Stormwater Asset Management Plan
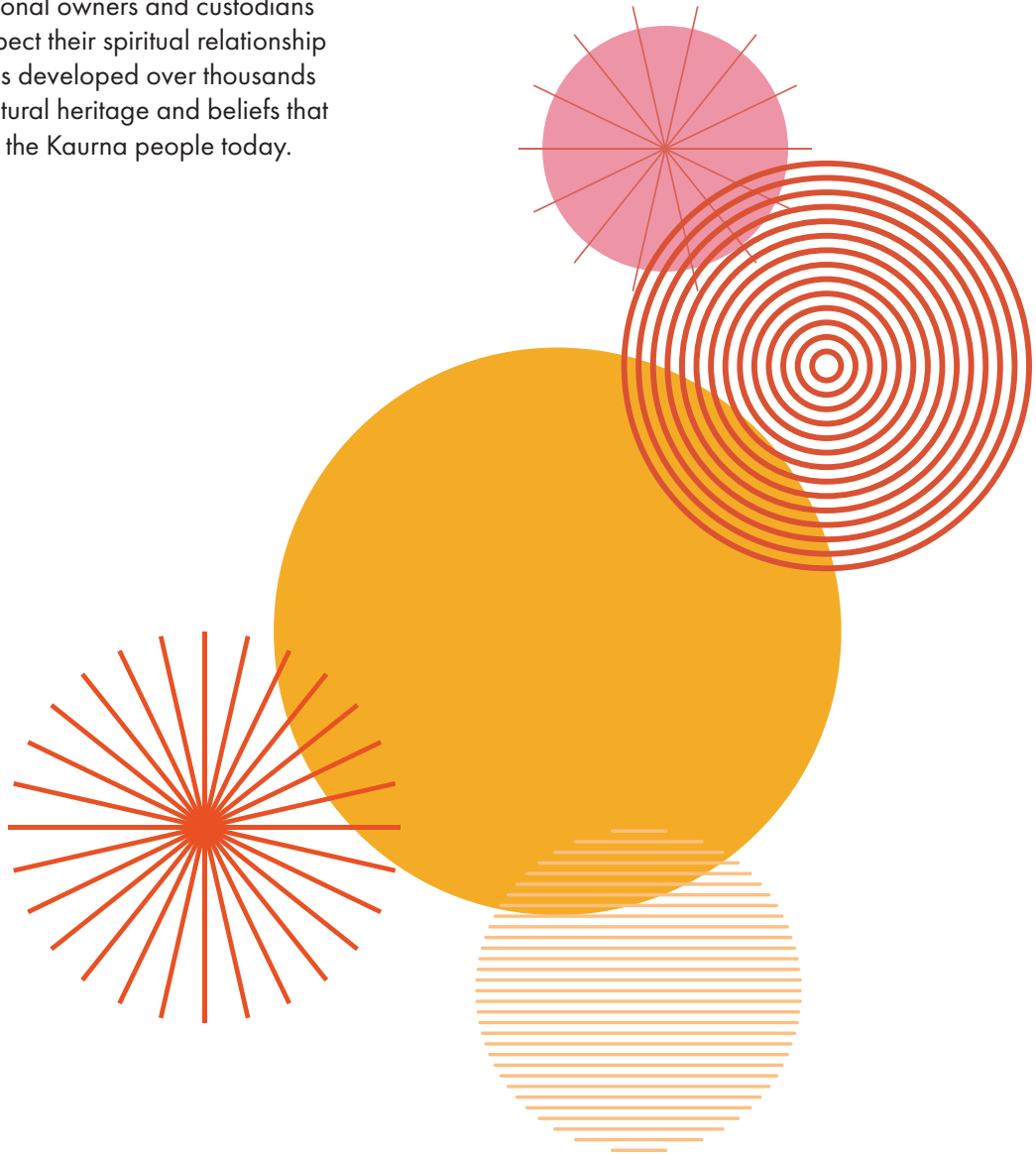
2024

CITY OF
HOLDFAST BAY

Acknowledgement to Country

The City of Holdfast Bay acknowledges the Kaurna People as the traditional owners and custodians of the land. We respect their spiritual relationship with country that has developed over thousands of years and the cultural heritage and beliefs that remain important to the Kaurna people today.

Contents

Executive Summary

The City of Holdfast Bay owns and maintains approximately 68km of underground pipes and over 2,000 pits, 9 gross pollutant traps (GPTs) and 55 water sensitive urban design assets worth over $69 million. These assets help manage the quality and quantity of rainfall runoff.

The objective of asset management is to ensure the City of Holdfast Bay's assets are managed in the most cost-effective and sustainable way, so we can continue to deliver valuable services for our community now and into the future.

To ensure our assets are providing the appropriate service to the community, levels of service are tracked each year. These levels of service are defined under quality, function, capacity and climate.

Asset lifecycle planning outlines how Council plans to manage stormwater assets in an optimised cost-effective manner while ensuring delivery of the agreed service levels. The lifecycle of assets can be defined in four stages, including:

› Creation/acquisition (planning, design, procurement, construction)

› Operations and maintenance (operate, maintain, monitor)

› Capital renewal/replacement

› Decommission/disposal.

The physical condition of our assets is a level of service indicator to ensure we are appropriately investing in assets. The targets for condition are overall average condition better than 3.0 (fair) and the percentage of assets in fair to very good condition above 90%.

The current condition levels are:

› Average condition: 1.7 (very good)

› Fair to very good condition percentage: 91%.

The expenditure forecast for all four stages of the asset lifecycle is summarised below.

