

Asset Management Plan

# Stormwater Assets

2022 – 2026

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## 1.0 EXECUTIVE SUMMARY

### 1.1 The Purpose of the Plan

The purpose of the Asset Management Plan (AM Plan) is to consider Council's priorities and focus, associated strategic documents and the management of the stormwater network.

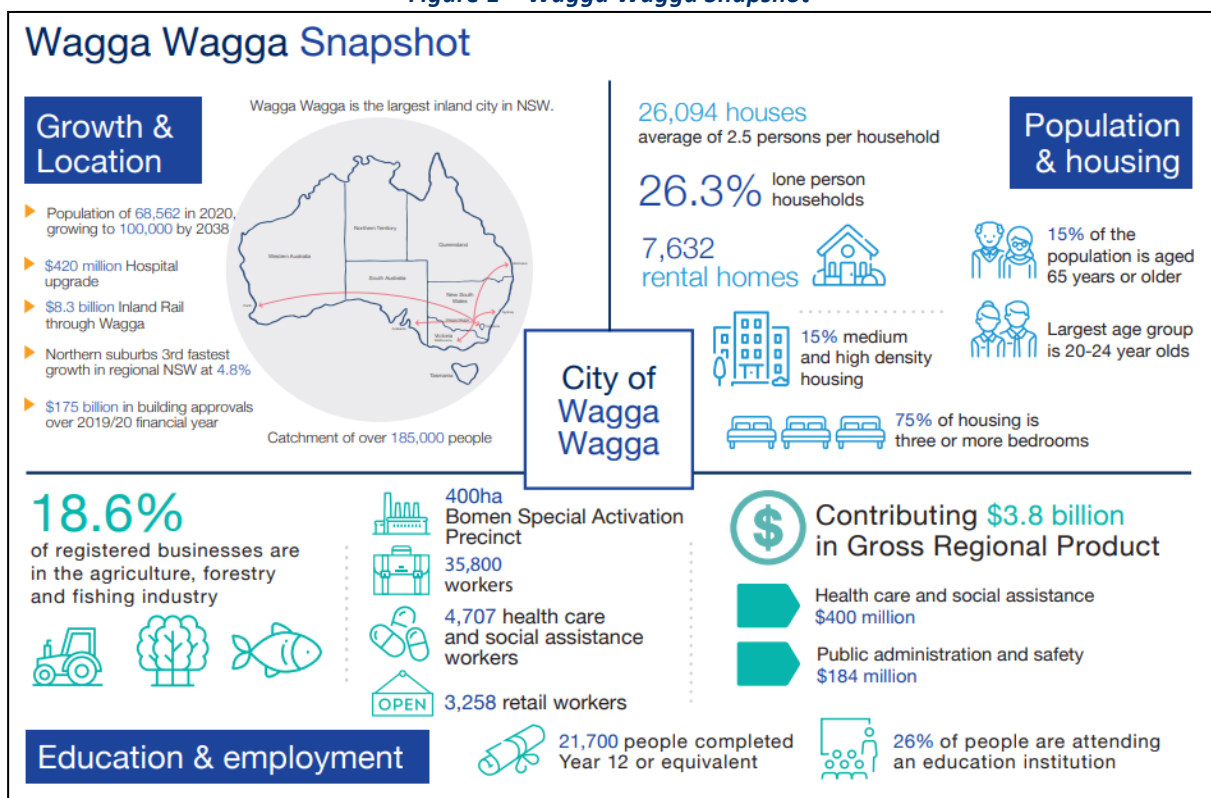
This AM Plan is to be read with the Council's [Community Strategic Plan 2040 – Wagga View](#) and asset planning documents including the Asset Management Policy and Asset Management Strategy. Other key planning documents are listed below:

- Community Strategic Plan 2040 – Wagga View
- Long Term Financial Plan 2022-2023
- Local Strategic Planning Statement – Planning for the future: Wagga Wagga 2040
- Draft Stormwater Strategic Management Plan 2010
- Development Servicing Plan Stormwater 2007

The [Wagga Wagga Local Strategic Planning Statement \(LSPS\) –Wagga 2040](#), the Major Overland Flow Flood Study (MOFFS), the Village Overland Flow Flood Study (VOFFS) and Stormwater Management Plan define Council's priorities and future demands on the stormwater network.

The LSPS sets the long-term strategic framework for planning and development in the City of Wagga Wagga local government area over the next 20 years. It addresses issues of strategic significance to the Council, guiding development or introduction of new planning policies, strategies or actions related to land use and development. The below image, from the LSPS provides a snapshot of the Wagga Wagga local government area.

Figure 1 – Wagga Wagga Snapshot



The LSPS sets out principles on which Council will make decisions into the future. They will be based on connectivity to the central core and accessibility to services and community facilities to ensure the growth of the city is financially and environmentally sustainable.

- the identification of flood hazards across the study area
- over floor flooding of residential, commercial, and industrial properties
- identification of known flooding issues and hotspots
- emergency response during a flood event. Various options for managing flood risk were assessed across a range of criteria, rated according to a detailed matrix of possible impacts. MOFFS recommends options with the highest rating, prioritised according to how easily they can be implemented, their cost, if there are any constraints, and how effective they will be in reducing damage or personal danger.

[illegible]

The high priority recommendations from the MOFFS report for implementation are:

- 6

- Appropriate land use zoning in future development areas
- Appropriate management of areas subject to both riverine and overland flow flood risk
- Confirm suitability of riverine flood related development controls within the overland flow PMF extent
- Inclusion of Overland Flow Flood information on Section 10.7 Planning Certificates
- Glenfield Drain and Flowerdale Lagoon improvements (further investigation)
- Incarnie Crescent stormwater line
- Lake Albert Flood Mitigation improvements (further investigation)

The high priority recommendations from the Village Overland Flow Flood Study (VOFFS) for implementation are:

- Flood Planning Area and Level for each town
- Update the Wagga Wagga Local Flood Plan section for each town
- Update flood intelligence cards for each town
- Install an automatic water level recorder on Umbango Creek
- Improve community flood awareness
- Maintenance for levee cross-drainage for Tarcutta
- Uranquinty levee system upgrade
- Maintenance for levee cross-drainage for Uranquinty
- Sandy Creek regular clearing of sedimentation

The second purpose of the AM Plan is to provide information about infrastructure assets together with actions required to deliver an agreed level of service in the most cost-effective manner, while outlining associated risks. The plan defines the services to be provided, how the services are provided and what funds are required to be provided over the 10 year planning period. The AM Plan will link to Council's Long Term Financial Plan (LTFP) which considers a 10 year planning period.

## 1.2 Asset Description

This plan covers the infrastructure assets that provide stormwater services to the Community.

The stormwater network comprises:

**Table 1 – Stormwater Assets**

| Asset Category          | Dimension             | Replacement Value    |
|-------------------------|-----------------------|----------------------|
| Stormwater Pipes        | 466 kms               | \$163,372,496        |
| Stormwater Pits         | 14,318                | \$33,074,255         |
| Stormwater Pump Station | 5                     | \$654,179            |
| Levee Banks             | 21 kms                | \$33,008,301         |
| Channels                | 50 kms / 141 channels | \$48,896,320         |
| Detention Basins        | 46                    | \$22,444,701         |
| Flood Gates             | 56                    | \$936,467            |
| Gross Pollutant Traps   | 7                     | \$550,351            |
| <b>TOTAL</b>            |                       | <b>\$302,937,071</b> |

## 1.3 Levels of Service

The allocation in the planned budget is insufficient to continue providing existing services at current levels only for the planning period as shown in the Technical Levels of Service.

The main service consequence of the current Planned Budget is that required renewal of assets in the network cannot be undertaken and the hotspots identified in the Major Overland Flow Flood Study (MOFFS) and Villages Overland Flow Flood Study (VOFFS).

## **1.4 Future Demand**

The factors influencing future demand are consistent with the Wagga Wagga Local Strategic Planning Statement – Wagga Wagga 2040 (LSPS) and the impacts they have on service delivery are created by:

- population change,
- changes in demographics,
- seasonal factors,
- economic factors,
- community expectations,
- technological changes,
- climate change,
- land subdivision and urban infill and consolidation.

These demands will be approached using a combination of managing existing assets, upgrading existing assets and providing new assets to meet demand. Demand management practices may also include a combination of 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.

## **1.5 Lifecycle Management Plan**

### **1.5.1 What does it Cost?**

The forecast lifecycle costs necessary to provide the services covered by this AM Plan includes operation, maintenance, renewal, acquisition, and disposal of assets. Although the AM Plan may be prepared for a range of time periods, it typically informs a Long-Term Financial Planning period of 10 years. Therefore, a summary output from the AM Plan is the forecast of 10 year total outlays, which for the stormwater network is estimated at \$78,121,564 or \$7,812,156 on average per year.

## **1.6 Financial Summary**

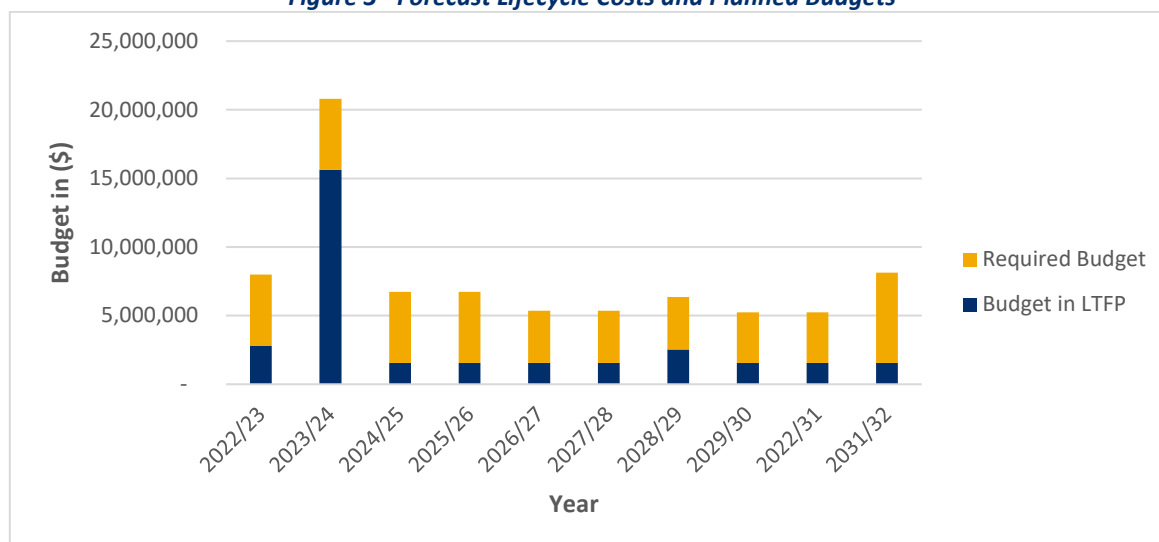
### **1.6.1 What we will do**

Estimated available funding for the 10 year period is \$26,291,620 or \$2,629,162 on average per year as per the Long-Term Financial plan or Planned Budget. This is 34% of the cost to sustain the current level of service at the lowest lifecycle cost.

The infrastructure reality is that only what is funded in the long-term financial plan can be provided

The anticipated Planned Budget for the stormwater network leaves a shortfall of \$5,182,994 shortfall on average per year of the forecast lifecycle costs required to provide services in the AM Plan compared with the Planned Budget currently included in the Long-Term Financial Plan. This is shown in the figure below.

**Figure 3 - Forecast Lifecycle Costs and Planned Budgets**



The major contributing factor to the shortfall shown on the graph above is due to the fact the required renewal budget is \$38,705,538 over the next ten years and the budget in the LTFP is \$4,510,047.

### 1.6.2 What we cannot do

We currently do **not** allocate enough budget to sustain these services at the proposed standard or to provide all new services being sought. Works and services that cannot be provided under present funding levels are:

- hotspots identified in the Major Overland Flow Flood Study will not be remediated unless grant funding is sourced, and
- condition 4 and 5 assets will not be renewed as required.

### 1.6.3 Managing the Risks

Our present budget levels are insufficient to continue to manage risks in the medium term.

The main risk consequences are:

- increase risk of asset failure of the stormwater pipe network,
- flooding at identified flood hotspots will continue, and
- risk of flooding will remain for the community.

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

- continuation of current infrastructure maintenance practices,
- ongoing review of infrastructure maintenance practices, and
- continuing to monitor known service deficiencies/risks.

## 1.7 Asset Management Planning Practices

Wagga Wagga City Council systems to manage assets include:

- Assetic Mydata asset management system in conjunction with ESRI ArcInfo mapping and database
- FinanceOne - Accounting System - TechnologyOne
- Property & Rating – Request Management - TechnologyOne

## 1.8 Monitoring and Improvement Program

The next steps resulting from this AM Plan to improve asset management practices are documented in Section 8 of this document. Council will monitor and improve its;

- Overall Asset Management Framework practices and processed; and
- Specific items relevant to each Asset Management Plan

## 2.0 Introduction

### 2.1 Background

This AM Plan communicates the requirements for the sustainable delivery of services through management of assets, compliance with regulatory requirements, and required funding to provide the appropriate levels of service over the planning period.

