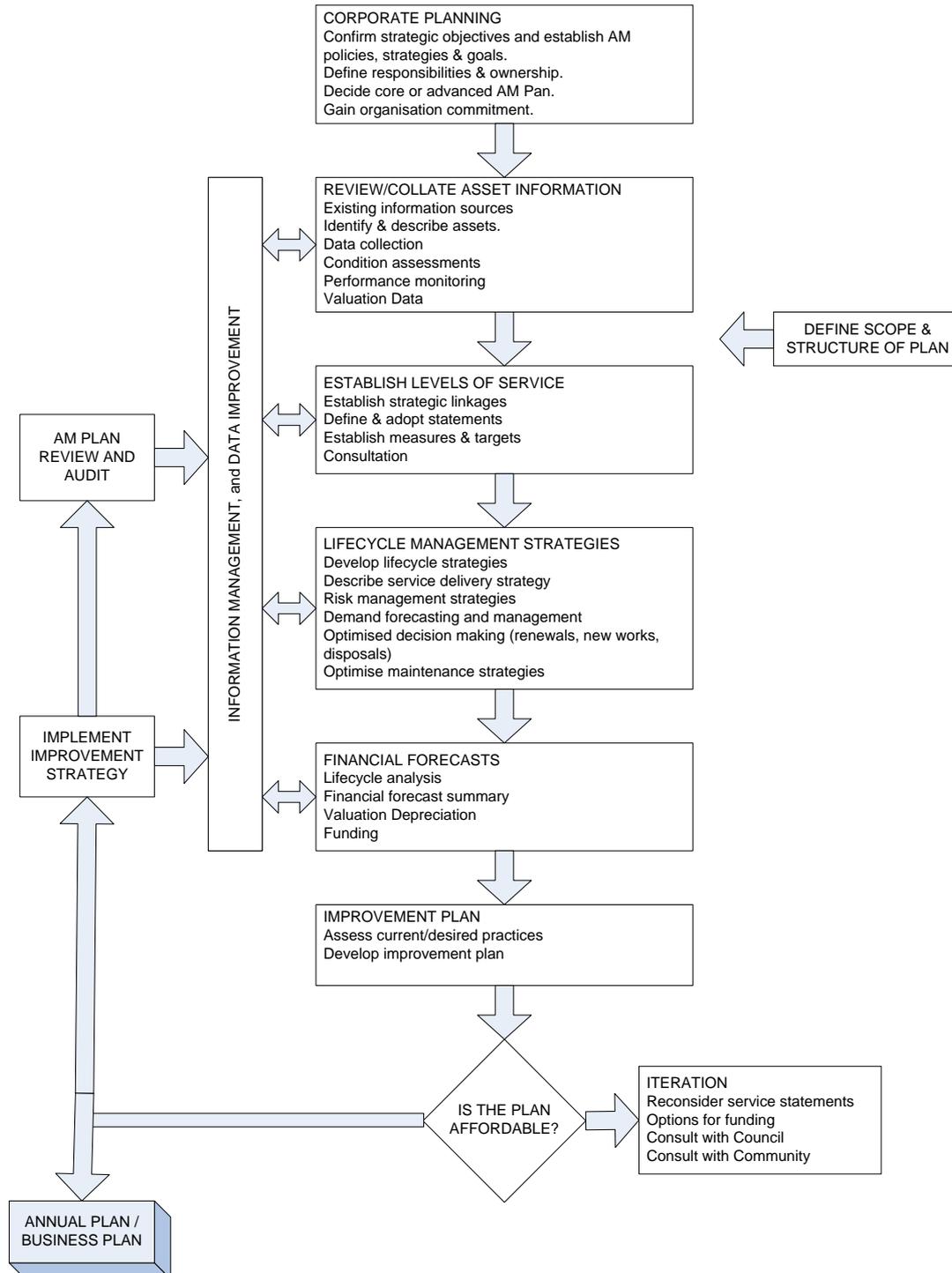
² Based on IPWEA, 2011, IIMM, Sec 1.2 p 1|7.

- life cycle management – how Council will manage its existing and future assets to provide defined levels of service,
- financial summary – what funds are required to provide the defined service,
- asset management practices,
- monitoring – how the plan will be monitored to ensure it is meeting Council’s objectives, and
- asset management improvement plan.

A road map for preparing an asset management plan is shown in Figure 1 below.

Figure 1: Road Map for preparing an Asset Management Plan

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



2.4 Community Consultation

During the community consultation for the Community Strategic Plan in 2016 we heard about the importance of flood planning and management from the community members who participated in the community activities. People told us that the following issues are important to them and require Council’s attention:

- cleaning of open drains,
- flooding of sporting ovals,
- drainage at Tatton and Brunskill Road,
- the integrity of the levees, and
- flood planning and management.

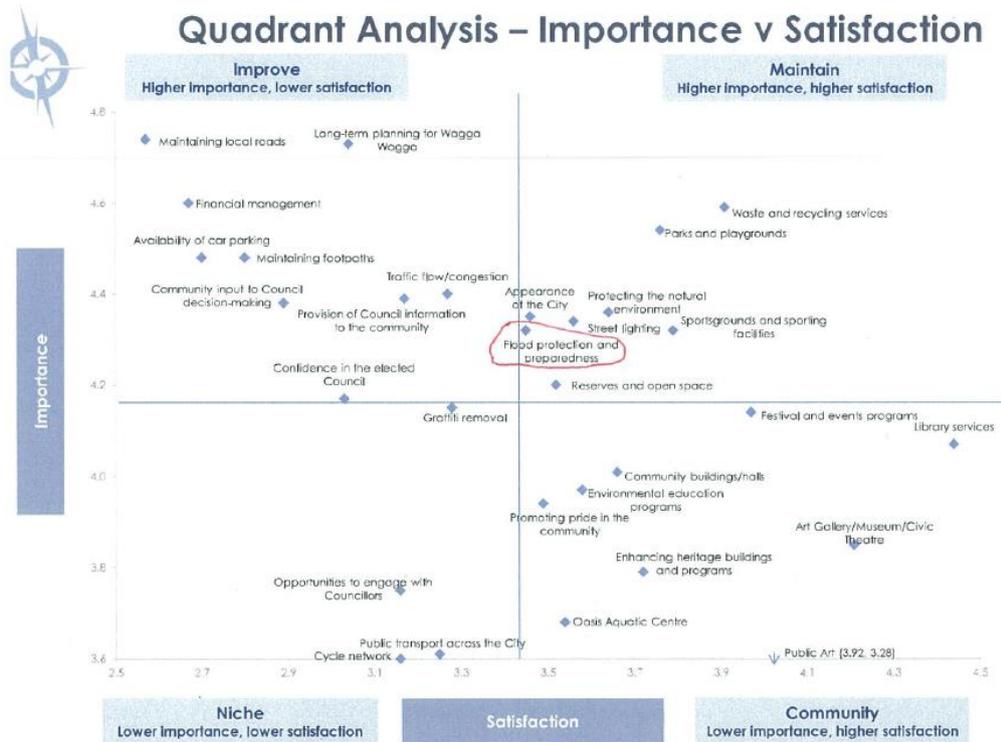
Flooding impacts community life and function and it is important to the community there are appropriate resources available to manage a flood event.