FORECAST EXPENDITURE - STORMWATER
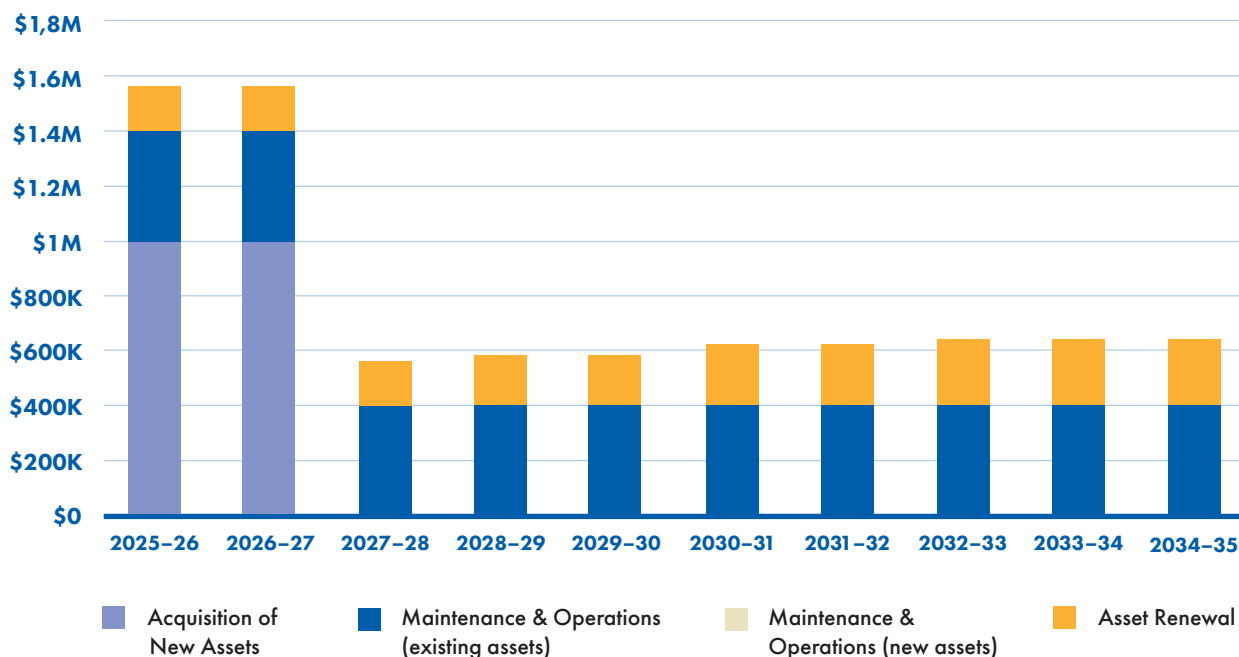
Council is committed to continuously improving the quality and maturity of its asset management practices. The stormwater improvement program has been developed as a roadmap for these improvements in conjunction with the Asset Management Strategy.

1. Introduction

1.1 Purpose

The primary purpose of stormwater assets is to manage the quality and quantity of rainfall runoff, with the objective to:

› Minimise property flooding

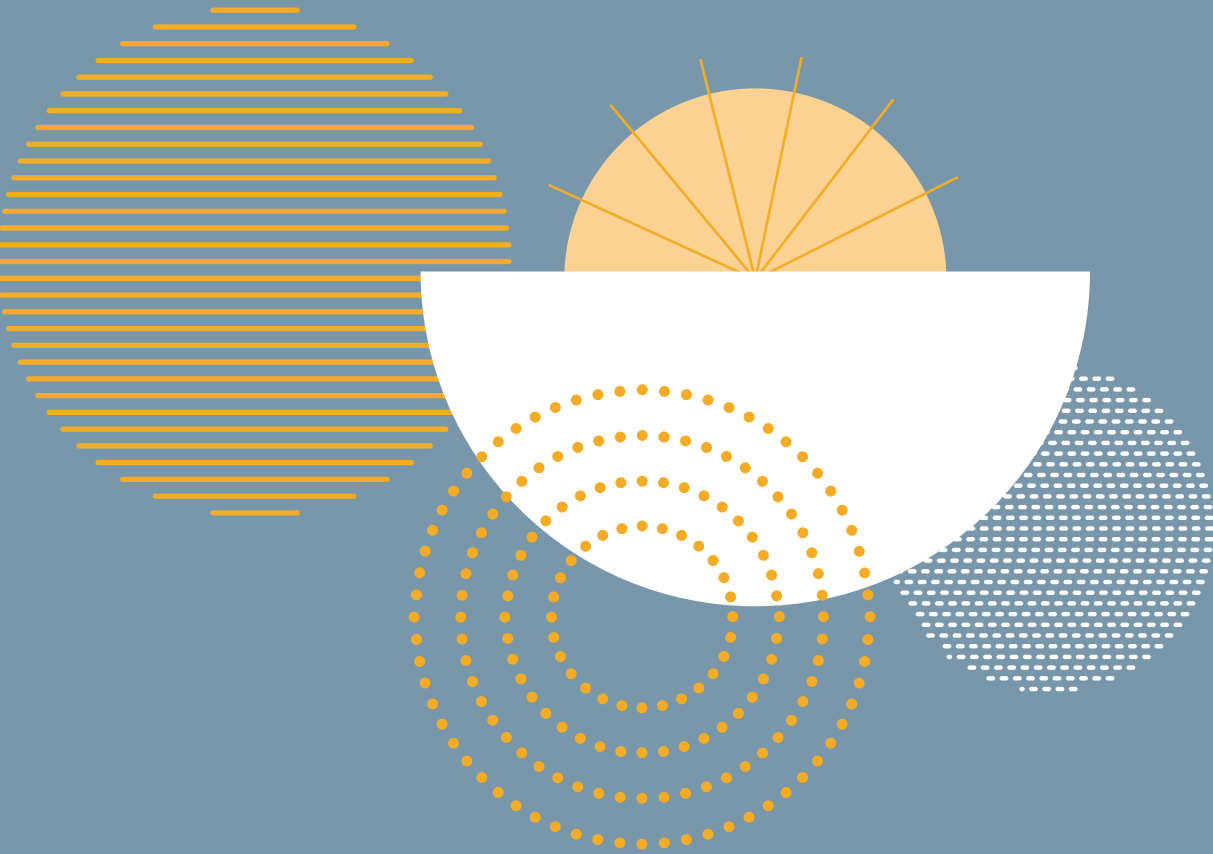› Protect the health and safety of the community

› Minimise adverse impacts on the environment

› Harness the potential of stormwater to overcome water shortages

› Reduce urban temperatures

› Improve waterway heath.

The strategic direction for overall management of stormwater is detailed in Council's Stormwater Management Plans (SMPs). The Asset Management Plan focuses on how we manage our stormwater assets and infrastructure in line with the Stormwater Management Plan outcomes.

City of Holdfast Bay owns and maintains a variety of stormwater assets including:

› Underground drainage network (stormwater pits and pipes)

› Water quality devices such as gross pollutant traps (GPTs)

› Water sensitive urban design (WSUD).