The AM Plan is to be read with the Council's planning documents. This should include the Asset Management Policy and Asset Management Strategy, where developed, along with other key planning documents:

- Community Strategic Plan 2040 – Wagga View
- Long Term Financial Plan 2022-2023
- Local Strategic Planning Statement – Planning for the future: Wagga Wagga 2040
- Draft Stormwater Strategic Management Plan 2010
- Development Servicing Plan Stormwater 2007

The infrastructure assets covered by this AM Plan include stormwater pipes, pits and pumps, levee banks, channels and detention basins, flood gates and gross pollutant traps (GPTs). For a detailed summary of the assets covered in this AM Plan refer to Table 2 in Section 5.

These assets are used to provide stormwater services.

The infrastructure assets included in this plan have a total replacement value of \$302,937,071.

Key stakeholders in the preparation and implementation of this AM Plan are shown in the following table.

**Table 2 - Key Stakeholders in the AM Plan**

| Key Stakeholder                                     | Role in Asset Management Plan                                                                                                                                                                                                         |
|-----------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Wagga Wagga Councillors                             | <ul style="list-style-type: none"><li>- Represent the needs of the community,</li><li>- Allocate resources to meet planning objectives in providing services while managing risks,</li><li>- Ensure service sustainability.</li></ul> |
| Federal Member                                      | Represent Community interest within the federal government division of Riverina.                                                                                                                                                      |
| State Member                                        | Represent Community interest within the state government division of Wagga Wagga.                                                                                                                                                     |
| General Manager                                     | Direct Council Staff in the balancing of agreed service levels and the fiscal ability to provide services.                                                                                                                            |
| Council Staff                                       | To maintain a proactive approach to customer requests, and to utilise a holistic asset management system and procedures which can better inform decisions by Council                                                                  |
| Wagga Wagga Community (residents and businesses)    | Report perceived shortcomings, damage, safety concerns, etc. with the current infrastructure in relation to their needs.                                                                                                              |
| Emergency Services                                  | Report perceived shortcomings, damage, safety concerns, etc. with the current infrastructure in relation to their needs.                                                                                                              |
| Federal & State Government Authorities and Agencies | Providing input with regard to overall infrastructure performance in conjunction with infrastructure under their jurisdiction.                                                                                                        |
| Utility Companies                                   | Providing input with regard to access to their assets.                                                                                                                                                                                |
| Developers                                          | Providing input with regard to their interests in future investment in the infrastructure.                                                                                                                                            |
| Neighbouring Councils                               | Maintaining a dialogue with other municipal authorities with regard to asset management practices, construction standards, resource sharing                                                                                           |

| Key Stakeholder                                                              | Role in Asset Management Plan                                                                                                                                |
|------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Wagga Wagga City Council<br>Floodplain Risk Management<br>Advisory Committee | Provide advice to Council on the development, implementation and delivery of actions contained in the WWCC Floodplain Risk Management Study and Plan (2018). |
| DPIE Floodplain Management                                                   | Floodplain management regulation in accordance with the NSW Government's Flood Prone Land Policy                                                             |
| WaterNSW                                                                     | Consultation during significant local runoff events, particularly when coinciding with Riverine flooding events.                                             |

## 2.2 Goals and Objectives of Asset Ownership

Our goal for 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
- Linking to a Long-Term Financial Plan which identifies required, affordable forecast costs and how it will be allocated.

Key elements of the planning framework are

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

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

- International Infrastructure Management Manual 2015 <sup>1</sup>
- ISO 55000<sup>2</sup>

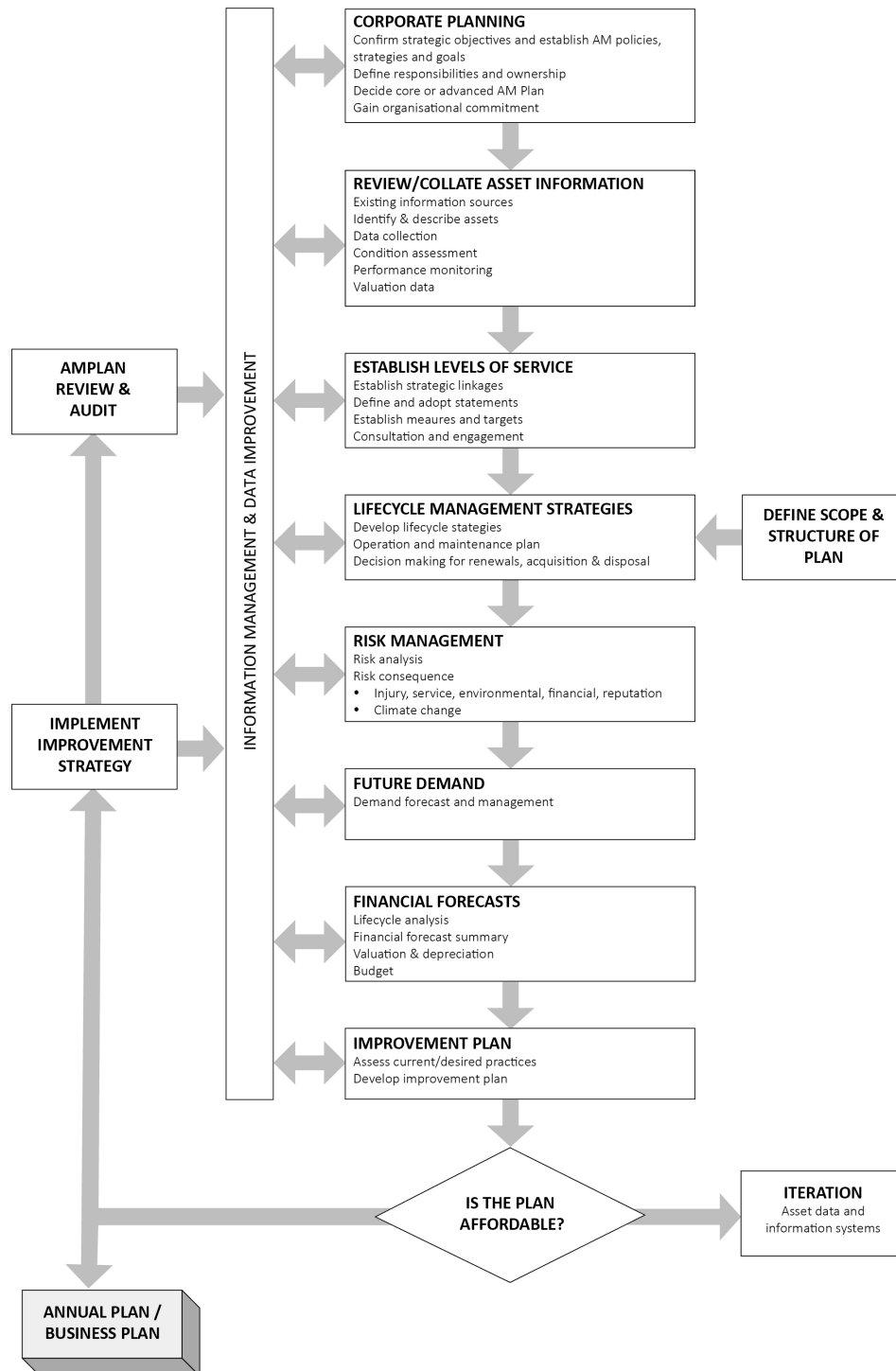
A road map for preparing an AM Plan is shown below.

<sup>1</sup> Based on IPWEA 2015 IIMM, Sec 2.1.3, p 2 | 13

<sup>2</sup> ISO 55000 Overview, principles and terminology

**Figure 4 - Road Map for preparing an Asset Management Plan**

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



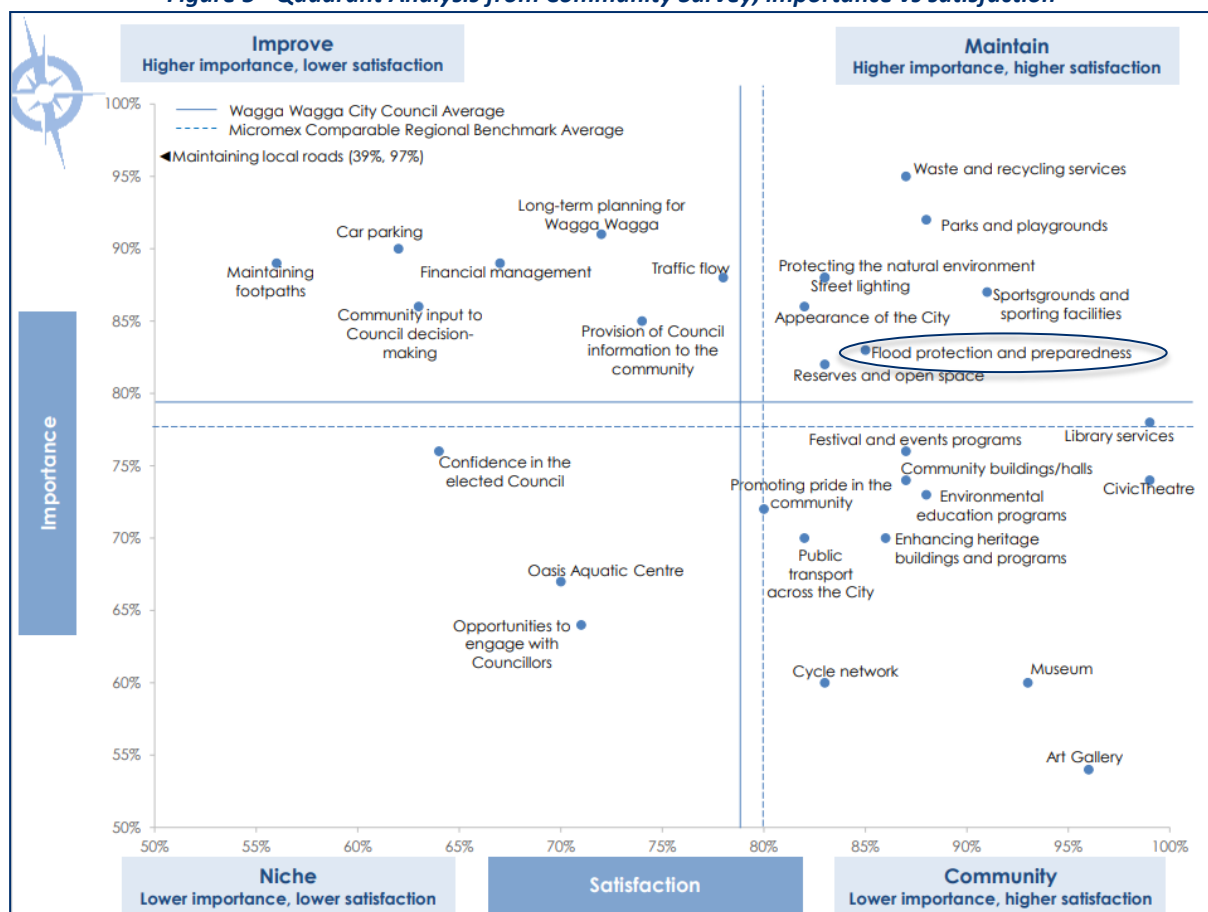
## 3.0 LEVELS OF SERVICE

### 3.1 Customer Research and Expectations

Wagga Wagga City Council has conducted local government satisfaction surveys since 2006. This telephone survey samples residents on the levels of satisfaction with Council services and their importance. The results are then interpreted in a quadrant analysis. The quadrant analysis is a useful tool for planning future directions. It combines the stated needs of the community and addresses Council's performance in relation to these needs.

The figure below is from the 2021 Community Satisfaction Survey. It highlights that flood protection and preparedness are rated in the higher importance/higher satisfaction quadrant.

**Figure 5 - Quadrant Analysis from Community Survey, importance vs satisfaction**



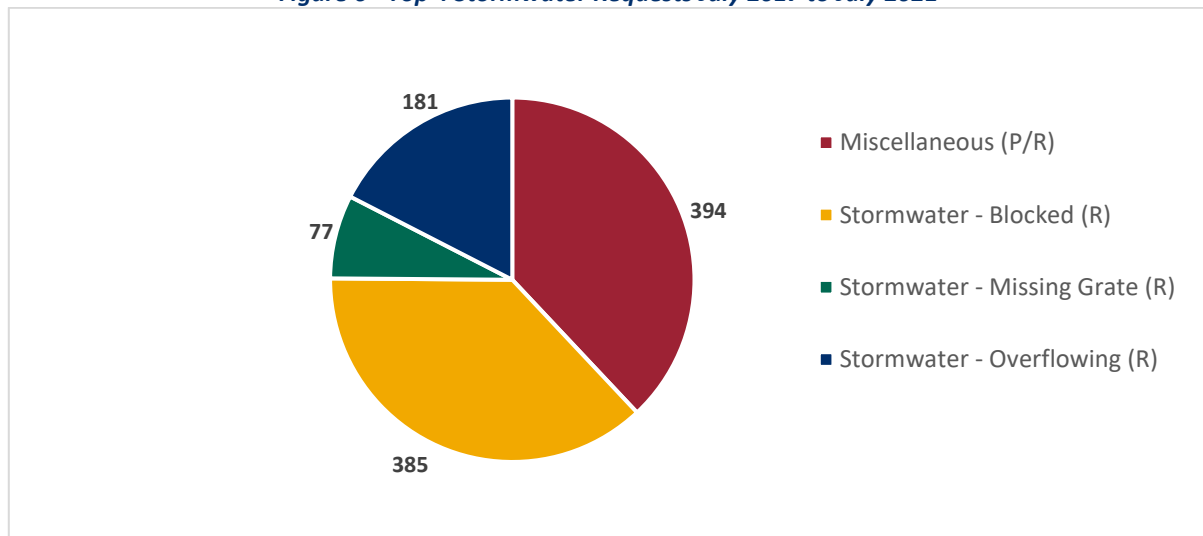
Source – Wagga Wagga Community Survey Results 2021 \*Slide 1 (nsw.gov.au)

2021 Customers Satisfaction survey feedback relevant to the following.

- flood protection and preparedness has a customer rating of 83% importance and 85% satisfactions, with satisfaction increased by 13% in comparison to 2017. This contributes 0.8% to the overall customer satisfaction.
- 38% of residents contacted Council –distributed across the demographics of 18-34 and 50-59 years of age. (32% in 2017), of this 3% were related to drains, the same results of 3% in 2017. 77% of were at least somewhat satisfied with the handling of the contact, 44% were very satisfied compared to 40% in 2017.