3. LEVELS OF SERVICE

3.1 Customer Research and Expectations

The Wagga Wagga City Council has conducted local government satisfaction surveys since 2006. This telephone based survey samples residents on their level of satisfaction with Council services and the importance of these services. The quadrant analysis is a useful tool for planning future directions. It combines the stated needs of the community and assesses the current performance of Council in relation to these identified needs. In the 2015 survey, flood protection and preparedness rated in the higher importance/higher satisfaction quadrant as shown in Figure 2 below.

Figure 2: Quadrant analysis from community survey, importance vs satisfaction



Source: http://www.wagga.nsw.gov.au/_data/assets/pdf_file/0010/38944/Report-Wagga-Wagga-Community-15-11-23.pdf

It is worth noting in 2012 the performance of the management of drainage and local flooding was rated as having a medium satisfaction in the survey.

3.3 Community Levels of Service

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

The community levels of service measure how the community receives the service and whether the organisation is providing community value.

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

Quality	How good is the service?
Function/Serviceably	Does it meet users' needs?
Capacity/Utilisation	Is the service over or under used?

The Council's community service levels are detailed in Table 2 below.

Table 2: Community Level of Service

Service Attribute	Service Objective	Performance Measure Process	Current Performance
COMMUNITY OUTCOMES			
Maintain infrastructure assets Build and maintain a levee bank to protect the community's assets			
COMMUNITY LEVELS OF SERVICE – Drainage Network			
Condition*	Stormwater assets in condition 4 and 5 are remediated as planned	Condition assessment results of stormwater assets	The last condition assessment was conducted in 2013/14; this covered 6% of the network. The condition assessment of pipes and open drains in Central Wagga Wagga and the older areas of the network is a priority of this asset management plan. 100% of detention basins are rated in excellent condition.
Function	Keep run off water in stormwater infrastructure, and maintain water quality, with minimal disruption to the community	Assessment of stormwater assets	The Major Overland Flow Flood Study (2011) identified 11 hotspots across the city. These were acknowledged in the Stormwater Management Plan.
COMMUNITY LEVELS OF SERVICE – Levee			
Quality	The condition of the levee is such that it can hold back riverine flood waters	Geotechnical reports based on compaction and plasticity ratings	
Serviceability	The levee is maintained to be as per design	Defect inspections conducted and works completed	
Capacity	Provide a levee which is high enough to hold back a 1 in 100 hundred flood event in the main city	Upgrade designs assessed against actual height	Planning for the main city levee project is underway

3.4 Technical Levels of Service

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

Technical service measures are linked to annual budgets covering:

- 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, jetting pipes),
- renewal – the activities that return the service capability of an asset to that which it had originally (eg frequency and cost of road resurfacing and pavement reconstruction, pipeline replacement and building component replacement), and
- upgrade – the activities to provide a 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 pump station).

Table 3 shows the technical levels of service targets, the methodology we will use to measure our performance, the current performance and funding levels of these targets based on the Long Term Financial Plan as at June 2017 compared to the estimated required budget to meet the service levels. The estimated required renewal budgets are based on current unit rates developed in the 2015 revaluation of drainage assets.

Table 3. Technical Levels of Service

Service Attribute	Service Objective	Activity Measure Process	Current Performance*	Estimated Required Budget**	Current Budget as per Long Term Financial Plan June 2017***	Current Funding Ratio (Current Budget/Required Budget)
Inspections – pipe, pits and open drains	Undertake pipe and open drain cleaning and condition assessment	Pipes, pits and box culverts in CDB are condition assessed and cleaned in year 1 and 2 of this plan. Pipes over 450mm or 10% of the network in East Wagga, Tolland, Mt Austin, Koorinal, Turvey Park and Ashmont to be condition assessed in the next 10 years. It is estimated 25km of pipes and open drains will be condition rated over the period.	To date 5.5% of the pipe network has been condition rated. The condition assessments were done in 2013/14. Open drains have not been condition assessed. 100% of detention basins are rated in condition 1. Currently there is not a recurrent budget for the assessment of pipes and open drains.	\$1,675,000 over 10 years	\$0	0%
		Amount of pipes and open drains cleaned and condition rated in the next 10 years				
Maintenance - levees	Undertake levee inspections	Inspections undertaken as scheduled	The main city, North Wagga levee and Uranquinty levees are inspected every 6 months	\$600,000 over 10 years	\$600,000 over 10 years	100%
	Maintain the levee	Conduct minor maintenance as identified in the inspections of the levee	Activities conducted as identified			
	Mow the levee network	Mow the main city levee, North Wagga, Uranquinty and Tarcutta levee 4 times per year	The levees are mown 4 times per year	\$800,117 over 10 years	\$800,117 over 10 years	
Maintenance – pump stations, gross pollutant traps, open drains, pipes and pits	Inspect the drainage network for defects	Inspection for defects and clean open drains, GPT, pits, pipes, box culverts, detention basins, pump stations	Inspections are conducted and maintenance conducted as required	\$13,254,429 over 10 years	\$13,254,429 over 10 years	100%
	Maintain the drainage system to ensure run off water can move through the infrastructure with minimal disruption to the community	Conduct maintenance as identified in the inspections across the stormwater network. Conduct major maintenance on sections of the stormwater network.				