The plan aims to demonstrate proactive management of assets in compliance with regulatory requirements to sustainably meet present and future community needs through:

› Aligning with industry best practice for asset management ISO 55000:2014 without seeking accreditation as an ISO document or process

› Aligning delivery of asset management activities with organisational goals and objectives

› Creating transparency and accountability through all aspects of asset management

› Meeting the agreed Levels of Service in the most cost-effective way through the creation, acquisition, maintenance, operation, rehabilitation, and disposal of assets.

1. Introduction

1.2 Strategic Context

In accordance with the *Local Government Act 1999* (the Act) and the Strategic Plan *(Our Holdfast 2050+),* the Council provides a range of community services to the local community and visitors.

Assets are the foundation stones of the Council and the management of assets is essential to achieve our Council's vision of:

Protecting our heritage and beautiful coast, while creating a welcoming and healthy place for all in South Australia's most sustainable city.

The plan is developed and implemented in conjunction with the following plans, strategies and policies:

› Strategic Plan *(Our Holdfast 2050+)*

› Corporate Plan (Four-year delivery plan)

› Long Term Financial Plan (LTFP)

› Asset Management Policy

› Asset Management Strategy

› Asset Management Plans (AMP)

› Stormwater management plans (SMP)

› Coastal adaptation planning

› Carbon Neutral Plan.

Council's planning framework is outlined in Figure 1.1.

INTERNATIONAL, NATIONAL, STATE AND REGIONAL COMMITMENTS AND PLANS

STRATEGIC PLAN OUR HOLDFAST 2050+

OTHER STRATEGIES AND PLANS

ENVIRONMENT STRATEGY

OPEN SPACE STRATEGY

ECONOMIC STRATEGY

MOVEMENT AND TRANSPORT STRATEGY

WELLBEING STRATEGY

URBAN FOREST PLAN

PLAYSPACE PLAN 2019–29

EVENTS PLAN

YOUTH PLAN

CARBON NEUTRAL PLAN

PROPERTY PLAN

TOURISM RECOVERY PLAN 2023

ARTS AND CULTURE PLAN

COASTAL ADAPTION PLAN

COMMUNITY LAND MGMT PLAN

HOUSING PLAN

STORMWATER MGMT PLAN

DISABILITY ACTION AND INCLUSION PLAN

REGIONAL PUBLIC HEALTH PLAN

COMMUNITY ENGAGEMENT

ONGOING MONITORING AND REVIEW

CORPORATE PLAN 4 YEARS

RESOURCING STRATEGY

LONG TERM FINANCIAL PLAN 10 YEARS

ASSET MGMT PLANS 10 YEARS

OPERATIONAL PLAN (ANNUAL BUSINESS PLAN)

WORKFORCE PLAN 4 YEARS

ICT PLAN 4 YEARS

CX PLAN 4 YEARS

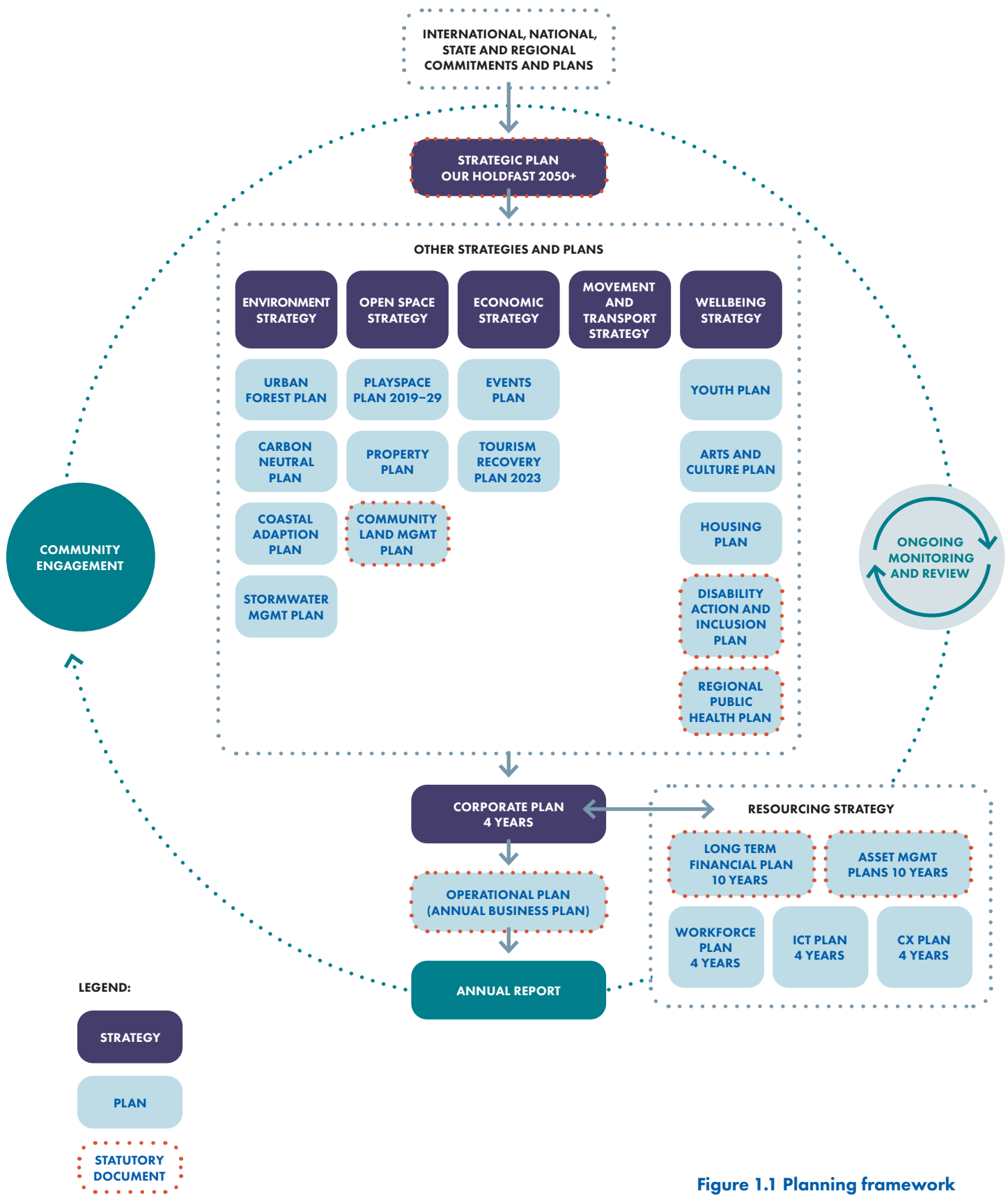**ANNUAL REPORT**

LEGEND:

STRATEGY

PLAN

STATUTORY DOCUMENT
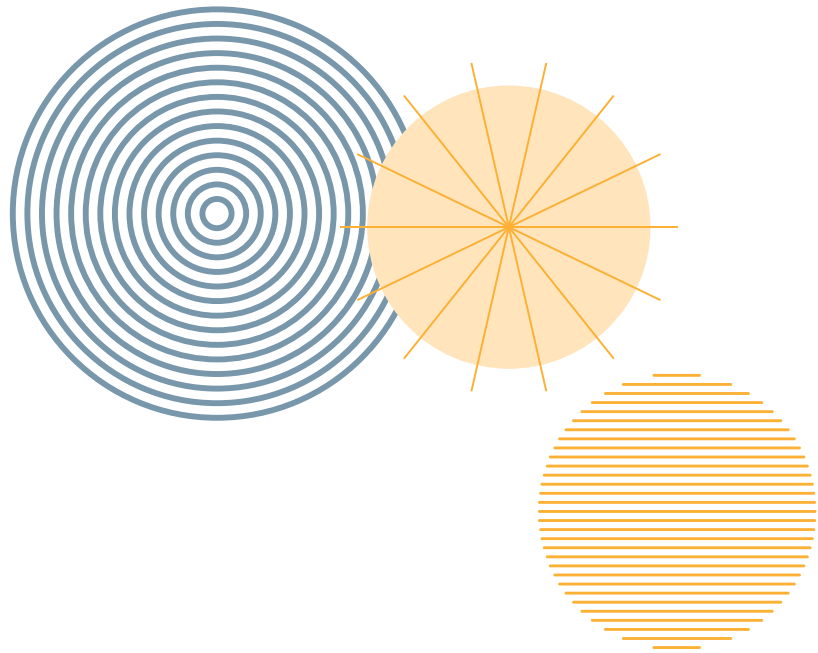
Figure 1.1 Planning framework

1. Introduction

1.3 Stakeholders

Key stakeholders responsible in the asset management lifecycle of stormwater assets are provided in Table 1.1.

Key stakeholders	Role in Asset Management Plan
Residents/community	End users of the services provided directly and indirectly by the assets. Provide feedback collected throughout the year, including the annual satisfaction survey.
Elected Members	Act as custodians of community assets. Set asset management policy and vision. Allocate resources to meet council objectives in providing services while managing risks.
Audit Committee	Reviews, and makes recommendations and observations to Council on the financial outcomes of the asset management plans.
Chief Executive Officer and Senior Leadership Team	Provide leadership and strategic direction. Review Asset Management Policy and Asset Management Strategy. Ensure community needs and the outcomes of service reviews are incorporated into asset management planning and LTFP. Ensure councillors and staff are provided with training in financial and asset management practices. Ensure accurate and reliable information is presented to Council. Ensure appropriate delegations and approval processes are followed.

Key stakeholders	Role in Asset Management Plan
Manager Engineering	Manages development, implementation and review of asset management plans, the Asset Management Policy and Asset Management Strategy. Responsible for advancing asset management within the organisation.
Asset Management Lead	Prepares asset management plans. Manages the asset register and spatial systems. Coordinates data collection. Coordinates annual renewal budget planning. Delivery of asset management improvement programs. Provides technical asset management expertise to the organisation.
Senior Project Manager	Coordinates Council's capital works program.
Manager Field Services	Ensures the maintenance and works programs are achieving service standards.

Table 1.1 Stakeholder responsibilities

1.4 Asset Management Framework

The Asset Management Strategy aims to align the delivery of asset management activities with the organisation's goals and objectives; this process is known as the "line of sight" with asset management.

The asset management framework consists of the three key asset management documents, the Asset Management Policy, Asset Management Strategy and asset management plans.

These documents create transparency and accountability through all aspects of asset management to ensure all stakeholders understand their roles and responsibilities.

The Council's asset management system is outlined in Figure 1.2. The asset management system is the end-to-end process of asset management within Council. The asset management framework connects Council's strategic vision and goals to the on-the-ground delivery of our services.
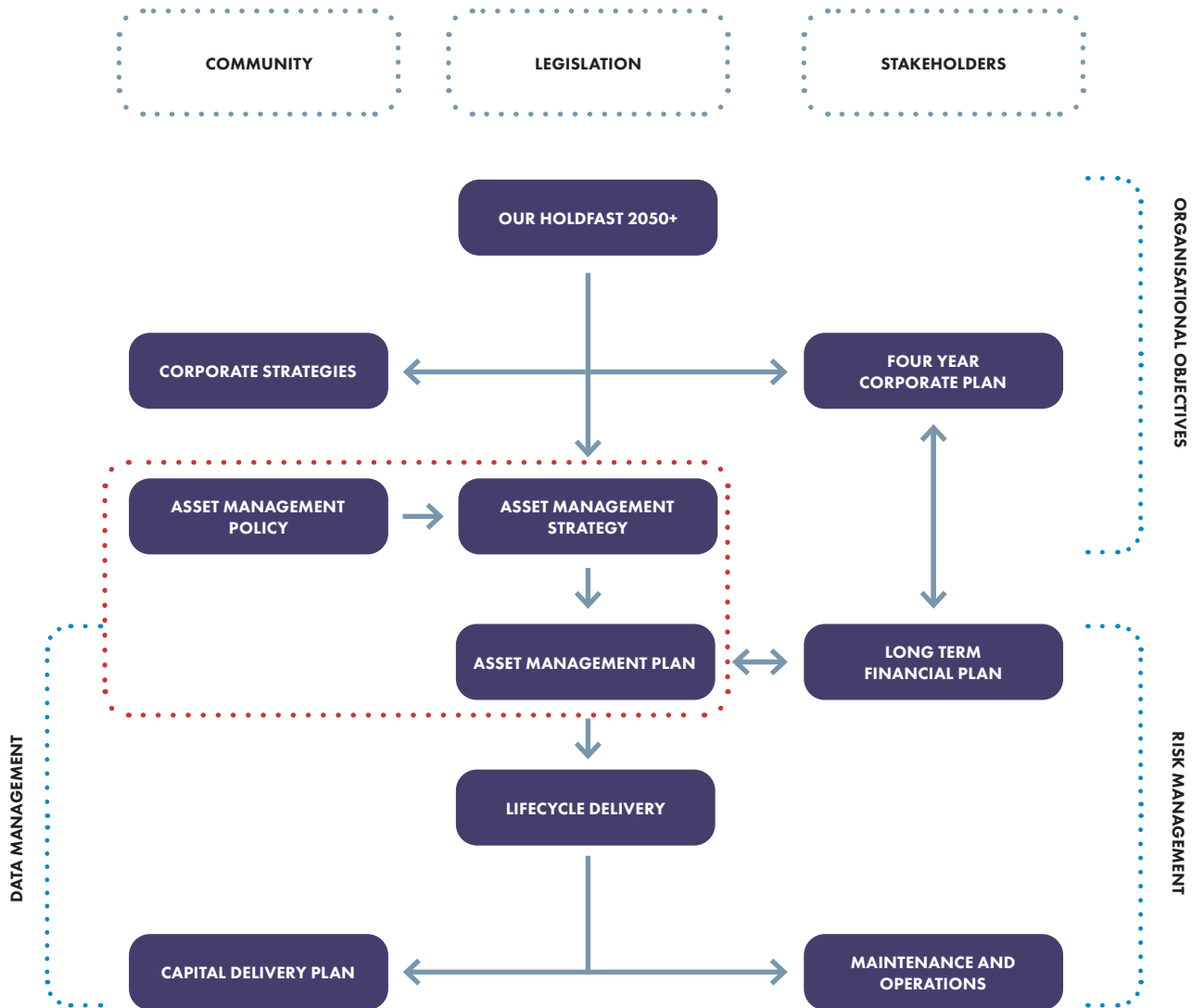
COMMUNITY