Council's customer request system shows the following top four issues with the stormwater network.

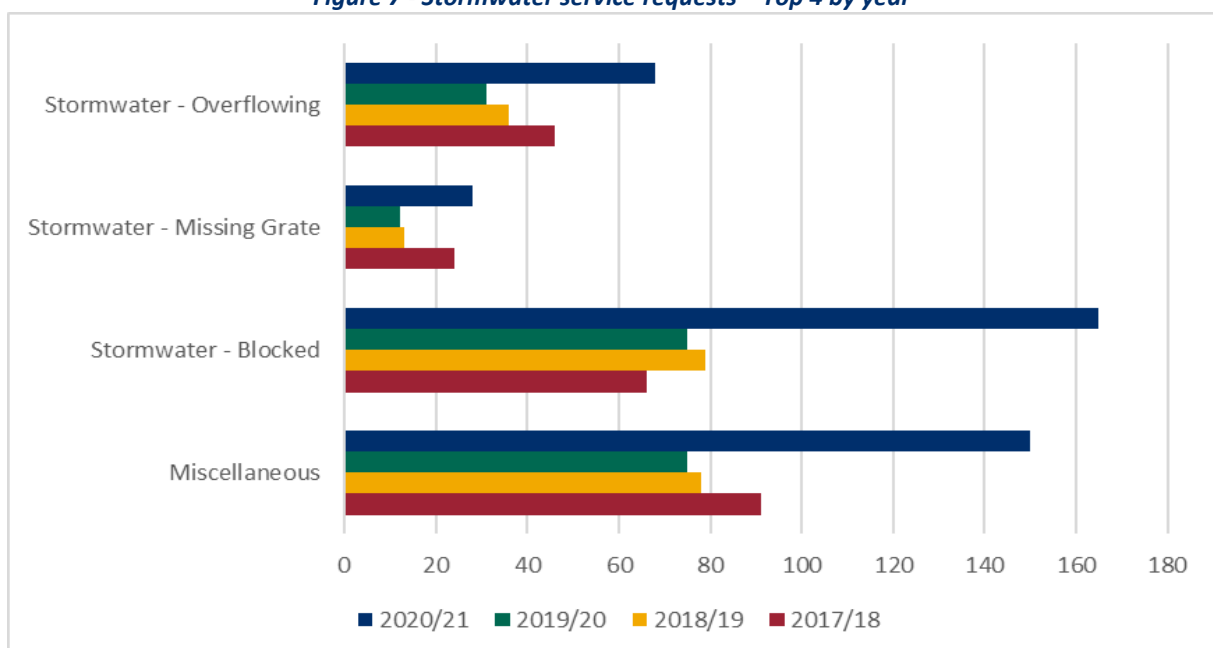
**Figure 6 - Top 4 Stormwater Requests July 2017 to July 2021**



Source: Wagga Wagga City Council Request Management System

The trends from 2017-2021 show that an increase in requests in 2020/21 for the Top 4 requests, as presented in Figure 6.

**Figure 7 - Stormwater service requests – Top 4 by year**



Source: Wagga Wagga City Council Request Management System

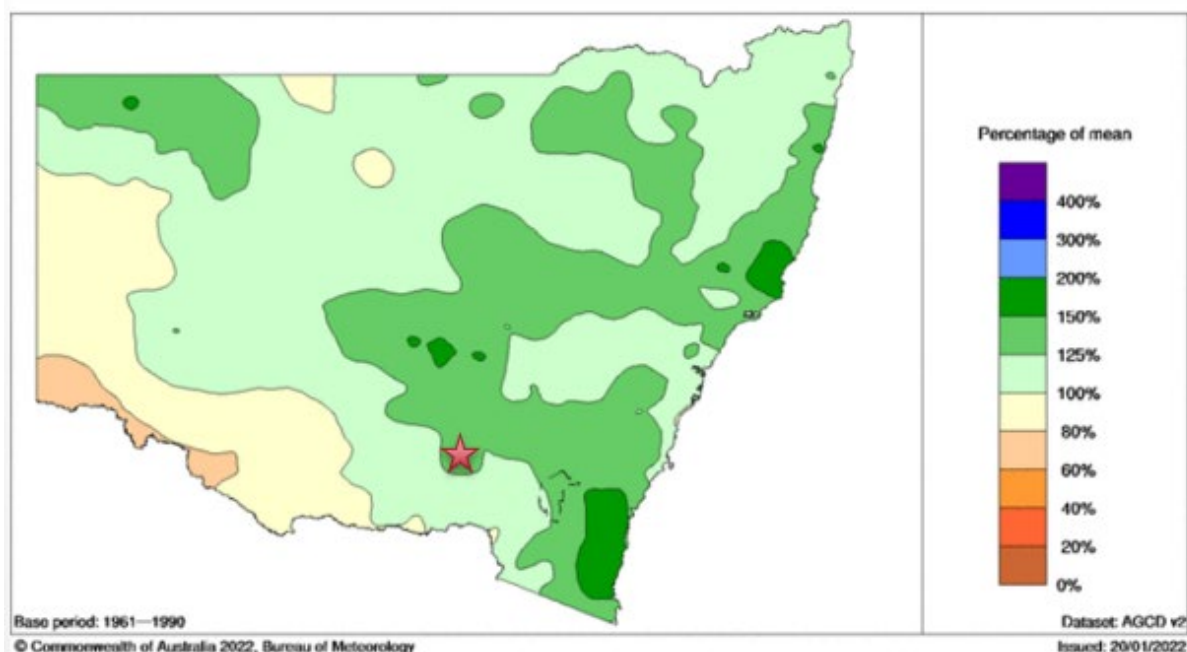
This increase in customer requests may relate to the increase rainfall (125 to 150% of the mean) after an intensely dry period of weather across NSW. The effects of this increased rainfall are:

- increase debris entering the stormwater system,
- additional catchment runoff,
- dry recent history may increase customer service expectations for stormwater management, and
- vegetation and other impediments present themselves when stormwater is significantly reduced and not flushing the system.

The following figures show the twelve-monthly rainfall percentages compared to the mean from 2017/18 to 2020/21.

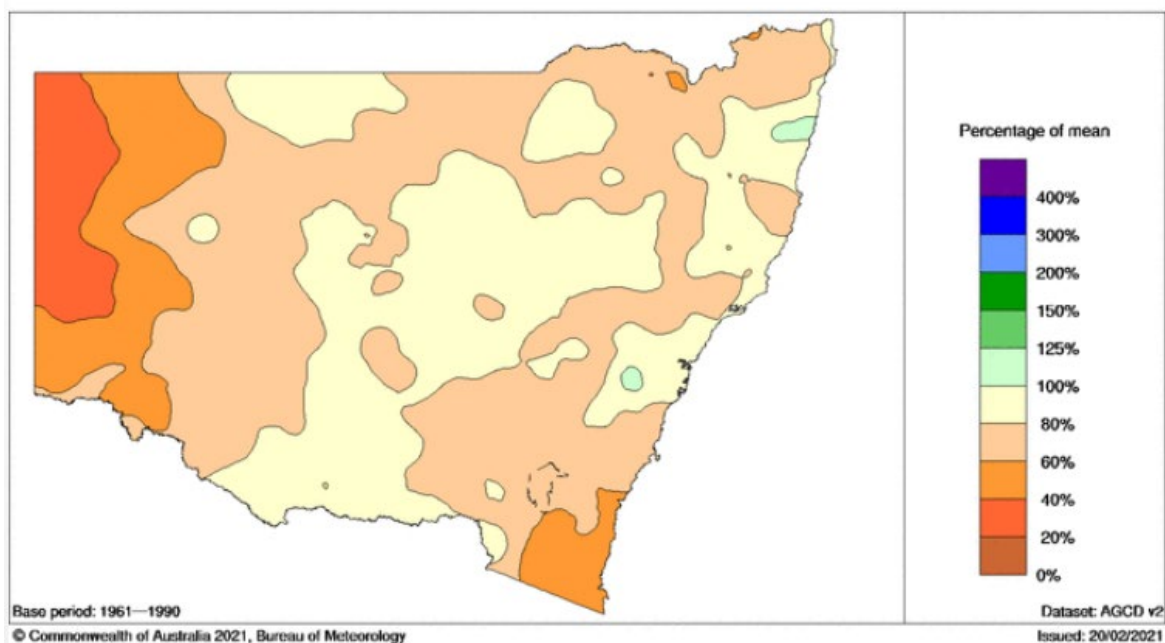
**Figure 8 - 2020-21 Wagga Wagga Climate Rainfall Percentage of the Mean Rainfall**

Twelve-monthly rainfall percentages for New South Wales/ACT 01/07/2020 – 30/06/2021



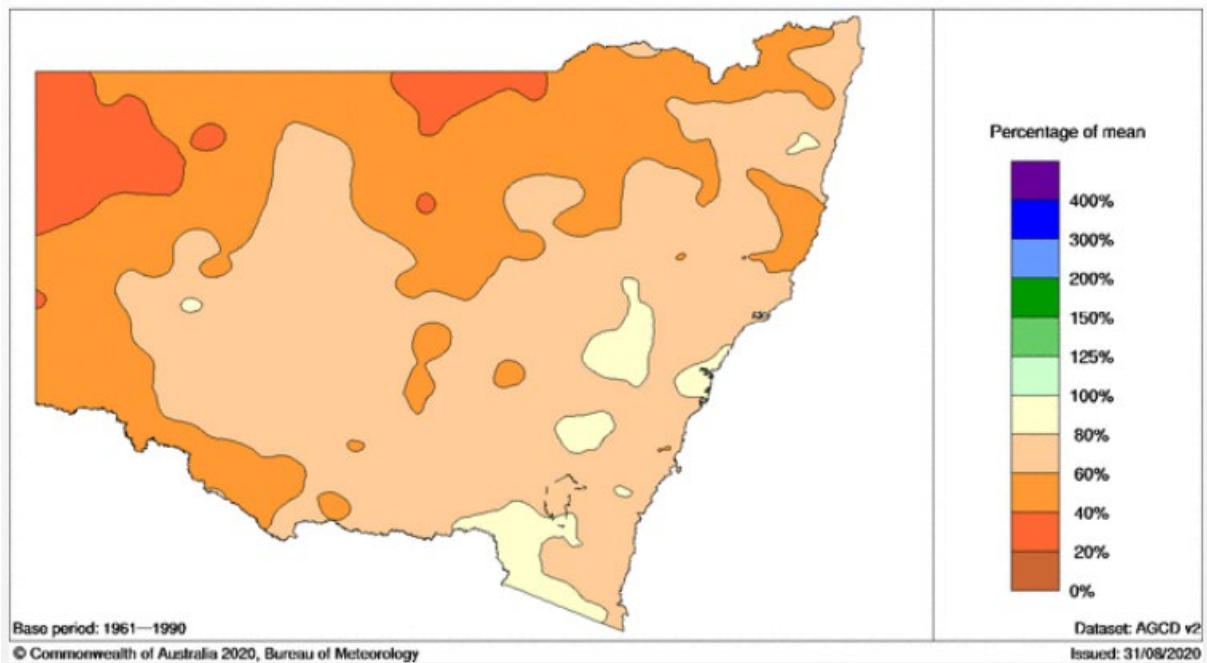
**Figure 9 - 2019-20 Wagga Wagga Climate Rainfall Percentage of the Mean Rainfall**

Twelve-monthly rainfall percentages for New South Wales/ACT 01/07/2019 – 30/06/2020