Service Attribute	Service Objective	Activity Measure Process	Current Performance *	Estimated Required Budget	Current Budget as per Long Term Financial Plan June 2017	Current Funding Ratio (Current Budget/Required Budget)
Renewal	Remediate stormwater pipes, trunk drains and open drains currently identified as requiring intervention	Remediate 4.6km of stormwater pipe segments in condition 4 and 5 identified in 2013/14	Solutions to be developed and implemented	\$2,176,843****	\$1,092,730 over 10 years	50%
	Remediate stormwater pipes and open drains with a condition rating 4 and 5	Remediate assets identified in condition 4 and 5	This plan will be developed as assets are condition rated. This plan will be reviewed each year to incorporate new assessment results.	Unknown	\$5,027,646 over 10 years	Unknown
Upgrade/New in current network	Upgrade main city (1 in 100) and north wagga (1 in 20) levee systems	Levees upgraded		\$23.25M	\$23.25M	100%
	Progressively upgrade pumps	Pumps upgraded	7 pumps require upgrade and 10 additional pumps are required	\$2,500,000 for 10 years	\$0	0%
	Upgrade stormwater pit lids to lightweight	Stormwater pit lids upgraded	Program to be developed	\$121,200 for 10 years	\$0	0%
	Remediate flooding hotspots identified in the Major Overland Flow Flood Study	Design and implement solutions to the hotspots identified	Solutions to be developed	Unknown	\$0	0%

Note: *Current activities and costs (currently funded)

** Scenario 1 what we would like to do based on the asset register

***Scenario 2 what we should do with existing budgets and identifying level of service and risk consequences

****The costs of this renewal budget are in 2017 dollars, CPI hasn't been included in this budget. They are based on current unit rates developed in the 2015 revaluation of drainage assets.

4. FUTURE DEMAND

4.1 Demand Drivers

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

Demand for infrastructure is generated predominantly through either an increased utilisation of existing infrastructure brought about by the factors above or the requirement for new infrastructure to meet the needs of growth in new development.

The demand created by these two circumstances requires analysis to consider the ramifications to existing infrastructure networks and the ability of these networks to cope with the increased infrastructure. This analysis applies in all cases ranging from new subdivisions creating an increased load on existing networks, to changes in existing areas leading to increasing or decreasing utilisation and demand on infrastructure assets.

4.2 Demand Management Plan

Demand for new services will be managed through a combination of managing and maintaining existing assets, upgrading of existing assets and providing new assets. Demand management practices include non-asset solutions, insuring against risks and managing failures.

The planning for infrastructure due to demand is a constant process of review and assessment of existing infrastructure and its ability to cope with increasing demand, versus the need to augment with new infrastructure.

Demand on infrastructure is created through increased utilisation generated from a growing population and changing patterns of behaviour, ranging from social demographics to transport options and solutions. Often this increasing demand will stem from urban or residential growth increasing the utilisation of a range of community infrastructure.

To manage the demand on the stormwater network, overall catchment plans need to be developed, rather than plans based on the urban release area.

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 age profile of the assets include in this asset management plan is shown below.

Figure 3: Date Built – Open Drains

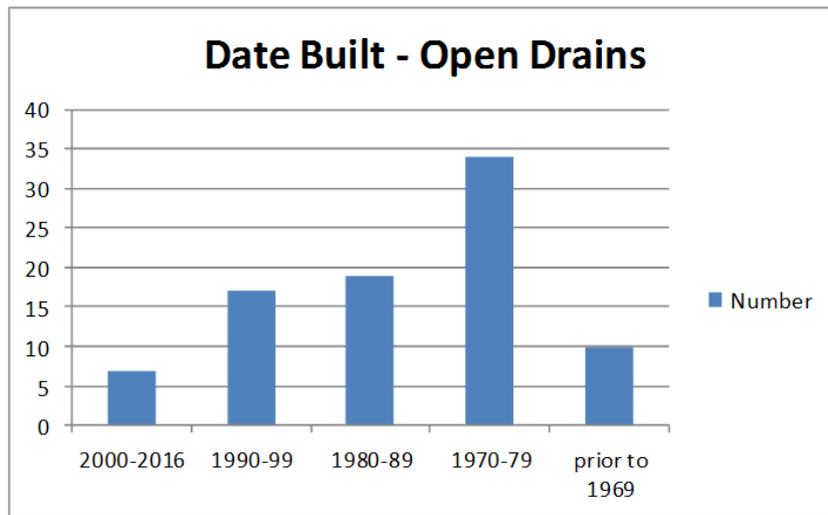
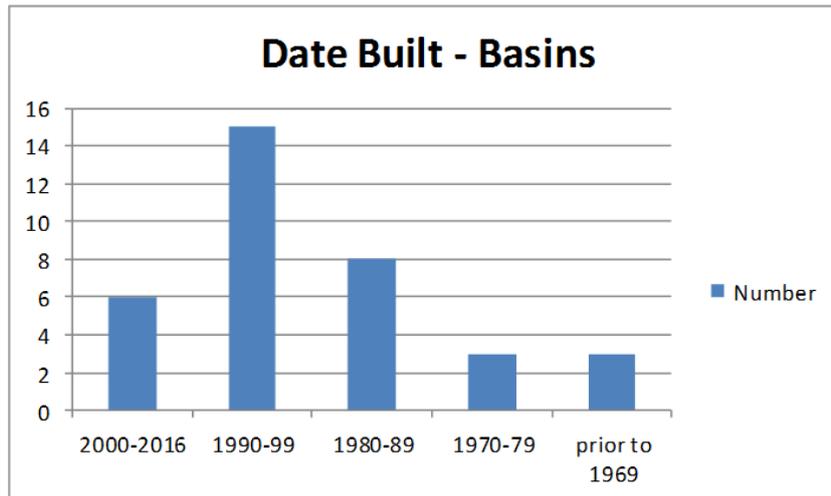
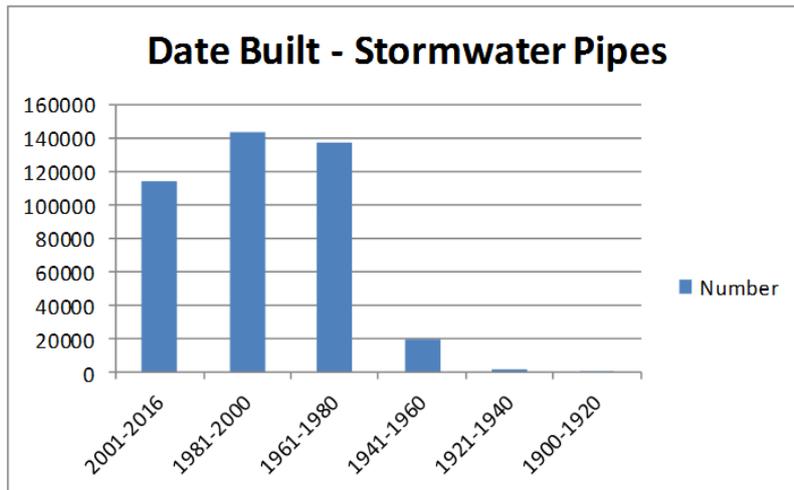