LEGISLATION

STAKEHOLDERS

OUR HOLDFAST 2050+

CORPORATE STRATEGIES

FOUR YEAR CORPORATE PLAN

ASSET MANAGEMENT POLICY

ASSET MANAGEMENT STRATEGY

ASSET MANAGEMENT PLAN

LONG TERM FINANCIAL PLAN

LIFECYCLE DELIVERY

CAPITAL DELIVERY PLAN

MAINTENANCE AND OPERATIONS

ORGANISATIONAL OBJECTIVES

RISK MANAGEMENT

DATA MANAGEMENT

ASSET MANAGEMENT FRAMEWORK

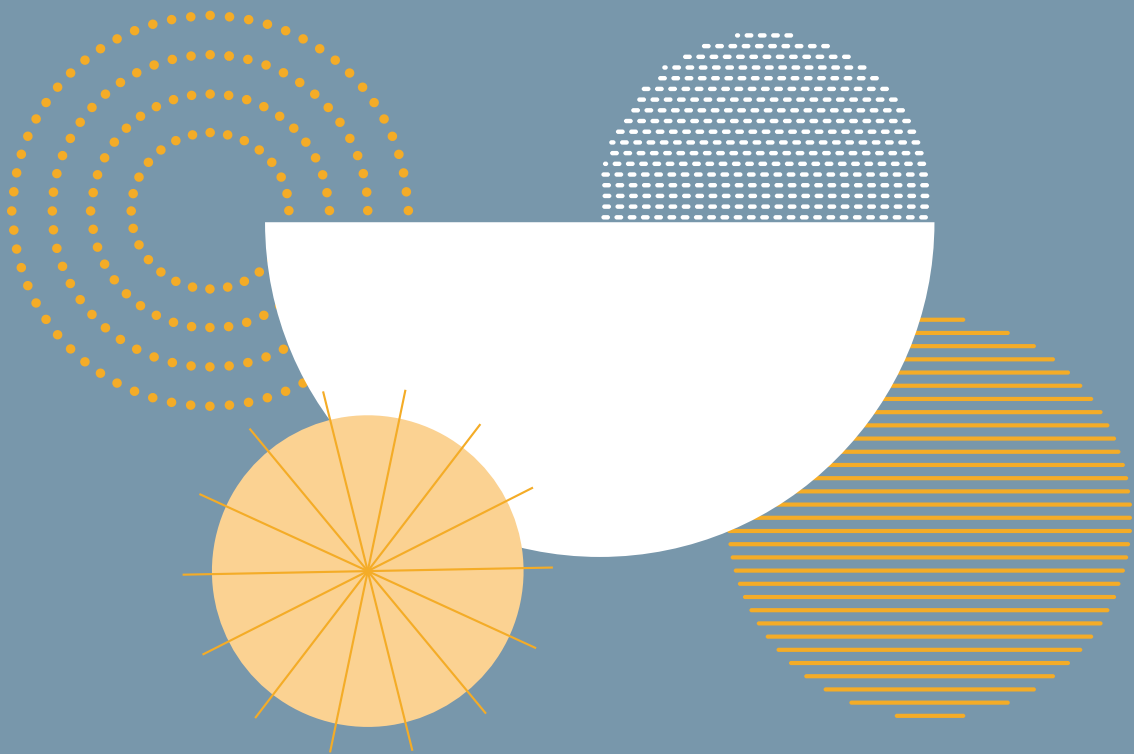**Figure 1.2 Asset management system**
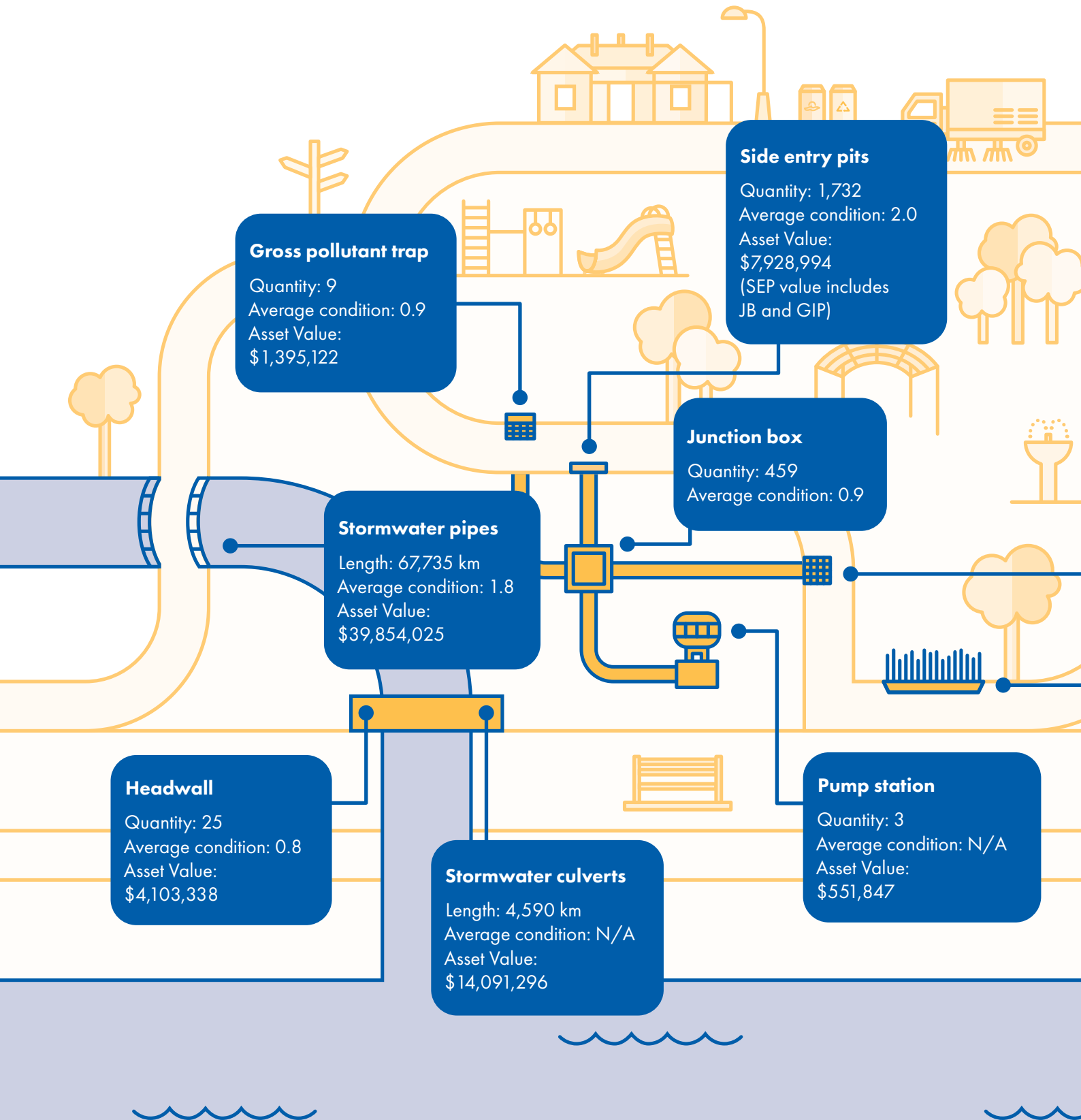
2. Asset Class Information