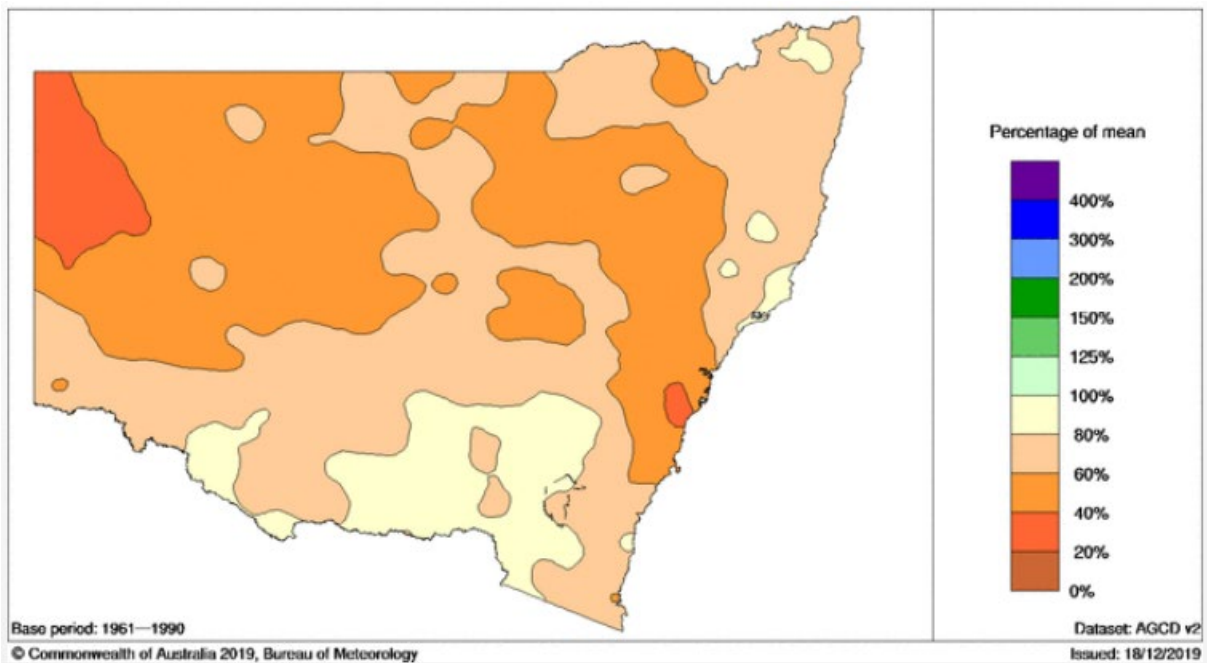


**Figure 10 - 2018-19 Wagga Wagga Climate Rainfall Percentage of the Mean Rainfall**

Twelve-monthly rainfall percentages for New South Wales/ACT 01/07/2018 – 30/06/2019



**Figure 11 - 2017-18 Wagga Wagga Climate Rainfall Percentage of the Mean Rainfall**



Through the Floodplain Risk Management Advisory Committee (FRMAC), the focus is predominantly on Riverine flooding protection. As for any Australian urban center that constructed around a river, drainage is significantly affected by the wide variation of river water levels during wet weather events.

FRMAC was consulted in the development of Wagga Wagga Major Overland Flow Floodplain Risk Management Plan.

### 3.2 Strategic Direction

*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 agreed upon a number of priorities which are really important. These have been categorised into 5 strategic directions for the city. These are Community Leadership and Collaboration, Safety and Health, Growing Economy, Our Identity and Sense of Place and Our Environment. 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.

**Table 3 - Strategic directions in the Community Strategic Plan 2040 and how these are addressed in this Plan**

| Strategic Direction                    | Objective                                                                                                                                                               | How strategic directions are addressed in the AM Plan                                                                                                                                                                           |
|----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Community leadership and collaboration | Council and management decisions are evidence based, equitable and transparent.                                                                                         | The plan provides a clear report on the situation with currently held assets and projections for those assets into the future, allowing informed decisions to be made.                                                          |
| Community leadership and collaboration | We provide transparent and sustainable financial management and deliver consistent and fair decision making to ensure our internal processes enhance external outcomes. | The plan provides a framework to promote better understanding of sustainable service delivery practices. It also sets out service requirement and seeks to define the way these are achieved and maintained over the long term. |
| Community leadership and collaboration | We understand our customer needs and have the technology and resources to support the organisation’s service delivery goals.                                            | The plan links to the service level document outlining the service level required, thereby providing a framework of what services Council can provide and how those services will be maintained into the future.                |
| Our Environment                        | Development is thriving, sustainable and clean with access to appropriate services and infrastructure                                                                   | Suitable provision of assets into the future are considered as part of the asset management plan.                                                                                                                               |

The primary objective in stormwater and flood mitigation is to operate and maintain the system assets to achieve best hydraulic performance and optimal service life with minimal risk to the communities served.

The strategic direction is further defined in the MOFFS and the Stormwater Strategic Management Plan 2010. They are shown below.

**Table 4 – Strategic Direction and Themes from the MOFFS**

| Strategic Direction                         | Theme                                                                                                                                          |
|---------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| Prevention, Risk                            | Adopt overland flow into flood planning and protection of future residential and other planning, development                                   |
| Prevention, Risk                            | Adopt overland flow into flood planning and protection of future residential and other planning, development                                   |
| Protection, Risk                            | Adopt overland flow for flood planning and protection of existing residential with modifications and upgrade of stormwater infrastructure      |
| Protection                                  | Improve Driver Safety                                                                                                                          |
| Information                                 | Community flood awareness                                                                                                                      |
| Prevention, Risk                            | Land Use Zoning and development controls to include riverine stormwater risk                                                                   |
| Protection, System Capacity and Performance | Improve overland and stormwater flow detention through existing water bodies to improve airspace and surcharge potentials to reduce flow peaks |
| Protection, Performance                     | Increase watercourse capacity to divert and attenuate flow peaks through a catchment                                                           |
| Protection                                  | Flood Emergency Coordination planning and preparedness                                                                                         |
| Prevention, Information                     | Improved Flood Warning System                                                                                                                  |

Source: MOFFS

**Table 5 – Strategic Direction and Initiatives from Stormwater Management Plan 2010**

| Strategic Direction                               | Initiative                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|---------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| System Capacity and Performance                   | Complete system dynamic modelling project – capacity and constraints<br>Monitor and include in dynamic model study - <i>Overland Flows</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Water Quality                                     | Install GPs and sediment traps and remove sediment from lagoon - <i>Wollundry Lagoon</i><br>Install GPT and minimize installation risks once outcomes of dynamic modelling are available - <i>Bolton Park gross pollution and risks</i><br>Install suitable GPTs and sediment traps on major open storm water rains. Install two GPTs per annum - <i>Gross pollution of system waterway</i><br>Undertake specialist study of the water quality in the key stormwater catchment, and redesign water quality monitoring program - <i>Limited data on water quality in stormwater catchments</i> |
| System Capacity, Performance, Protection and Risk | Undertake detailed geo-technical study, identify critical levee sections, and rehabilitate – levees<br>Undertake annual CCTV inspections of 5% of pre-1975 pipe system until all older underground pipe assets have been surveyed and condition rated - <i>Inadequate knowledge of condition of underground pipe system</i><br>Undertake a due diligence audit of all surface stormwater assets                                                                                                                                                                                               |
| Community Information, Consultation and Education | Plan and commence to implement community consultation and education program. Plan as sustaining project                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

Source: Stormwater Strategic Management Plan 2010

### 3.3 Legislative Requirements

There are many legislative requirements relating to the management of assets. Legislative requirements that impact the delivery of the stormwater service are outlined below.

**Table 6 - Legislative Requirements**

| Legislation                                    | Requirement                                                                                                                                                                                                                                                                             |
|------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Local Government Act 1993                      | 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 (General) Regulation 2021     | Sets out roles, purposes, responsibilities and powers of local government, in addition to those set out in the Local Government Act 1993, including integrated planning and reporting guidelines.                                                                                       |
| Environmental Planning & Assessment Act 1979   | Requirement for Local Environmental Plans and Development Control Plans. Provides for Council control of development of towns and approval of infrastructure expansion.                                                                                                                 |
| Australian Accounting Standards                | Provides the conceptual framework and standards for accounting and financial reporting.                                                                                                                                                                                                 |
| State Emergency and Rescue Management Act 1989 | Council is a key participant planning and supporting emergency management through its role as an infrastructure owner, but also as the Local Emergency Management Officer (LEMO) for the Local Emergency Management Committee and administrator of the Local Emergency Management Plan. |
| Work Health and Safety Act 2011                | Impacts all operations in relation to safety of workers and the public. Council's responsibility to ensure health, safety and welfare of employees and others at places of work.                                                                                                        |

### 3.4 Customer Values

Service levels are defined in three ways, customer values, customer levels of service and technical levels of service.

**Customer Values** indicate:

- what aspects of the service is important to the customer,
- whether they see value in what is currently provided and
- the likely trend over time based on the current budget provision

**Table 7 - Customer Values**

| Customer Values                                                          | Customer Satisfaction Measure | Current Feedback                                                                      | Expected Trend Based on Planned Budget                                                                                                                                                                                |
|--------------------------------------------------------------------------|-------------------------------|---------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Stormwater network needs to be clean and free of blockages               | Customer requests             | Blockages are in the top four customer requests for the stormwater network            | Trend expected to continue                                                                                                                                                                                            |
| Stormwater gross pollutant traps are to be installed where required      | Customer requests             | Lack of GPT's are in the top four customer requests for the stormwater network        | Trend expected to continue                                                                                                                                                                                            |
| Stormwater network needs to be capable of managing a 1 in 10 flood event | Customer requests             | Stormwater overflows are in the top four customer requests for the stormwater network | The network is designed to manage a 1 in 10 flood event or less. Events higher than this are managed by the overland flow path. With increased storm events the overland flow paths will be impacted more frequently. |

Source: Wagga Wagga City Council customer request system

### 3.5 Customer Levels of Service

The Customer Levels of Service are considered in terms of:

|                     |                                                                                |
|---------------------|--------------------------------------------------------------------------------|
| <b>Condition</b>    | How good is the service ... what is the condition or quality of the service?   |
| <b>Function</b>     | Is it suitable for its intended purpose .... Is it the right service?          |
| <b>Capacity/Use</b> | Is the service over or under used ... do we need more or less of these assets? |

In Table 8 under each of the service measures types (Condition, Function, Capacity/Use) there is a summary of the performance measure being used, the current performance, and the expected performance based on the current budget allocation.

These are measures of fact related to the service delivery outcome (e.g. number of occasions when service is not available or proportion of replacement value by condition %'s) to provide a balance in comparison to the customer perception that may be more subjective.

**Table 8 - Community Level of Service**

| Service Attribute                                                 | Service Objective                                                                                                                                    | Performance Measure Process                                                    | Current Performance of Total Network                                                                                                                                                                                                              |
|-------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>COMMUNITY OUTCOMES</b>                                         |                                                                                                                                                      |                                                                                |                                                                                                                                                                                                                                                   |
| Maintain infrastructure assets                                    |                                                                                                                                                      |                                                                                |                                                                                                                                                                                                                                                   |
| Build and maintain a levee bank to protect the community's assets |                                                                                                                                                      |                                                                                |                                                                                                                                                                                                                                                   |
| <b>COMMUNITY LEVELS OF SERVICE – Drainage Network</b>             |                                                                                                                                                      |                                                                                |                                                                                                                                                                                                                                                   |
| <b>Condition</b>                                                  | Stormwater assets in condition 4 and 5 are remediated as planned                                                                                     | Condition assessment results of stormwater assets                              | The last condition assessment was conducted in 2019/20; this covered 15% 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. |
| <b>Function</b>                                                   | The drainage system manages a 1 in 10 flood event and the overland flow paths manage the stormwater in more significant events                       | Major Overland Flow Flood Study (MOFFS) and village Overland Flow Flood Study. | MOFFS and VOFFS lists hotspots                                                                                                                                                                                                                    |
| <b>Capacity</b>                                                   | The drainage system is designed to manage a 1 in 10 flood event and identified overland flow paths manage flood water in events greater than 1 in 10 | Major Overland Flow Flood Study (MOFFS) and village Overland Flow Flood Study. | MOFFS and VOFFS lists hotspots                                                                                                                                                                                                                    |
| <b>COMMUNITY LEVELS OF SERVICE – Levee</b>                        |                                                                                                                                                      |                                                                                |                                                                                                                                                                                                                                                   |
| 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                               | Levee inspection 6 months and after flood event                                                                                                                                                                                                   |
| 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                                 | Levee upgrade completed in 2019.                                                                                                                                                                                                                  |

### 3.6 Technical Levels of Service

**Technical Levels of Service** – To deliver the customer values, and impact the achieved Customer Levels of Service, are operational or technical measures of performance. These technical measures relate to the activities and allocation of resources to best achieve the desired customer outcomes and demonstrate effective performance.

Technical service measures are linked to the activities and annual budgets covering:

- **Acquisition** – the activities to provide a higher level of service (e.g. replacing a pipeline with a larger size) or a new service that did not exist previously (e.g. a new pipe).
- **Operation** – the regular activities to provide services (e.g. cleaning, energy, inspections, etc).
- **Maintenance** – the activities necessary to retain an asset as near as practicable to an appropriate service condition. Maintenance activities enable an asset to provide service for its planned life (e.g. mowing the levee),
- **Renewal** – the activities that return the service capability of an asset up to that which it had originally provided (e.g. road resurfacing and pavement reconstruction, pipeline replacement and building component replacement),

Service and asset managers plan, implement and control technical service levels to influence the service outcomes.<sup>3</sup>

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<sup>3</sup> IPWEA, 2015, IIMM, p 2|28.

The table below shows the activities expected to be provided under the current 10 year Planned Budget allocation, and the Forecast activity requirements being recommended in this AM Plan.