Figure 4: Date Built – Detention Basins



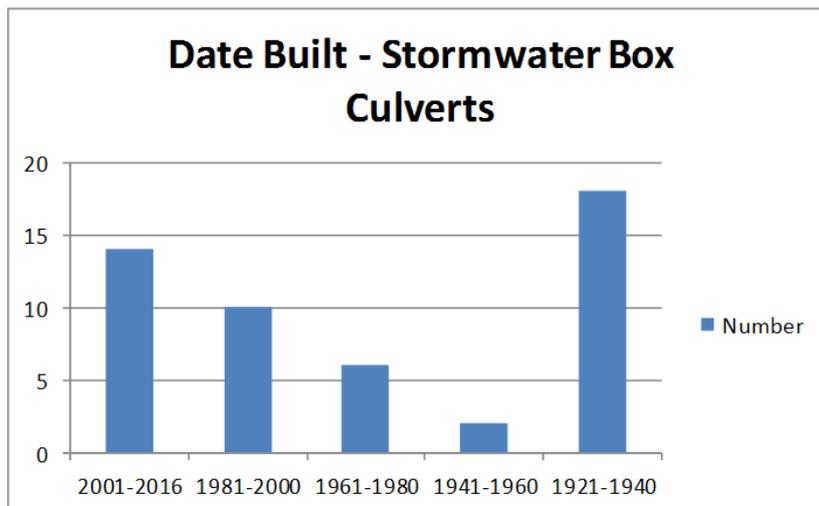
The useful life of open drains and detention basins is 100 years. As shown on the above graphs, the majority of the network was built after 1970.

Figure 5: Date Built – Stormwater Pipes



The age profile of stormwater pipes is driven by the development across the city. As is the case with the city itself, the stormwater pipe network has significantly expanded since 1980. The useful life of stormwater pipes varies based on material type and ranges from 70 to 100 years.

Figure 6: Date Built – Stormwater box culverts



As shown in the above graph, a significant number of box culverts were built between 1921 and 1940 and are approaching the end of their useful life. This infrastructure is found mainly in the central areas of the city.

Source: Wagga Wagga City Council's asset register in GIS

5.1.2 Asset capacity and performance

Locations where deficiencies in service performance are known are detailed in Table 4 below. These deficiencies, (known as hotspots) were identified in the Major Overland Flow Flood Study of 2011 and acknowledged the Stormwater Management Plan 2013.

Table 4: Known Service Performance Deficiencies

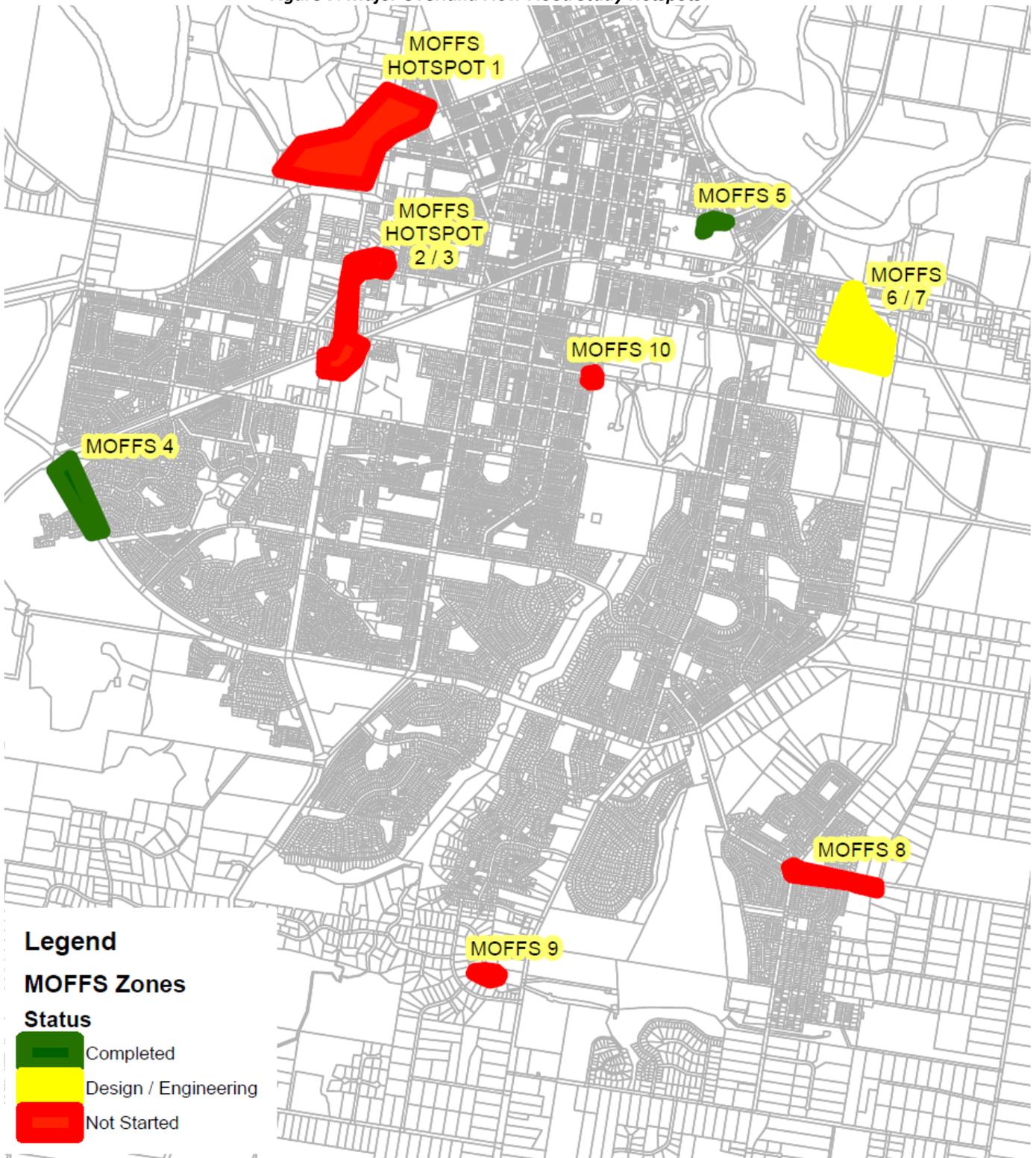
Location	Service Deficiency
Moorong Street/Edward Street/main levee outlet	Flooding observed to a depth of 100mm at the intersection of Spring Street and Moorong Street
Dobney Avenue/Chaston Street	Flooding at a depth of 150mm in commercial premises in Chaston Street
Glenfield Drain/Great Southern Railway Line	Flooding occurs
Jones Street/Marshalls Creek	Area subject to extensive road flooding 0.5m of Jones Street on a frequency of once every four-five years
Copland Street South Industrial	Site has been subject to local flooding
Brunskill Road	Street flooding threatening residential development
Hakea Place	Area floods about once in 5 years resulting in residential flooding
Intersection of Urana and Macleay Streets	Flooding is regular in this area
Wagga Wagga Urban area*	Total catchment plans for stormwater management need to be developed to model total cumulative impacts of future development on the network
Detention Basins*	New detention basins should have GPT, surcharge pit and outlet pipes to manage a 1 in 10 flood event. Some of the basins in the current network do not have this infrastructure

Source: Major Overland Flow Flood Study 2011

*not in Major Overland Flow Flood Study

Figure 7 below maps the locations of the hotspots identified in the Major Overland Flow Flood Study.