The stormwater asset class includes 5,354 assets and is defined into two categories for drains and pits and, further, into sub-categories as summarised in Figure 2.1.

The stormwater asset class was last revalued in 2022 using current data. During 2023–24 the stormwater asset GIS register was reviewed and updated.
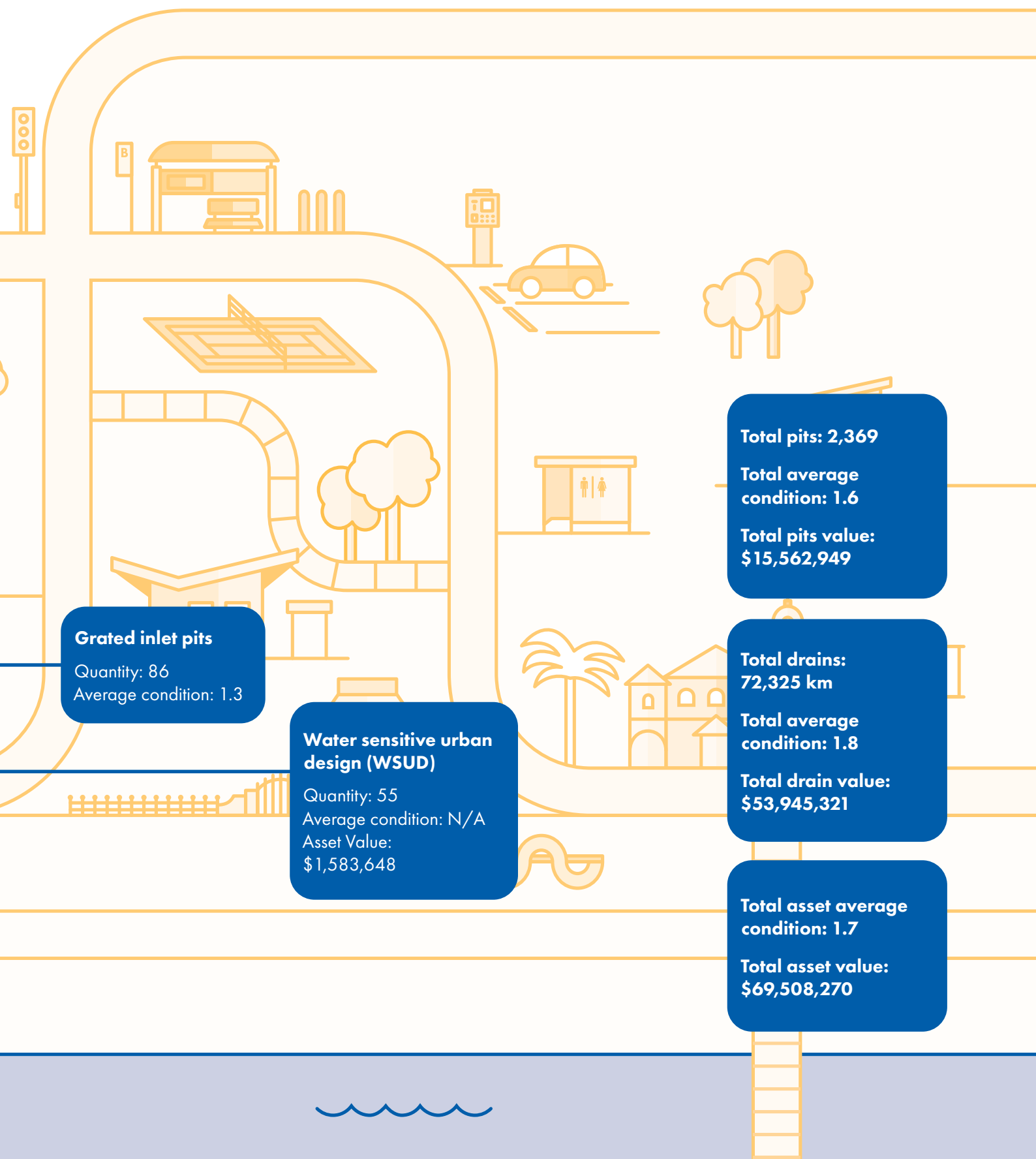
This Asset Management Plan has been based on the data as of 2024. The next revaluation will be developed as of 1 July 2026.