**Table 9 - Technical Levels of Service**

| Service Attribute                  | Service Objective                                               | Target Activity Measure Process                                                                                                                                                                                                                                                                                                                          | Current Performance                                                                                                                                                                                                                                                                                          | Estimated Required Budget  | Budget as per Long Term Financial Plan | Funding Ratio (Budget/ Required Budget) |
|------------------------------------|-----------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|----------------------------------------|-----------------------------------------|
| <b>TECHNICAL LEVELS OF SERVICE</b> |                                                                 |                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                              |                            |                                        |                                         |
| <b>Operations</b>                  | 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, Koorringal, 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. | In 2019/20 3% of the pipe network was condition rated by an external contractor, 12% of the pipe network was assessed by internal staff.<br><br>Open drains were condition assessed in 2019/20 by internal staff.<br><br>Currently there is no recurrent budget for the assessment of pipes and open drains. | \$1,847,023 over 10 years  | \$0                                    | 0%                                      |
|                                    | Undertake levee inspections                                     | Inspections undertaken as scheduled                                                                                                                                                                                                                                                                                                                      | The main city, North Wagga levee and Uranquinty levees are inspected every 6 months and during and after major flood events                                                                                                                                                                                  | \$661,620 over 10 years    | \$0                                    | 0%                                      |
|                                    |                                                                 |                                                                                                                                                                                                                                                                                                                                                          | <b>Total Operations</b>                                                                                                                                                                                                                                                                                      | <b>\$2,508,643</b>         | <b>\$0</b>                             | <b>0%</b>                               |
| <b>Maintenance</b>                 | Maintain the levee                                              | Conduct minor maintenance as identified in the inspections of the levee                                                                                                                                                                                                                                                                                  | Activities conducted as identified                                                                                                                                                                                                                                                                           | \$1,413,831 over 10 years  | \$1,413,831 over 10 years              | 100%                                    |
|                                    | 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                                                                                                                                                                                                                                              | \$13,129,695 over 10 years | \$13,129,695 over 10 years             | 100%                                    |
|                                    | Maintain drainage blackspots                                    | Conduct maintenance as identified in the inspections across the stormwater network. Conduct major                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                              | \$1,092,730 over 10 years  | \$1,092,730 over 10 years              | 100%                                    |

| Service Attribute | Service Objective                                                                                                | Target Activity Measure Process                    | Current Performance                 | Estimated Required Budget | Budget as per Long Term Financial Plan | Funding Ratio (Budget/ Required Budget) |
|-------------------|------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|-------------------------------------|---------------------------|----------------------------------------|-----------------------------------------|
|                   |                                                                                                                  | maintenance on sections of the stormwater network. |                                     |                           |                                        |                                         |
|                   |                                                                                                                  |                                                    | <b>Total Maintenance</b>            | <b>\$15,636,254</b>       | <b>\$15,636,254</b>                    | <b>100%</b>                             |
| <b>Renewal</b>    | Glenfield Road Drainage Remediation (North of Fernleigh Rd)                                                      |                                                    | Proposed 2022/23 and 2023/24        | \$1,335,047               | \$1,335,047                            | 100%                                    |
|                   | Stormwater - Murray St Project                                                                                   |                                                    | Proposed 2022/23 and 2023/24        | \$3,175,000               | \$3,175,000                            | 100%                                    |
|                   | Renew stormwater assets in condition 4 and 5                                                                     | Condition 4 and 5 stormwater assets are renewed    | No budget is identified in the LTFP | \$34,195,491              | \$0                                    | 0%                                      |
|                   |                                                                                                                  |                                                    | <b>Total Renewal</b>                | <b>\$38,705,538</b>       | <b>\$4,510,047</b>                     | <b>12%</b>                              |
| <b>Upgrade</b>    | Levee System Upgrade - North Wagga (1 in 20)                                                                     | Levee upgraded                                     | Proposed 2023/24                    | \$8,419,811               | \$2,604,000                            | 31%                                     |
|                   | Stormwater - Tarcutta Drainage Upgrade and Supplementary Levee                                                   |                                                    | Proposed 2022/23                    | \$411,880                 | \$411,880                              | 100%                                    |
|                   | Jubilee Park to Red Hill Rd - Wagga West DSP Area - Implement Stormwater Drainage Improvements                   |                                                    | Proposed 2022/23                    | \$289,018                 | \$289,018                              | 100%                                    |
|                   | Red Hill Road and Glenfield Road basin upgrade to increase capacity (MOFFS GD01)                                 |                                                    | Short term                          | \$1,000,000               | \$0                                    | 0%                                      |
|                   | Adjin Street and Maher Street intersection – upgrade stormwater infrastructure to increase capacity (MOFFS GD02) |                                                    | Short term                          | \$800,000                 | \$0                                    | 0%                                      |
|                   | Increase storage of Anderson Oval basin and swale drain (MOFFS GD03)                                             |                                                    | Short term                          | \$510,000                 | \$0                                    | 0%                                      |
|                   | Raise Lake Albert Road to increase the capacity of Lake Albert (MOFFS LA01)                                      |                                                    | Short term                          | \$1,900,000               | \$0                                    | 0%                                      |

| Service Attribute | Service Objective                                                                          | Target Activity Measure Process | Current Performance      | Estimated Required Budget | Budget as per Long Term Financial Plan | Funding Ratio (Budget/ Required Budget) |
|-------------------|--------------------------------------------------------------------------------------------|---------------------------------|--------------------------|---------------------------|----------------------------------------|-----------------------------------------|
|                   | Divert Crooked Creek to Lake Albert to increase capacity (MOFFS LA02)                      |                                 | Short term               | \$500,000                 | \$0                                    | 0%                                      |
|                   | Divert Stringybark Creek to Lake Albert to increase capacity (MOFFS LA03)                  |                                 | Short term               | \$1,300,000               | \$0                                    | 0%                                      |
|                   | Automate the main Bolton Park drainage gate (MOFFS SW02)                                   |                                 | Medium term              | \$100,000                 | \$0                                    | 0%                                      |
|                   | Upgrade stormwater assets at McNickle Road and Roach Road intersection (MOFFS FM02)        |                                 | Medium Term              | \$300,000                 | \$0                                    | 0%                                      |
|                   |                                                                                            |                                 | <b>Total Upgrade</b>     | <b>\$15,530,709</b>       | <b>\$3,304,898</b>                     | <b>21%</b>                              |
| <b>New</b>        | Developer contributed stormwater assets                                                    |                                 | 70km pipes over 10 years | Developer contributed     | Developer contributed                  | 100%                                    |
|                   | Stormwater - Copland St Drainage Projects                                                  |                                 | Proposed 2023/24         | \$551,949                 | \$551,949                              | 100%                                    |
|                   | Stormwater - Day, Higgins, Tarcutta St - Wagga West DSP Area Drainage Upgrade              |                                 | Proposed 2028/29         | \$328,458                 | \$328,458                              | 100%                                    |
|                   | Stormwater - Kincaid St end to Flowerdale pumping station drainage - Wagga West DSP Area   |                                 | Proposed 2023/24         | \$810,935                 | \$810,935                              | 100%                                    |
|                   | Stormwater - Lloyd Contour Ridge approximately 5 km - Wagga West DSP Area Drainage Upgrade |                                 | Proposed 2028/29         | \$157,660                 | \$157,660                              | 100%                                    |
|                   | Stormwater - Tarcoola Drainage Extension                                                   |                                 | Proposed 2028/29         | \$495,657                 | \$495,657                              | 100%                                    |
|                   | Stormwater - Yanda Lane Drainage                                                           |                                 | Proposed 2023/24         | \$495,763                 | \$495,763                              | 100%                                    |
|                   | Install a levee at Flowerdale Lagoon to increase capacity (MOFFS GD05)                     |                                 | Short term               | Not identified in MOFFS   |                                        |                                         |

| Service Attribute | Service Objective                                                                                               | Target Activity Measure Process | Current Performance | Estimated Required Budget | Budget as per Long Term Financial Plan | Funding Ratio (Budget/ Required Budget) |
|-------------------|-----------------------------------------------------------------------------------------------------------------|---------------------------------|---------------------|---------------------------|----------------------------------------|-----------------------------------------|
|                   | Install new trunk drainage at Rabaul<br>Plan to divert water from Glenfield Drain to Ashmont Drain (MOFFS GD04) |                                 | Long Term           | \$2,900,000               | \$0                                    | 0%                                      |
|                   |                                                                                                                 |                                 | <b>Total New</b>    | <b>\$5,740,422</b>        | <b>\$2,840,422</b>                     | <b>49%</b>                              |

## **4.0 FUTURE DEMAND**

### **4.1 Demand Drivers**

Factors affecting demand include population change, changes in demographics, seasonal factors, changed area of impervious ground, consumer preferences and expectations, economic factors, agricultural practices and environmental awareness for example.

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 Impact and 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.

A demand management plan will be developed in future revisions of this asset management plan.

### **4.3 Asset Programs to meet Demand**

The new assets required to meet demand may be acquired, donated or constructed. Additional assets are discussed in Section 5.4.

Acquiring new assets will commit the Council to 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 for inclusion in the long-term financial plan (Refer to Section 5).

### **4.4 Climate Change Adaptation**

The impacts of climate change may have a significant impact on the assets we manage and the services they provide. In the context of the Asset Management Planning process climate change can be considered as both a future demand and a risk.

How climate change impacts on assets will vary depending on the location and the type of services provided, as will the way in which we respond and manage those impacts.<sup>4</sup>

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<sup>4</sup> IPWEA Practice Note 12.1 Climate Change Impacts on the Useful Life of Infrastructure

As a minimum we consider how to manage our existing assets given potential climate change impacts for our region.

Risk and opportunities identified to date are shown in the table below.

**Table 10 - Managing the Impact of Climate Change on Assets and Services**

| Climate Impacts                     | Risk Statement (Cause and Effect)                                                                                                                                                                      | Adaptation Actions                                                                                                                                                                                                                         |
|-------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Increased intensity of storm events | Increased flooding and increased storm events lead to overflow of capacity causing localised flooding resulting in decreased access, community complaints and increased maintenance and renewal costs. | <ul style="list-style-type: none"> <li>- Implement actions from the MOFFS</li> <li>- Review modelling and design requirements to allow for greater flow volumes.</li> <li>- Review and upgrade the capacity of pumps as needed.</li> </ul> |

Source: [Building Resilience to Climate Change. Climate Change Risk Assessment and Adaptation options for Council Assets – Report for City of Wagga Wagga 2018](#)

Additionally, the way in which we construct new assets should recognise that there is opportunity to build in resilience to climate change impacts. Building resilience can have the following benefits:

- Assets will withstand the impacts of climate change;
- Services can be sustained; and
- Assets that can endure may potentially lower the lifecycle cost and reduce their carbon footprint

The table below summarises some asset climate change resilience opportunities.

**Table 11 - Building Asset Resilience to Climate Change**

| New Asset Description | Climate Change impact These assets?                                                                                                                                              | Build Resilience in New Works                                                 |
|-----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|
| Stormwater network    | Identity, Frequency and Duration (IFD) rainfall data is predicted to increase over the city, there are increased in design intensities by greater than 10% for shorter durations | Ensure overland flow paths are considered when building new development areas |
| Stormwater network    | There is an increased risk of stronger and more frequent storm events                                                                                                            | Address MOFFS hotspots                                                        |

## 5.0 LIFECYCLE MANAGEMENT PLAN

The lifecycle management plan details how the Council plans to manage and operate the assets at the agreed levels of service (Refer to Section 3) while managing life cycle costs.

### 5.1 Background Data

#### 5.1.1 Physical parameters

The assets covered by this AM Plan are shown in the table below.

**Table 12 - Assets covered by this Plan**

| Asset Category          | Dimension             | Replacement Value    |
|-------------------------|-----------------------|----------------------|
| Stormwater Pipes        | 466 kms               | \$163,372,496        |
| Stormwater Pits         | 14,318                | \$33,074,255         |
| Stormwater Pump Station | 5                     | \$654,179            |
| Levee Banks             | 21 kms                | \$33,008,301         |
| Channels                | 50 kms / 141 channels | \$48,896,320         |
| Detention Basins        | 46                    | \$22,444,701         |
| Flood Gates             | 56                    | \$936,467            |
| Gross Pollutant Traps   | 7                     | \$550,351            |
| <b>TOTAL</b>            |                       | <b>\$302,937,071</b> |

#### 5.1.2 Asset capacity and performance

Assets are generally provided to meet design standards where these are available. However, there is insufficient resources to address all known deficiencies. Locations where deficiencies in service performance are known are detailed on page 33 of the MOFFS. They are summarised below:

- Crooked Creek, upstream of Craft Creek
- Crooked Creek, downstream of Brunskill Road
- Sringybark Creek area
- Wollundry Lagoon drainage area
- Flowerdale Lagoon area
- Turvey ark overland flow path
- Glenfield road industrial areas
- East Wagga industrial area

The above service deficiencies were identified from Major Overland Flow Flood Study 2021.

#### 5.1.3 Asset condition

The table below details the condition assessment regime for the assets included in this plan.

**Table 13 - Condition Assessment Regime for the Stormwater Network**

| Asset Category               | Frequency                        | Methodology  | Last Inspection | Next Inspection |
|------------------------------|----------------------------------|--------------|-----------------|-----------------|
| Stormwater Pipes             | Align with revaluation of assets | Camera       | June 2020       | 2024/25         |
| Stormwater Pits              |                                  | Camera       | June 2020       | 2024/25         |
| Stormwater Pumps             |                                  | Visual       | June 2020       | 2024/25         |
| Levee Banks                  |                                  | Geotechnical | June 2020       | 2024/25         |
| Channels/Open Drains         |                                  | Visual       | June 2020       | 2024/25         |
| Detention Basins             |                                  | Visual       | June 2020       | 2024/25         |
| Flood Gates                  |                                  | Visual       | June 2020       | 2024/25         |
| Gross Pollutant Traps (GPTs) |                                  | Visual       | June 2020       | 2024/25         |

Condition is currently monitored and as assets age, deteriorate and otherwise fail to meet service requirements, additional investment in maintenance and/or renewal is required to ensure the asset maintains an appropriate level of service.