Figure 7: Major Overland Flow Flood Study Hotspots



5.1.3 Asset condition

To date 23km of stormwater pipes and trunk drains has been assessed for condition using CCTV. This represents 6% of the network. For planning and reporting purposes this data has been extrapolated across the network to indicate condition. This extrapolation is based on location and age.

If funding becomes available in the Long Term Financial Plan, the focus of condition assessment will be Central Wagga Wagga. This will also include cleaning of the network. The next priority for increasing the percentage of the network cleaned and assessed will be East Wagga Wagga, Kooringal, Tolland, Mount Austin, Ashmont and Turvey Park.

The projected required budget for this assessment is estimated to be \$875,000 apportioned over the first 2 years and an annual allocation of \$100,000 for each year after. The current budget for condition assessment in the Long Term Financial Plan is \$0 for the next 10 years, resulting in a shortfall of \$1,675,000 over 10 years.

Each year a renewal plan for stormwater assets will be developed and reviewed based on the results of the previous year's condition inspections. Therefore the renewal plan will focus on the oldest areas of the network and the pipes suspected to be in the worst condition.

Open drains and pipes can't be inspected if they are not clean, so part of this program will be cleaning the asset before it is rated for condition.

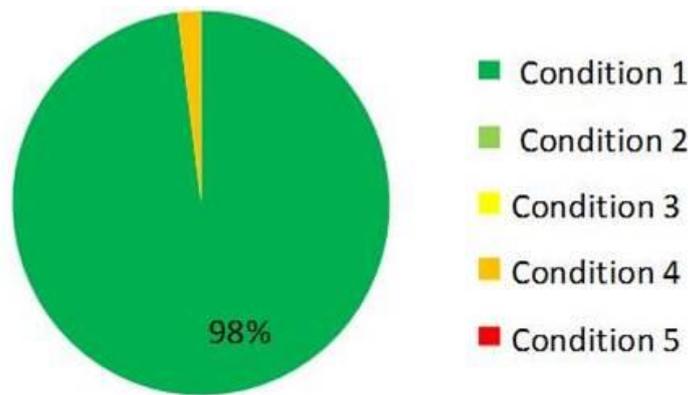
Condition is measured using a 1 – 5 grading system³ as detailed in Table 5.

Table 5: Simple Condition Grading Model

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

The current condition profile of our assets is shown below.

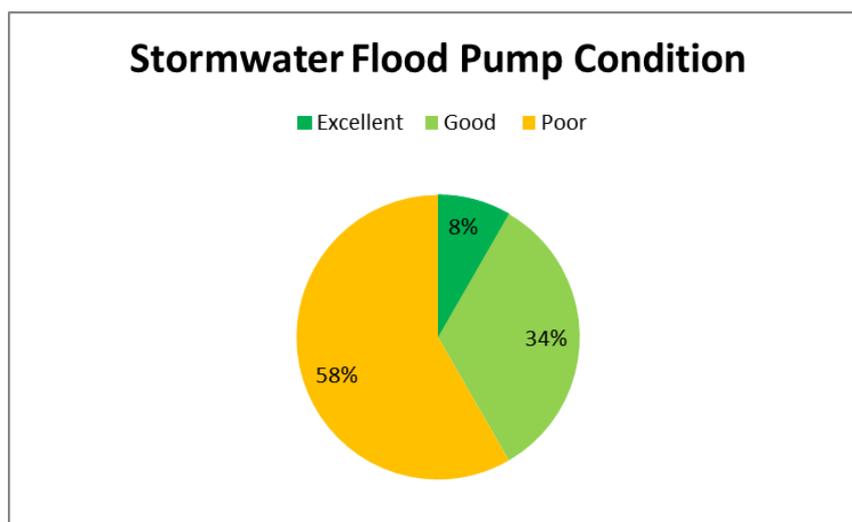
Figure 8: Asset Condition Profile – Levee



Source – 2015/16 Financial Statements Special Schedule 7

³ IPWEA, 2011, IIMM, Sec 2.5.4, p 2 | 79.

Figure 9: Asset Condition Profile – Stormwater Pump Stations



Source – Wagga Wagga City Council data Dec 2016

Based on an internal assessment of the condition of stormwater pumps conducted in December 2016, 6 out of the 12 pumps currently in the network are rated as having poor condition, reliability and performance.

5.1.4 Asset valuations

The value of stormwater assets reported in the Financial Statements as at 30 June 2016 covered by this asset management plan is shown in Table 6 below. Assets were last re-valued in 2015 and are valued at fair value. The table includes the current fair value of each asset category, along with the residual value, and the resulting depreciable amount. It then details the written down value of each asset category and the annual depreciation expense.

Various ratios of asset consumption and expenditure have been prepared to help guide and gauge asset management performance and trends over time. The below table also includes 2 ratios, the first shows the depreciation expense over the depreciable amount of the asset category and the second indicates how much is allocated to renew each asset category based on the current budget in the Long Term Financial Plan compared to the depreciable amount.