2. Asset Class Information
STORMWATER

Side entry pits

Quantity: 1,732
Average condition: 2.0
Asset Value:
$7,928,994
(SEP value includes
JB and GIP)

Gross pollutant trap

Quantity: 9
Average condition: 0.9
Asset Value:
$1,395,122

Junction box

Quantity: 459
Average condition: 0.9

Stormwater pipes

Length: 67,735 km
Average condition: 1.8
Asset Value:
$39,854,025

Headwall

Quantity: 25
Average condition: 0.8
Asset Value:
$4,103,338

Stormwater culverts

Length: 4,590 km
Average condition: N/A
Asset Value:
$14,091,296

Pump station

Quantity: 3
Average condition: N/A
Asset Value:
$551,847

Grated inlet pits
Quantity: 86
Average condition: 1.3

Water sensitive urban design (WSUD)
Quantity: 55
Average condition: N/A
Asset Value: $1,583,648

Total pits: 2,369
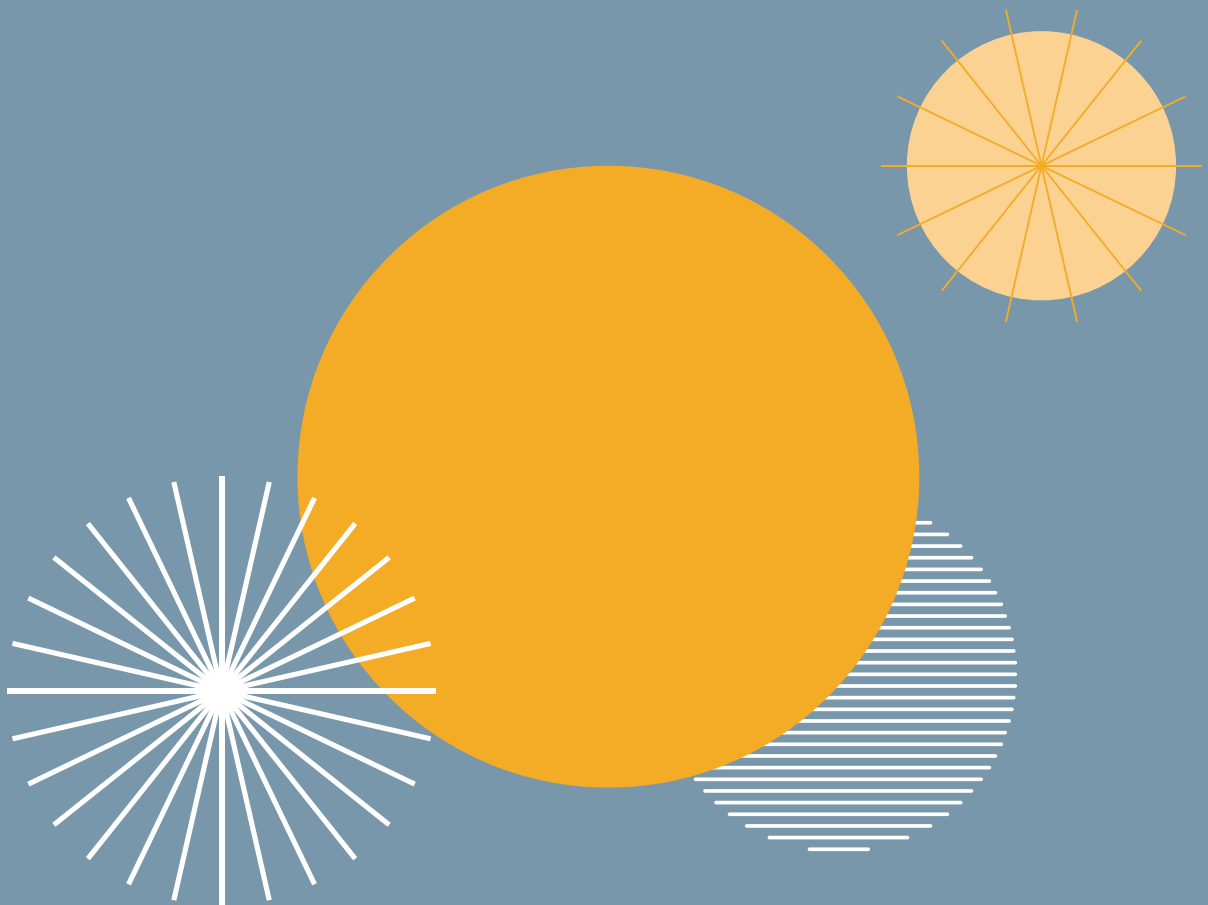**Total average condition: 1.6**
Total pits value: $15,562,949

Total drains: 72,325 km
Total average condition: 1.8
Total drain value: $53,945,321

Total asset average condition: 1.7
Total asset value: $69,508,270

Figure 2.1 Stormwater asset class information

3. Levels of Service

The International Infrastructure Management Manual (IIMM) describes Levels of Service (LoS) as "defined service quality for an activity or service area against which service performance may be measured".

City of Holdfast Bay has defined Levels of Service for stormwater assets for both:

› Community Levels of Service
  —community perception of service

› Technical Levels of Service
  —technical indicators of performance.