Council measures and models asset condition using asset deterioration curves to assist with forecasting future investment requirements.

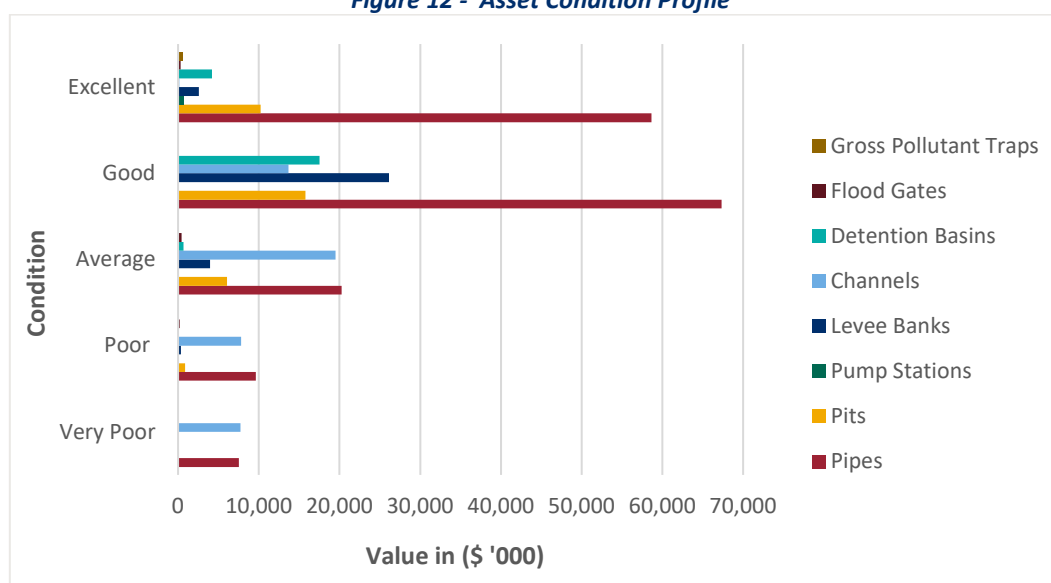
Condition is measured using a 1 – 5 grading system<sup>5</sup> as detailed in below. It is important that a consistent approach is used in reporting asset performance enabling effective decision support. A finer grading system may be used at a more specific level, however, for reporting in the AM plan results are translated to a 1 – 5 grading scale for ease of communication.

**Table 14 - Condition Grading System**

| Condition Grading | Description of Condition                                                                      |
|-------------------|-----------------------------------------------------------------------------------------------|
| 1                 | <b>Excellent:</b> free of defects, only planned and/or routine maintenance required           |
| 2                 | <b>Good:</b> minor defects, increasing maintenance required plus planned maintenance          |
| 3                 | <b>Average:</b> defects requiring regular and/or significant maintenance to reinstate service |
| 4                 | <b>Poor:</b> significant defects, higher order cost intervention likely                       |
| 5                 | <b>Very Poor:</b> physically unsound and/or beyond rehabilitation, immediate action required  |

The condition profile of Council's stormwater assets is shown below.

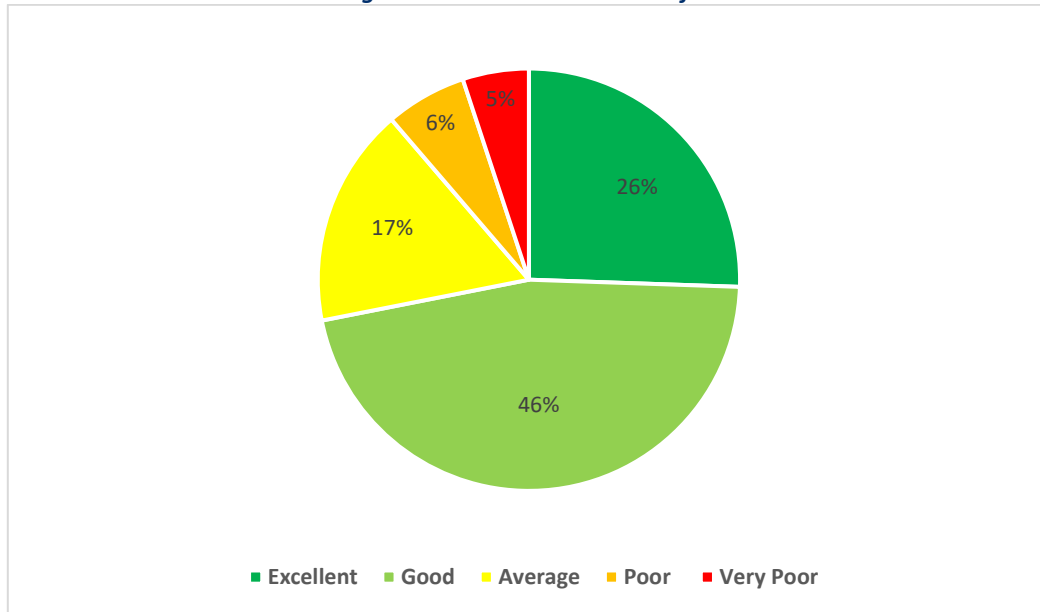
**Figure 12 - Asset Condition Profile**



The condition of the stormwater network as a whole is shown below.

<sup>5</sup> IPWEA, 2015, IIMM, Sec 2.5.4, p 2|80.

**Figure 13 - Asset Condition Profile**



## 5.2 Operations and Maintenance Plan

Maintenance includes reactive, planned and cyclic maintenance work activities.

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

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

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

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 trend in maintenance budgets are shown in the table below.

**Table 15 - Maintenance Budget Trends**

| Year                         | Maintenance (\$) |
|------------------------------|------------------|
| 2019/20 Actual Maintenance   | \$1,203,723      |
| 2020/21 Actual Maintenance   | \$1,227,994      |
| 2021/22 Budgeted Maintenance | \$1,276,667      |
| 2022/23 Budgeted Maintenance | \$1,453,007      |

Maintenance budget levels are considered to be adequate to meet projected service levels.

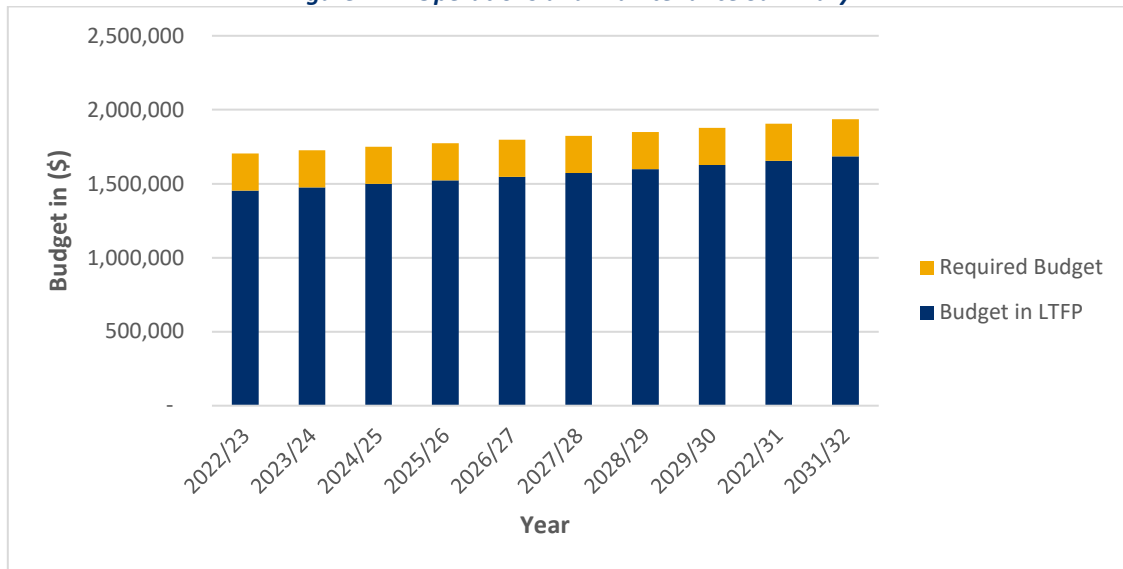
Assessment and priority of reactive maintenance is undertaken by staff using experience and judgement. The following table details the reactive triggers, intervention and target response times for unscheduled maintenance of the stormwater network.

**Table 16 – Intervention Levels**

| Reactive Trigger   | Intervention                     | Target Maintenance Time                                                   |
|--------------------|----------------------------------|---------------------------------------------------------------------------|
| Blockages          | Inspection and corrective action | Inspection within one week. Corrective action undertaken within one month |
| Batter Degradation | Corrective action                | within one week                                                           |
| Water diversion    | Corrective action                | within one week                                                           |

#### Summary of forecast operations and maintenance costs

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

**Figure 14 - Operations and Maintenance Summary**

The current budget in the LTFP for maintenance of the stormwater network is almost sufficient to undertake the identified maintenance activities, however there is no budget to undertake condition assessments, which have significant costs.

### 5.3 Renewal Plan

Renewal is major capital work which does not significantly alter the original service provided by the asset, but restores, rehabilitates, replaces or renews an existing asset to its original service potential. Work over and

above restoring an asset to original service potential is considered to be an acquisition resulting in additional future operations and maintenance costs.

The renewal of stormwater assets is based on condition. All assets in condition 4 and 5 are scheduled for renewal.

The useful life of stormwater assets is show below. Where age data is available, this data can assist in the prioritisation of the condition 4 and 4 assets.

**Table 17 - Useful Lives of Assets**

| <b>Asset (Sub)Category</b> | <b>Useful life</b> |
|----------------------------|--------------------|
| Stormwater Pipes           | 60 to 100 years    |
| Stormwater Pits            | 100 years          |
| Stormwater Pump Station    | 25 to 50 years     |
| Levee Banks                | 60 to 100 years    |
| Channels                   | 100 years          |
| Detention Basins           | 100 years          |
| Flood Gates                | 50 years           |
| Gross Pollutant Traps      | 50 years           |

#### **5.4 Summary of future renewal costs**

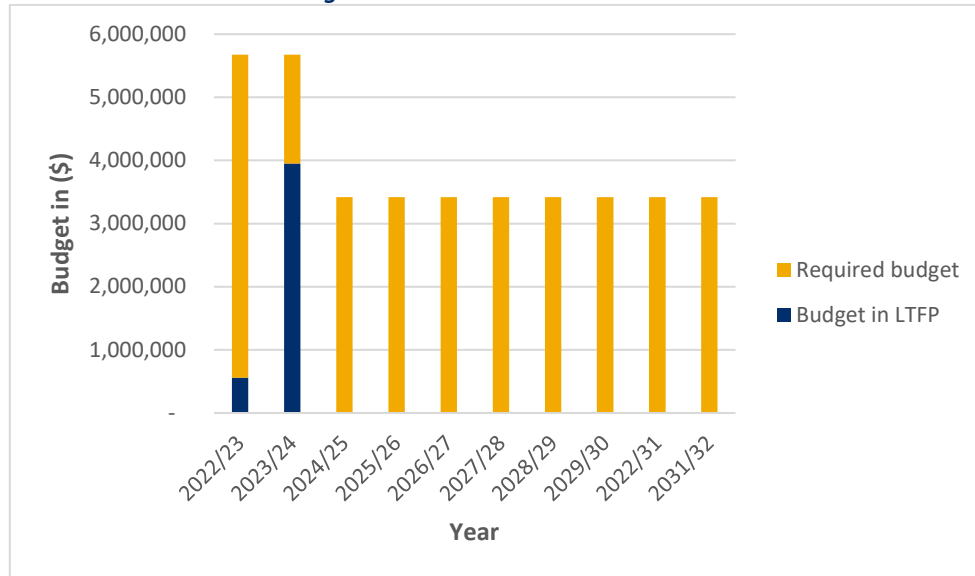
Forecast renewal costs are projected to increase over time if the asset stock increases. The forecast costs associated with renewals are shown relative to the proposed renewal budget below.

**Table 18 - Renewal Forecast Summary**

| <b>Year</b>   | <b>Renewal Forecast</b> | <b>Renewal Budget</b> |
|---------------|-------------------------|-----------------------|
| 2022/23       | \$5,674,573             | \$557,250             |
| 2023/24       | \$5,674,573             | \$3,952,797           |
| 2024/25       | \$3,419,549             | \$0                   |
| 2025/26       | \$3,419,549             | \$0                   |
| 2026/27       | \$3,419,549             | \$0                   |
| 2027/28       | \$3,419,549             | \$0                   |
| 2028/29       | \$3,419,549             | \$0                   |
| 2029/30       | \$3,419,549             | \$0                   |
| 2030/31       | \$3,419,549             | \$0                   |
| 2031/32       | \$3,419,549             | \$0                   |
| <b>Totals</b> | <b>\$38,705,539</b>     | <b>\$4,510,048</b>    |

The figure below shows the renewal gap faced for the stormwater network over the next 10 years.

**Figure 15 - Forecast Renewal Costs**



As shown on the above graph the LTFP allocates minimal funds to the renewal of stormwater assets. This results in a funding gap of almost 88%. The remediation of Murray Street drain, proposed for 2023/24 is 100% funded and impacts on the graph.