Table 6. Financial Summary of Asset Categories

	Fair Value	Residual Value	Depreciable Amount	Written Down Value	Annual Depreciation Expense	Rate of Annual Asset Consumption	Rate of Annual Renewal*
Levees	\$29,016,706	\$28,466,706	\$550,000	\$28,611,489	\$9,167	1.67%	
Stormwater Pipes	\$155,914,064	\$1,984,821	\$153,929,243	\$113,419,359	\$1,586,341	1.03%	0.04%
Stormwater Pits	\$25,676,600	\$0	\$25,676,600	\$19,724,074	\$256,766	1.00%	
Detention Basins	\$9,799,381	\$9,799,381	\$0	\$9,799,381	\$0	n/a	
Open Drains	\$32,292,346	\$30,127,088	\$2,165,258	\$31,697,981	\$21,653	1.00%	
Gross Pollutant Traps	\$102,810	\$0	\$102,810	\$102,806	\$1,284	n/a	
Total	\$252,801,907	\$70,377,996	\$182,423,911	\$203,355,090	\$1,875,211	-	

Source: Wagga Wagga City Council financial data December 2016. Figures as at June 2016

*Based on 2017/18 renewal budgets on the Long Term Financial Plan as at June 2017

Useful lives were updated in 2014/15 by the asset managers as part of the revaluation process. They are based on the local knowledge of the assets. As part of the revaluation process the useful lives data for drainage assets was reviewed by an external party.

5.1.5 Historical Data

Data on the stormwater network has historically been captured in Council’s GIS system. When the assets were revalued in 2014/15 the financial information was captured in Council’s asset management system for the first time. This data is now used to produce the financial statements. The data in the asset management system is at a summary level and the extent details are in the GIS system.

The data captured is limited to location and type, based on age and location. As pipes are condition assessed diameters will be captured.

It is important to capture the renewal and maintenance costs of assets as they occur to inform budgets and plans.

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 the most important credible risk for each stormwater asset, the likelihood of the risk event occurring, the consequences should the event occur. This data was developed by the people within Council who manage the assets. The likelihood and consequence ratings were assessed against Council’s risk matrix below to develop a risk rating.

Likelihood	Almost Certain	Medium	High	High	Extreme	Extreme
	Likely	Medium	Medium	High	High	Extreme
	Possible	Low	Medium	High	High	Extreme
	Unlikely	Low	Low	Medium	Medium	High
	Rare	Low	Low	Medium	Medium	High
	Insignificant	Minor	Moderate	Major	Catastrophic	
Consequence						

The following stormwater assets have been identified as having critical risks (those rated as high or extreme) associated with them:

- stormwater pipes,
- stormwater pits,
- open drains,
- levees,
- detention basins,
- stormwater pump stations,
- flood gates, and
- Wollundry Lagoon.

5.3 Maintenance Plan

At present most day to day and event to event maintenance of the stormwater network is undertaken in response to a defect being noticed by Council staff (either during routine inspections or on the job) or by the community.

Major reactive tasks involve cleaning to remove blockages in the network, which are normally caused by debris, leaves, branches and foreign matter washed into inlet pits during rain events. Major maintenance activities to

remediate relatively small sections of the stormwater are also undertaken each year. Assessment and prioritisation of this maintenance is undertaken by Council staff using experience and judgement.

Gross pollutant traps are maintained on a proactive basis by removing the gross pollutants and replacing damaged components after each rain event.

Proactive cleaning and inspections of pipes, box culverts and open drains will be undertaken in a planned and scheduled basis beginning in central Wagga Wagga if funding becomes available.

The annual maintenance plan and projected cost for stormwater pipes and open drains is detailed below.

Year	Activity	Amount	Annual Projected Cost	Current Annual Maintenance Budget in the Long Term Financial Plan
1 and 2	Cleaning and inspecting pipes, pits and open drains in central Wagga Wagga	25km	\$437,500	\$0
3 to 10	Cleaning and inspecting 10% pipes and open drains in East Wagga, Tolland, Mount Austin, Koorringal, Ashmont and Turvey Park.		\$100,000	

The annual maintenance plan for the levee system is detailed below.

Target Annual Routine Maintenance Activity	Frequency	Annual Projected Costs	Current Annual Maintenance Budget in the Long Term Financial Plan**
Mow the levee system	4 times per year	\$140,011	\$140,011
Inspect main city, North Wagga and Uranquinty levee	2 per year		
Minor maintenance activity identified in the inspections*	2 per year		

*This includes cleaning flood gates, repairing rutting, ant nest and weed control and removal of small suckers

**This average annual budget includes CPI

As part of the levee upgrade a maintenance schedule should be developed for the new levee during the design and construct project which is based on the new design and ensures it reaches its expected useful life.

The current maintenance budget for inspections for defects of the stormwater network, minor repairs and cleaning of stormwater pipes, detention basins, GPT, levees pump stations and open drains is sufficient to fund the maintenance activity required. The budget for the major maintenance activities is considered adequate for the current network. This total budget is \$13,254,429 for 10 years as per the Long Term Financial Plan as at June 2017. It must be noted this is the case based on the current asset base, as the stormwater network increases this maintenance budget will not be sufficient in the long term.

5.3.1 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,
- 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, and
- review management of operations and maintenance activities to ensure Council 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.

At present stormwater assets are not componentised in the asset register or in GIS. As they are not managed at the component level this is considered appropriate.

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, Council can target and refine investigative activities, maintenance plans and capital expenditure plans at the appropriate time.

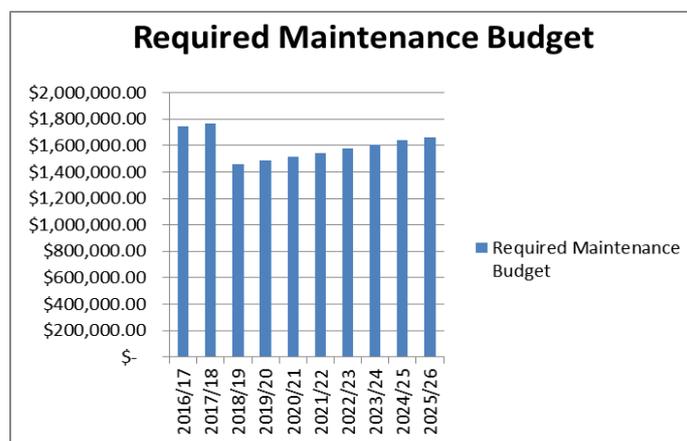
Maintenance activities may be targeted to mitigate critical assets failure and maintain service levels. The critical stormwater assets for Council have been identified through a risk assessment process, they are listed below:

- the levee system,
- stormwater pump stations,
- Wollundry Lagoon, and
- flood gates.

5.3.2 Summary of future maintenance expenditures

Figure 10 summarises the required maintenance budget for the stormwater network for the next 10 years. The graph is based on the Long Term Financial Plan as at June 2017 and includes the required maintenance expenditure for condition assessment identified in this asset management plan.

Figure 10. Projected Maintenance Expenditure



The current maintenance budget for the stormwater network is sufficient to fund the maintenance plan above based on the asset base as at 2017, except for the cost of cleaning and condition inspections of pipes, box culverts and open drains. This estimated required maintenance budget for the condition assessment is \$1,675,000; there is currently no budget in the Long Term Financial Plan.

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

Based on condition assessment results of 2013/14 Council has identified the need to renew 4,571m of stormwater pipe and box culverts. Based on the current unit rate for these pipes and box culverts (as developed in the 2015 revaluation of drainage assets) the total current replacement cost of this 4.6km is estimated to be \$2,176,843 (in 2017 dollars). Currently the budget for this renewal is \$1,092,730 (as per the Long Term Financial Plan as at June 2017). Given the current renewal budget and the estimated required renewal budget there is an estimated shortfall of \$1,174,113 over the next 10 years.

As more condition assessments are undertaken the renewal list for open drains, stormwater pies and box culverts will be developed based on the results and required budgets will be identified. The available budget for these works is currently \$6,426,907 as per the Long Term Financial Plan as at June 2017.

The useful lives of assets are shown in Table 8, this data was last reviewed in 2014/15 during the revaluation of the asset category.

Table 8: Useful Lives of Assets

Asset (Sub)Category	Useful life
Stormwater pipes and pits	RCP 100 years Upvc 70 years Pits 100 years
Open drains	100 years
Detention basins	100 years
Stormwater pump station	20 or 30 years depending on type
Levee systems	Concrete 60 years. Soil 100 years.

5.4.2 Renewal and Replacement Strategies

Council will plan capital renewal and replacement projects to meet level of service objectives and minimise infrastructure service risks by:

- planning and scheduling renewal projects to deliver the defined level of service in the most efficient manner,
- undertaking project scoping for all capital renewal and replacement projects to identify:
 - the 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;
 - select the best option to be included in capital renewal programs,
- using 'low cost' renewal methods (cost of renewal is less than replacement) wherever possible,
- maintain a current infrastructure risk register for assets and service risks associated with providing services from infrastructure assets and reporting very high and high risks and residual risks after treatment to management and Council,

- review current and required skills base and implement workforce training and development to meet required construction and renewal needs,
- maintain a current hierarchy of critical assets and capital renewal treatments and timings required, and
- review management of capital renewal and replacement activities to ensure Council is obtaining best value for resources used.

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).⁴

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

- 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 Council,
- have the highest average age relative to their expected lives,
- are identified in the asset management plan as key cost factors,
- have high operational or maintenance costs, and
- where replacement with modern equivalent assets would yield material savings.⁵

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.

5.5.1 Capital Investment Strategies

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

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

⁴ IPWEA, 2011, IIMM, Sec 3.4.4, p 3|60.

⁵ Based on IPWEA, 2011, IIMM, Sec 3.4.5, p 3|66.

5.5.2 Summary of future upgrade/new assets expenditure

The following assets are identified in the Wagga Wagga City Council Long Term Financial Plan as at June 2017 for upgrade:

- main city levee (to 1 in 100) and North Wagga (to 1 in 20) levee \$23.5 million,
- upgrade Murray street drainage line from Edward Street to Wollundry lagoon \$3,200,000 (note this is on the concept list of the 2017/18 Long Term Financial Plan),
- upgrade drainage from Jubilee Oval to Red Hill Road \$289,580 (note this is on the concept list of the 2017/18 Long Term Financial Plan),
- upgrade contour ridge in Lloyd \$128,702 (note this is on the concept list of the 2017/18 Long Term Financial Plan), and
- upgrade drainage in Day, Higgins and Tarcutta streets \$347,495 (note this is on the concept list of the 2017/18 Long Term Financial Plan).

The Long Term Financial Plan as at June 2017 allocates funding for projects identified in the Stormwater Development Services Plan, which is due to be updated. This funding is on the concepts list.

The Major Overland Flow Flood Study identified 11 flooding hotspots requiring remediation. Solutions, designs and budgets will be developed to provide an indication of the funding required to address these hotspots. Currently this is not funded in the Long Term Financial Plan.

The need to upgrade seven permanent pumps and replace the temporary pumps with permanent pumps in the network in central Wagga Wagga and North Wagga Wagga has been identified. This will include upgrading the flood gates. The estimated required budget for the pumps and the supporting infrastructure required is estimated to be \$2,500,000. This is not funded in the current budget in the Long Term Financial Plan as at June 2017. To address this issue, this work is being considered to be included as part of the main city levee upgrade project.

5.6 Disposal Plan

As the focus is to remediate and rehabilitate stormwater assets, there is no current plan to dispose of any assets in the network.

5.7 Service Consequences and Risks

This asset management plan includes two scenarios. They are explained below.

Scenario 1 – What we would like to do based on asset register data (included in Table 3 as the estimated required budget and the service objective).

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

A third scenario will be developed after consideration of the above scenarios across all asset categories included in the asset management framework. Scenario 3 is described below.

Scenario 3 – What we can do and be financially sustainable with the asset management plans matching long-term financial plans.

The development of Scenario 1 and Scenario 2 asset management plans provides the tools for discussion with Council 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). Scenario 3 will be included in future revisions of this plan.

5.7.1 What we cannot do

There are some maintenance activities and capital projects that are unable to be undertaken within the next 10 years given the current funding levels available in the Long Term Financial Plan. These include:

- approximately 2.5km of stormwater pipe segments identified for remediation in 2013/14 will not be renewed (based on current unit rates),
- hotspots identified in the Major Overland Flow Flood Study will not be remediated,
- 25km of condition inspections will not be done, therefore the renewal plans for pipes, box culverts and open drains in the identified areas will not be developed based on condition assessment results,
- if condition assessments are not undertaken it is unlikely the cleaning of the identified sections of the network (the oldest and flattest) will not be undertake,
- pumps will not be upgraded and the additional pumps required will not be installed, and
- renewal planning for stormwater asset based on condition will not occur.

5.7.2 Service consequences

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

- flooding will still occur at the hotspots identified in the Major Overland Flow Flood Study,
- stormwater pipes are expected to deteriorate at a faster rate than they are being renewed impacting on their ability to manage flood waters,
- current pumps in the network will work harder in flood events to manage water,
- there will be a continued reliance on hired pumps during flood event, and
- renewal plans will not be developed based on condition data.

5.7.3 Risk consequences

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

- increase risk of asset failure of the stormwater pipe network,
- the risk of flooding will increase if pumps are not upgraded and more are not added to the network resulting in flood waters not being contained in the stormwater network,
- if pumps are required to work at a higher capacity there is a higher risk of failure,
- risk to Council staff when they are manually opening and closing flood gates at pumps on the levee will continue,
- flooding at identified flood hotspots will continue, and
- risk of flooding will remain for the community.