## 5.5 Acquisition Plan

Acquisition reflects are new assets that did not previously exist or works which will upgrade or improve an existing asset beyond its existing capacity. They may result from growth, demand, social or environmental needs. Assets may also be donated to Council.

### 5.5.1 Selection criteria

New stormwater assets are identified in the Wagga Wagga City Council Development Servicing Plan (DSP) Stormwater 2007. New assets are constructed to support new development areas and are funded by developers. Any Addendum or review of the DSP Stormwater must undergo community consultation before being adopted by Council.

Developer contributed assets (in new development areas, provided by developers) are identified in the development application approval process.

### Summary of future asset acquisition costs

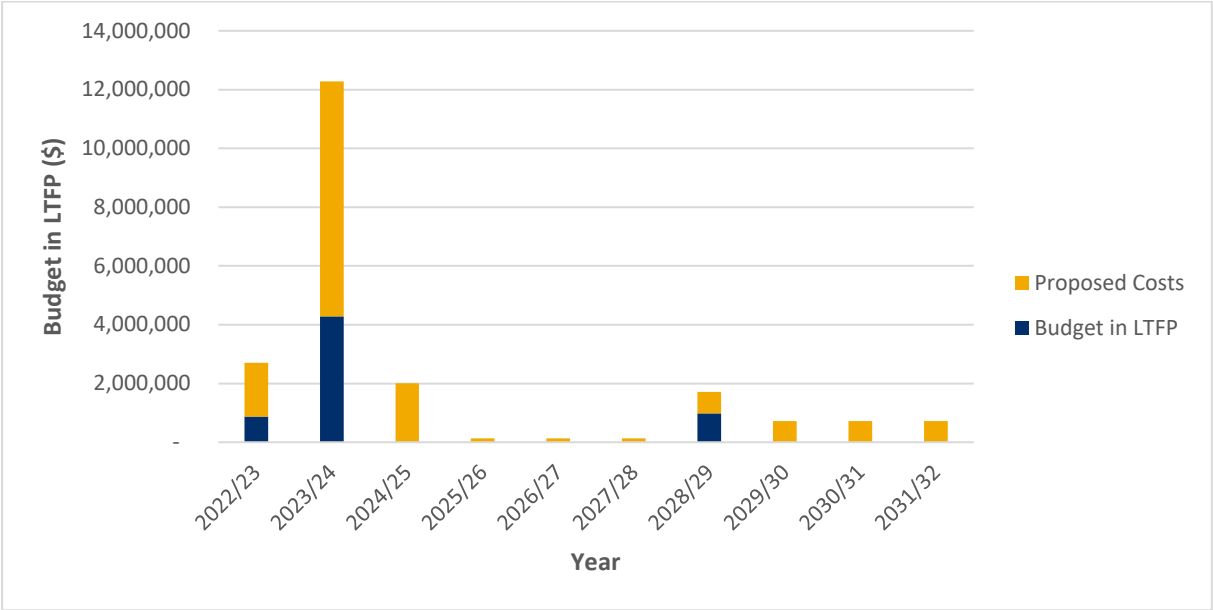
Forecast acquisition asset costs are summarised in the figure below and shown relative to the proposed acquisition budget. The forecast acquisition capital works program is shown in the table below.

**Table 19 - Acquisition Forecast Summary**

| Year         | Proposed Costs      | Budget in LTFP     |
|--------------|---------------------|--------------------|
| 2022/23      | \$2,704,231         | \$878,518          |
| 2023/24      | \$12,281,791        | \$4,285,027        |
| 2024/25      | \$2,003,333         |                    |
| 2025/26      | \$133,333           |                    |
| 2026/27      | \$133,333           |                    |
| 2027/28      | \$133,333           |                    |
| 2028/29      | \$1,706,775         | \$981,775          |
| 2029/30      | \$725,000           |                    |
| 2030/31      | \$725,000           |                    |
| 2031/32      | \$725,000           |                    |
| <b>Total</b> | <b>\$21,271,129</b> | <b>\$6,145,320</b> |

The figure below shows the funding gap for acquisition of assets in the stormwater network over the next 10 years.

Figure 16 - Acquisition (Constructed) Summary



When Council commits to new assets, they must be prepared to fund future operations, maintenance and renewal costs. They must also account for future depreciation when reviewing long term sustainability. When reviewing the long-term impacts of asset acquisition, it is useful to consider the cumulative value of the acquired assets being taken on by Council.

5.5.2 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.

5.6 Disposal Plan

Disposal includes any activity associated with the disposal of a decommissioned asset including sale, demolition or relocation.

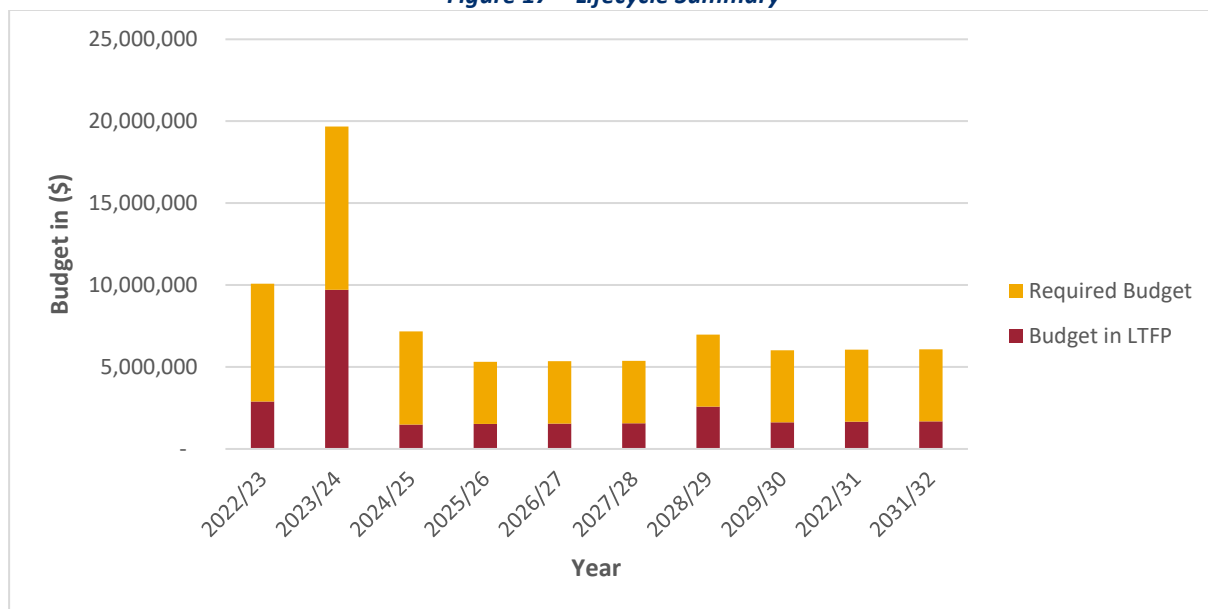
As the focus is to remediate and rehabilitate stormwater assets, there is no current plan to dispose of any assets in the network.

## 5.7 Summary of asset forecast costs

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

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

**Figure 17 - Lifecycle Summary**



## 6.0 RISK MANAGEMENT PLANNING

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

Risk Management is defined in ISO 31000:2018 as: ‘coordinated activities to direct and control with regard to risk’<sup>6</sup>.

An assessment of risks associated with service delivery will identify risks that will result in loss or reduction in service, personal injury, environmental impacts, a ‘financial shock’, reputational impacts, or other consequences. The risk assessment process identifies credible risks, the likelihood of the risk event occurring, and the consequences should the event occur. The risk assessment should also include the development of a risk rating, evaluation of the risks and development of a risk treatment plan for those risks that are deemed to be non-acceptable.

### 6.1 Critical Assets

Critical assets are defined as those which have a high consequence of failure causing significant loss or reduction of service. The entire stormwater network is considered a critical asset.

By identifying critical assets and failure modes an organisation can ensure that investigative activities, condition inspection programs, maintenance and capital expenditure plans are targeted at critical assets.

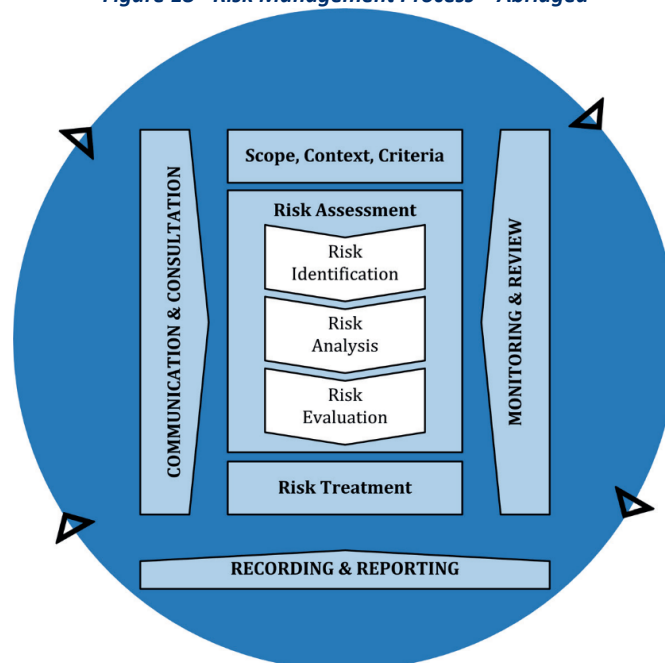
### 6.2 Risk Assessment

The risk management process used is shown below.

It is an analysis and problem-solving technique designed to provide a logical process for the selection of treatment plans and management actions to protect the community against unacceptable risks.

The process is based on the fundamentals of International Standard ISO 31000:2018.

*Figure 18 - Risk Management Process – Abridged*



*Source: ISO 31000:2018, Figure 1, p9*

<sup>6</sup> ISO 31000:2009, p 2

The risk assessment process identifies credible risks, the likelihood of the risk event occurring, the consequences should the event occur, development of a risk rating, evaluation of the risk and development of a risk treatment plan for non-acceptable risks.

An assessment of risks associated with service delivery will identify risks that will result in loss or reduction in service, personal injury, environmental impacts, a 'financial shock', reputational impacts, or other consequences.

**Table 20 – Risk Types**

| <b>Risk Types</b>             | <b>Description</b>                                                                                                                                                                                                       |
|-------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Financial Risks               | Risks the organisation is exposed to that may prevent the achievement of its long term financial sustainability (as outlined in Council's Long Term Financial Plan).                                                     |
| Governance & Compliance Risks | Risks the organisation is exposed to that may not be considered in the best interest of stakeholders, or that the organisation does not behave as a good corporate citizen should, or may leave Council legally exposed. |
| Reputational Risks            | Risks the organisation is exposed to that may lead to widespread and/or sustained damage to Council's reputation.                                                                                                        |
| Environmental Risks           | Risks the organisation is exposed to that may prevent it maintaining its commitment to the principles of ecologically sustainable development.                                                                           |
| Service Delivery Risks        | Risks the organisation is exposed to that may prevent achievement of its core service delivery objectives, including people, knowledge, technology and/or tools and equipment.                                           |
| Health and Safety             | Risks the organisation is exposed to that may compromise the health and safety staff, contractors, volunteers and/or members of the public.                                                                              |

## **6.3 Service and Risk Trade-Offs**

The decisions made in adopting this AM Plan are based on the objective to achieve the optimum benefits from the available resources.

### **6.3.1 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:

- hotspots identified in the Major Overland Flow Flood Study will not be remediated,
- condition inspections, and
- renew stormwater assets in condition 4 and 5.

### **6.3.2 Service trade-off**

Renewals that cannot be undertaken and identified hotspots not remediated will create service consequences for users. These include:

- flooding will still occur at the hotspots identified in the Major Overland Flow Flood Study,
- decisions can not be made based on the condition of the assets, and
- condition 4 and 5 assets will not be renewed, so the overall condition of the network will deteriorate.

### **6.3.3 Risk trade-off**

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

- increase risk of asset failure of the stormwater pipe network,
- flooding at identified flood hotspots will continue, and risk of flooding will remain for the community.

## 7.0 FINANCIAL SUMMARY

This section contains the financial requirements resulting from the information presented in the previous sections of this AM Plan. The financial projections will be improved as the discussion on desired levels of service and asset performance matures.

### 7.1 Financial Sustainability and Projections

#### 7.1.1 Sustainability of service delivery

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

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

#### Asset Renewal Funding Ratio

Asset Renewal Funding Ratio<sup>7</sup> is 12%.

The Asset Renewal Funding Ratio is an important indicator and illustrates that over the next 10 years we expect to have 12% of the funds required for the optimal renewal of assets.

#### Medium term – 10 year financial planning period

This AM Plan identifies the forecast operations, maintenance and renewal costs required to provide an agreed level of service to the community over a 10 year period. This provides input into 10 year financial and funding plans aimed at providing the required services in a sustainable manner.

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

The forecast operations, maintenance, acquisition and renewal costs over the 10 year planning period is \$7,812,156 on average per year.

The proposed (budget) operations, maintenance, acquisition and renewal funding is \$2,629,162 on average per year giving a 10 year funding shortfall of \$5,182,994 per year. This indicates that 34% of the forecast costs needed to provide the services documented in this AM Plan are accommodated in the proposed budget.