6. FINANCIAL SUMMARY

6.2 Sustainability of service delivery

The following asset renewal ratio is based on the required renewals identified in the last condition assessment of stormwater pipes in 2013/14 and the current budget only.

Asset Renewal Funding Ratio pipe network ⁶	50%
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This is based on the most current data available for required renewals of the stormwater network.

⁶ AIFMG, 2012, Version 1.3, Financial Sustainability Indicator 4, Sec 2.6, p 2.16

The asset renewal funding ratio is the most important indicator and reveals that over the next 10 years, Council is forecasting that it will have 50% of the funds required for the optimal renewal and replacement of its assets as identified in the last condition assessment. This shortfall relates to the renewal of the stormwater pipe network only.

It is important to note this ratio is expected to change as condition assessments are conducted and renewals required with identified budgets are known.

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 few years of the asset management plan and ideally over the 10 year life of the Long Term Financial Plan.

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 Long Term Financial Plan indicates that further work is required on reviewing service levels in the asset management plan (including possibly revising the Long Term Financial Plan). This will be considered in future revisions of this asset management plan with the development of Scenario 3, what we can do and be financially sustainable with asset management plans matching Long Term Financial Plan.

In the meantime, 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.

6.2 Forecast Reliability and Confidence

Data confidence overall is assessed as at a low level for data sources used in the preparation of this asset management plan.

7. PLAN IMPROVEMENT AND MONITORING

7.1 Status of Asset Management Practices

7.1.1 Accounting and financial systems

Wagga Wagga City Council uses the Assetic asset management system, particularly the myData platform to capture data on the stormwater network at the high level. Details of the networks are captured in the GIS system. The financial statements are developed using the myData system.

Accountabilities for financial systems

The asset management financial system is the responsibility of the Financial Sector of Council, in particular the Manager Finance. The Manager Project Operations is responsible for the data collection and maintenance for the stormwater network. This is part of the Operations Sector of Council.

Accounting standards and regulations

Council's financial reporting must comply with Australian equivalents to International Financial Reporting Standards, other authoritative pronouncements of the Australian Accounting Standards Board, Urgent Issues Group Interpretations, the Local Government Act (1993) and Regulations and the Local Government Code of Accounting Practice and Financial Reporting.

Capital/maintenance threshold

The Council's capitalisation threshold is detailed in Note 1 of the Wagga Wagga City Council Financial Statements annually.

Required changes to accounting financial systems arising from this Asset Management Plan

A review of the maintenance and renewal budget terminology used is recommended.

7.1.2 Asset management system

Asset registers

The stormwater assets are captured in Council's asset register, myData at the high level. The stormwater pipes are also mapped in the GIS at a more specific level than in the asset register.

Linkage from asset management to financial system

There is no automated link between the Asset Register and the financial system.

Accountabilities for asset management system and data maintenance

The asset management system is the responsibility of the Financial Sector of Council, in particular the Manager Information and Customer Service. Collection and management of asset data is the responsibility of the Operations Sector of Council, in particular the Manager Project Operations.

The update of financial data and the development of financial statements and other reports based on the asset data is the responsibility of the Financial Sector of Council, in particular the Manager Finance.

Required changes to asset management system arising from this Asset Management Plan

The pipe diameters need to be captured in the data.

7.2 Improvement Plan

The asset management improvement plan generated from this asset management plan is shown in Table 9.

Table 9: Improvement Plan

Task No	Task	Responsibility	Resources Required	Timeline
1	Design solutions for the hotspots identified in the Major Overland Flow Flood Study	Commercial Operations Sector Manager		Dec 2017
2	Capture the diameter of stormwater pipes to inform unit rates and condition assessment costs	Commercial Operations Sector Manager	Data	June 2017
3	Source a budget to implement the condition rating schedule as the per the plan	Commercial Operations Sector Manager	Budget is required	Jan 2018
4	Develop a renewal plan for stormwater pipes and open drains based on condition assessments	Commercial Operations Sector Manager	Data from condition assessments	After condition assessments
5	Review the DSP for stormwater to identify new assets and funding available	Commercial Operations Sector Manager		Dec 2017
6	Develop and resource a planned maintenance plan for the levee	Commercial Operations Sector Manager	As part of the levee upgrade	To be determined
7	Develop solutions and costs and implement works to remediate pipe segments identified in condition assessments conducted in 2013/14	Commercial Operations Sector Manager	Solutions and designs are required. Additional capital budget is required.	Dec 2017
8	Review and update pipe extent data	Commercial Operations Sector Manager	Data	Dec 2017

Task No	Task	Responsibility	Resources Required	Timeline
9	Develop a risk treatment plan for stormwater assets including costs	Commercial Operations Sector Manager	Internal resources	Dec 2017
10	Capture the data for the stormwater assets to allow for the use of the NAMS plus template	Commercial Operations Sector Manager		As data becomes available
11	Examine demand drivers and identify the impact on stormwater assets	Growth Strategy Residential Plan Stormwater DSP	Strategies	June 2017
12	Identify pipes and open drains for the medium term condition assessments	Commercial Operations Sector Manager		Dec 2018
13	Develop 20 year plans for stormwater assets	Commercial Operations Sector Manager	Based on condition assessment results	As data becomes available
14	Document the ranking criteria for new stormwater assets	Commercial Operations Sector Manager	Internal resources	June 2017
15	Review maintenance costs of the stormwater asset network	Commercial Operations Sector Manager	Internal resources	July 2017
16	Improve data collection and valuation information on Stormwater Pump Stations	Commercial Operations Sector Manager	Internal resources	As data becomes available
17	Develop a renewal ranking criteria for stormwater assets	Operations Managers	Internal resource	Dec 2017

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 asset management 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 Wagga Wagga City Council Long Term Financial Plan.

The asset management plan has a life of four years (Council election cycle) and is due for complete revision and updating within nine months of each council election.

7.4 Performance Measures

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

1. the gap between actual and targeted levels of service at any point in time,
2. the degree of synchronisation between the asset management plan and the Long Term Financial Plan,
3. the degree of integration between the asset management plan and the Delivery Program/Operational Plan,
4. the level of execution of the identified actions in the plan, and
5. the degree the assessed level of risk to Council in each asset category reduces over time.

8. REFERENCES

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

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

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

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

Wagga Wagga City Council, 2017/18 Long Term Financial Plan

Wagga Wagga City Council, Community Strategic Plan 2017

Wagga Wagga City Council, Stormwater Management Plan 2013-2017

Appendix A Abbreviations

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

questions? comments?
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