Providing sustainable services from infrastructure requires the management of service levels, risks, forecast outlays and financing to achieve a financial indicator of approximately 100% for the first years of the AM Plan and ideally over the 10 year life of the Long-Term Financial Plan.

#### 7.1.2 Forecast Costs (outlays) for the long-term financial plan

The table below shows the forecast costs (outlays) required for consideration in the 10 year long-term financial plan.

Providing services in a financially sustainable manner requires a balance between the forecast outlays required to deliver the agreed service levels with the planned budget allocations in the long-term financial plan.

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

We will manage the 'gap' by developing this AM Plan to provide guidance on future service levels and resources required to provide these services in consultation with the community.

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<sup>7</sup> AIFMM, 2015, Version 1.0, Financial Sustainability Indicator 3, Sec 2.6, p 9.

**Table 21 - Forecast Costs (Outlays) for the Long Term Financial Plan**

| Year          | Acquisition         | Operation          | Maintenance         | Renewal             |
|---------------|---------------------|--------------------|---------------------|---------------------|
| 2022/23       | \$2,704,231         | \$250,864          | \$1,563,626         | \$5,674,573         |
| 2023/24       | \$12,281,791        | \$250,864          | \$1,563,626         | \$5,674,573         |
| 2024/25       | \$2,003,333         | \$250,864          | \$1,563,626         | \$3,419,549         |
| 2025/26       | \$133,333           | \$250,864          | \$1,563,626         | \$3,419,549         |
| 2026/27       | \$133,333           | \$250,864          | \$1,563,626         | \$3,419,549         |
| 2027/28       | \$133,333           | \$250,864          | \$1,563,626         | \$3,419,549         |
| 2028/29       | \$1,706,775         | \$250,864          | \$1,563,626         | \$3,419,549         |
| 2029/30       | \$725,000           | \$250,864          | \$1,563,626         | \$3,419,549         |
| 2030/31       | \$725,000           | \$250,864          | \$1,563,626         | \$3,419,549         |
| 2031/32       | \$725,000           | \$250,864          | \$1,563,626         | \$3,419,549         |
| <b>Totals</b> | <b>\$21,271,129</b> | <b>\$2,508,640</b> | <b>\$15,636,260</b> | <b>\$38,705,539</b> |

## 7.2 Funding Strategy

The proposed funding for assets is outlined in Councils 2022-2023 Long Term financial plan.

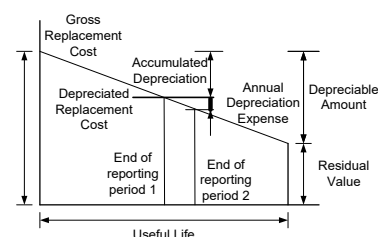
The financial strategy of the entity determines how funding will be provided, whereas the AM Plan communicates how and when this will be spent, along with the service and risk consequences of various service alternatives.

## 7.3 Valuation Forecasts

### 7.3.1 Asset valuations

The best available estimate of the value of assets included in this AM Plan are shown below. The assets are valued at fair value.

|                                           |               |
|-------------------------------------------|---------------|
| Replacement Cost (Current/Gross)          | \$302,937,071 |
| Depreciable Amount                        | \$302,937,071 |
| Depreciated Replacement Cost <sup>8</sup> | \$213,309,075 |
| Annual Depreciation                       | \$3,194,344   |



### 7.3.2 Valuation forecast

Asset values are forecast to increase as additional assets are added to Council's asset base.

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

## 7.4 Key Assumptions Made in Financial Forecasts

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

Key assumptions made in this AM Plan are:

- The services provided by assets are consumed at a constant rate over the pre-defined standard useful lives recorded in council's asset management system for each of the asset sub-categories.
- Present service levels will remain constant for the life of the plan.

<sup>8</sup> Also reported as Written Down Value, Carrying or Net Book Value.

- Present levels of expenditure (and the relative distribution of planned and reactive maintenance, and capital renewals and new/upgrades) will remain constant for the life of the plan.

## 7.5 Forecast Reliability and Confidence

The forecast costs, proposed budgets, and valuation projections in this AM Plan are based on the best available data. For effective asset and financial management, it is critical that the information is current and accurate. Data confidence is classified on a A - E level scale<sup>9</sup> in accordance with the table below.

**Table 22 - Data Confidence Grading System**

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

The estimated confidence level for and reliability of data used in this AM Plan is considered to be a low confidence level.

<sup>9</sup> IPWEA, 2015, IIMM, Table 2.4.6, p 2 | 71.

## 8.0 PLAN IMPROVEMENT AND MONITORING

### 8.1 Status of Asset Management Practices<sup>10</sup>

#### 8.1.1 Accounting and financial data sources

This AM Plan utilises accounting and financial data taken from the Assetic asset management system - myData and Technology One – Finance1.

#### 8.1.2 Asset management data sources

The source of the asset data is the Assetic asset management system, myData. Outputs used from myData include opening and closing balances, depreciation and capitalisation/disposal and are used to inform Council's financial statements.

### 8.2 Improvement Plan

This section shows the overall strategic improvement plan for the Asset Management Framework and specific improvements associated with this Plan.

It is important that an entity recognise areas of their AM Plan and planning process that require future improvements to ensure effective asset management and informed decision making. The improvement plan generated from this AM Plan is shown below.

**Table 23 - Strategic and Asset Specific Improvement Plan**

| Themes                                      | Purpose                                                                                                                                                                                                                        | Current Status March 2022                                                                                                                                                                                                                                                             |
|---------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Establish Program Governance and Management | Establish a program governance/ management structure and project implementation team so that roles and responsibilities for the improvement program are clearly understood by stakeholders.                                    | Council has created two newly separate Directorates to support the implementation of this Improvement Program.                                                                                                                                                                        |
| Carryover Tasks – from Dec 2019 review      | Continuation of incomplete tasks from the 2019 review scope of works, to set the foundation for remaining improvements.                                                                                                        | The Projects & Strategy Directorate is accountable for the Strategic Management Systems of Assets.                                                                                                                                                                                    |
| Asset Management System                     | Review / update / development of an asset management Strategy, Plans, Processes, Procedures and associated decision logic to support the asset management objectives and strategic intent in the WWCC Asset Management Policy. | Clear documentation of accountabilities strategic, long term and daily asset activities.                                                                                                                                                                                              |
| Asset Management Technology                 | Implementation of short-term and long-term information system solutions to support improved asset management.                                                                                                                  | Review and improve the integration between FinanceOne, Assetic MyData, ESRI ArcInfo and supporting reports from disparate sources across Council including Request Management System, daily cleaner and security reports and so on.                                                   |
| Asset Management Capability                 | Upskilling the organisations so that WWCC staff have the capability to plan implement and monitor whole of life asset management.                                                                                              | Regional and Rural Councils are challenged to recruit ongoing adequately skilled Engineers and Project Managers to implement this Improvement Program. Innovative means to attract suitably skilled resources and/or other models to deliver this ongoing program must be considered. |

<sup>10</sup> ISO 55000 Refers to this as the Asset Management System

**Table 23 - Strategic and Asset Specific Improvement Plan**

| <b>Task</b> | <b>Asset Specific Task</b>                                                                                                                                                                                                             | <b>Responsibility</b>                           | <b>Resources Required</b>                                                  |
|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|----------------------------------------------------------------------------|
| 1           | Design solutions for the hotspots identified in the Major Overland Flow Flood Study                                                                                                                                                    | Manager Operations                              |                                                                            |
| 2           | Capture the diameter of stormwater pipes to inform unit rates and condition assessment costs                                                                                                                                           | Manager Operations                              | Data                                                                       |
| 3           | Source a budget to implement the condition rating schedule as the per the plan                                                                                                                                                         | Manager Operations                              | Budget is required                                                         |
| 4           | Develop a renewal plan for stormwater pipes and open drains based on condition assessments                                                                                                                                             | Manager Operations                              | Data from condition assessments                                            |
| 5           | Review the DSP for stormwater to identify new assets and funding available                                                                                                                                                             | Manager Operations                              |                                                                            |
| 6           | Develop and resource a planned maintenance plan for the levee                                                                                                                                                                          | Manager Operations                              | As part of the levee upgrade                                               |
| 7           | Develop solutions and costs and implement works to remediate pipe segments identified in condition assessments conducted in 2019/20                                                                                                    | Manager Operations                              | Solutions and designs are required. Additional capital budget is required. |
| 8           | Review and update pipe extent data                                                                                                                                                                                                     | Manager Operations                              | Data                                                                       |
| 9           | Develop a risk treatment plan for stormwater assets including costs                                                                                                                                                                    | Manager Operations                              | Internal resources                                                         |
| 10          | Capture the data for the stormwater assets to allow for the use of the NAMS plus template                                                                                                                                              | Manager Operations                              |                                                                            |
| 11          | Examine demand drivers and identify the impact on stormwater assets                                                                                                                                                                    | Growth Strategy Residential Plan Stormwater DSP | Strategies                                                                 |
| 12          | Identify pipes and open drains for the medium term condition assessments                                                                                                                                                               | Manager Operations                              |                                                                            |
| 13          | Develop 20 year plans for stormwater assets                                                                                                                                                                                            | Manager Operations                              | Based on condition assessment results                                      |
| 14          | Document the ranking criteria for new stormwater assets                                                                                                                                                                                | Manager Operations                              | Internal resources                                                         |
| 15          | Review maintenance costs of the stormwater asset network                                                                                                                                                                               | Manager Operations                              | Internal resources                                                         |
| 16          | Improve data collection and valuation information on Stormwater Pump Stations                                                                                                                                                          | Manager Operations                              | Internal resources                                                         |
| 17          | Develop a renewal ranking criteria for stormwater assets                                                                                                                                                                               | Manager Operations                              | Internal resource                                                          |
| 18          | OPEX to include electricity costs<br>NOTE: Electricity costs are not well recorded. In particular, only a small portion of the electricity costs for pump stations can be identified.<br>Align electricity costs to respective assets. |                                                 | Internal resource                                                          |
| 19          | Review upgrade needs for Glenfield Drain and Murray Street Drainage network                                                                                                                                                            |                                                 | Internal resource                                                          |

### 8.3 Monitoring and Review Procedures

This AM Plan will be reviewed during the annual budget planning process and revised to show any material changes in service levels, risks, forecast costs and proposed budgets as a result of budget decisions.

The AM Plan will be reviewed and updated annually to ensure it represents the current service level, asset values, forecast operations, maintenance, renewals, acquisition and asset disposal costs and planned budgets. These forecast costs and proposed budget are incorporated into the Long-Term Financial Plan or will be incorporated into the Long-Term Financial Plan once completed.

The AM Plan has a maximum life of 4 years and is due for complete revision and updating within 9 months of each Council election.

#### Performance Measures

The effectiveness of this AM Plan can be measured in the following ways:

- The degree to which the required forecast costs identified in this AM Plan are incorporated into the long-term financial plan,
- The degree to which the 1-5 year detailed works programs, budgets, business plans and corporate structures consider the 'global' works program trends provided by the AM Plan,
- The degree to which the existing and projected service levels and service consequences, risks and residual risks are incorporated into the Strategic Planning documents and associated plans,
- The Asset Renewal Funding Ratio achieving the Organisational target (this target is often 90 – 100%).

## 9.0 REFERENCES

- IPWEA, 2006, 'International Infrastructure Management Manual', Institute of Public Works Engineering Australasia, Sydney, [www.ipwea.org/IIMM](http://www.ipwea.org/IIMM)
- IPWEA, 2015, 3rd edn., 'International Infrastructure Management Manual', Institute of Public Works Engineering Australasia, Sydney, [www.ipwea.org/IIMM](http://www.ipwea.org/IIMM)
- IPWEA, 2008, 'NAMS.PLUS Asset Management', Institute of Public Works Engineering Australasia, Sydney, [www.ipwea.org/namsplus](http://www.ipwea.org/namsplus).
- IPWEA, 2015, 2nd edn., 'Australian Infrastructure Financial Management Manual', Institute of Public Works Engineering Australasia, Sydney, [www.ipwea.org/AIFMM](http://www.ipwea.org/AIFMM).
- IPWEA, 2020 'International Infrastructure Financial Management Manual', Institute of Public Works Engineering Australasia, Sydney
- IPWEA, 2018, Practice Note 12.1, 'Climate Change Impacts on the Useful Life of Assets', Institute of Public Works Engineering Australasia, Sydney
- IPWEA, 2012, Practice Note 6 Long-Term Financial Planning, Institute of Public Works Engineering Australasia, Sydney, <https://www.ipwea.org/publications/ipweabookshop/practicenotes/pn6>
- IPWEA, 2014, Practice Note 8 – Levels of Service & Community Engagement, Institute of Public Works Engineering Australasia, Sydney, <https://www.ipwea.org/publications/ipweabookshop/practicenotes/pn8>
- ISO, 2014, ISO 55000:2014, Overview, principles and terminology
- ISO, 2018, ISO 31000:2018, Risk management – Guidelines
- Wagga Wagga City Council - Community Strategic Plan 2040 – Wagga View,
- Wagga Wagga city Council – Development Servicing Plan Stormwater 2007
- Wagga Wagga City Council - Long Term Financial Plan 2022-2023
- Wagga Wagga City Council – Local Strategic Planning Statement
- Wagga Wagga City Council – Stormwater Strategic Management Plan 2010
- Building Resilience to Climate Change – Climate Change Risk Assessment & Adaptation Options for Council Assets – Report for City of Wagga Wagga 2018

## 10.0 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