The defined Levels of Service are designed to support continued performance and function of stormwater assets to a reasonable standard, where maintenance and servicing are compliant with legislative requirements and manufacturing specifications. They are intended to ensure the stormwater assets and associated budgets are appropriate to meet the service levels.

Community and technical levels of service are used as performance indicators.

Detailed operational levels of service for individual business processes are defined within department's operational plans. Requirements are identified in the improvement actions section.

3. Levels of Service

3.1 Community Levels of Service

Council receives feedback from a variety of sources including:

› Community enquiries and requests

› Community Strategy consultation

› Annual Business Plan consultation

› Project feedback

› Development of AMPs

› Quality of Life Report

› Customer satisfaction surveys.

This feedback is built into all areas of the Plan and we seek to measure our performance against community expectation through our service level links to customer request records and the Quality of Life Report 2023.

Performance measure	Desired Level of Service	Performance measure	Key performance indicator	2024 performance
Quality	Stormwater network is well maintained. Function is effective drainage during rain events.	Number of reactive blockages requiring clearing.	Reduction in blockages.	TBC

Table 3.1 Community levels of service

3. Levels of Service

3.2 Technical Levels of Service

Performance measure	Objective	Performance measure	Key performance indicator	2024 performance
Quality (condition)	Physical state of stormwater assets in functioning condition.	Average condition of stormwater assets.	Average condition better than 3.0.	Pipes: 1.8 (14%)
		Percentage of poor or very poor (PVP) stormwater assets.	Asset PVP below 10%.	Pits: 1.6 (1.6%)
Quality (condition)	Serviceable state of stormwater assets in functioning condition.	Condition of stormwater assets.	Average condition better than 3.0.	Pipes: N/A
			Asset PVP below 10%.	Pits: 2.6 (21%)
Quality (renewal)	Sustainably managing renewal of assets.	Asset renewal ratio (Renewal expenditure over forecast budget).	90%–110%	470% (2021-2023)
Quality (responsiveness)	Stormwater maintenance services are provided within determined response time.	Time taken to respond to requests.	Meet response times for priority 4 and 5 requests.	TBC

Performance measure	Objective	Performance measure	Key performance indicator	2024 performance
Capacity	Stormwater assets have the capacity to drain stormwater effectively. Avoid local flooding in events less than a 20% Annual Exceedance Probability (AEP) event.	Number of local flooding events occurring during a below 20% AEP event. Customer request records.	Reduction in issues raised during events. Future goal of 0 flooding issues resulting from 20% AEP event.	TBC
Function (safety)	Stormwater assets are safe and free of hazards.	Number of injuries or accidents.	0	0
Climate (mitigation)	Reduce and eliminate emissions to reach 2030 carbon-neutral target.	Emissions reduction from previous year.	Evidence-based reduction.	TBC
Climate (adaptation)	Reduction of asset management climate risk to Council.	Consider climate risk in infrastructure decision-making.	Progress the RAMP and implementation of actions.	Yes

Table 3.2 Technical levels of service

3. Levels of Service

All community and technical Levels of Service have been achieved with the following exceptions:

Service level	Response action
Quality (condition) – physical state of asset PVP below 10%: Pipes 14%	CCTV condition inspections have been historically limited to known high-risk areas, negatively skewing the condition data. The CCTV program is being increased to 5km a year. Targeting a broader range of areas to improve the representation of data and knowledge of the network.
Quality (condition) – serviceability state of asset PVP below 10%: Pits 21%	The pit condition inspection concluding 2023–24 found 21% of the network had poor serviceability (blockages). A program has been completed in 2024 to clear these blockages to reinstate a high serviceability rate.
Quality (renewal) – asset renewal ratio: 470% (target 90%-110%)	Through the Stormwater Management Plan, implementation of significant stormwater improvement projects has been delivered. These improvement projects have included associated renewal works to complement the network upgrades. These works have been funded through the stormwater improvement program.

Table 3.3 Response actions

Levels of Service with 2024 performance labelled TBC (to be confirmed) do not currently have a baseline indicator. These are to be measured and reported on, going forward.

3.3 Stormwater Standards

Council develops Stormwater Management Plans (SMPs) as a coordinated approach to managing stormwater within a particular catchment. The intent of an SMP is to set out the strategies, actions and projects that can be implemented to minimise flooding, utilise stormwater and improve the quality of water that feeds into our waterways and the ocean.

There are two SMPs directly relating to Council's stormwater catchments:

› Stormwater Management Plan Coastal Catchments Between Glenelg and Marino (2014) in the Cities of Holdfast Bay and Marion

› Stormwater Management Plan for the Urban Catchments of Lower Sturt River in the Cities of Holdfast Bay, Marion, Mitcham, Unley and West Torrens.

Through the Coastal Catchments Between Glenelg and Marino SMP, the Cities of Holdfast Bay and Marion have an overarching objective of progressing towards becoming:

> *"Water Sensitive Cities" and to minimise flooding and harness the potential of stormwater to overcome water shortages, reduce urban temperatures, and improve waterway health and the landscape of their cities. Water sensitive urban design is the process that will lead to Water Sensitive Cities.*

The result of the Coastal Catchments Between Glenelg and Marino SMP was an implementation plan to enable funding towards stormwater improvements in the LTFP. See section 5.6. This SMP is under review in 2024–25 and the outcome of the review will determine future new capital investment.

The SMPs define our Levels of Service for quantity and quality of stormwater run-off. They are defined by our minor drainage system (underground) and major drainage system (overland flow).

Minor drainage system (underground)

The minor drainage system includes the pits and underground pipes whose primary function is to avoid nuisance flooding and ponding to maintain the serviceability and safety of the road network.

The original South Western Suburbs Drainage Scheme (1960s and 1970s), which drains the majority of the network, was designed to achieve a 20% AEP (Annual Exceedance Probability) or 5 year ARI (Average Recurrence Interval) standard.

Modelling of the pit and pipe network capacity indicates many of the pipes do not have the 20% AEP capacity when measured against contemporary standards. This is likely to be due to increased imperviousness of the catchment and changing storm intensities since the system was designed in the 1960s.

When designing new drainage systems, wherever technically possible and financially viable, Council aims to achieve a design standard for 20% AEP storms with gutter flow width no greater than 2.5m.

Major drainage system (overland flow)

The major drainage system includes the minor system as well as the roads, open spaces, water courses and other overland flow routes.

The aim of the of the major system is to prevent flooding that causes property damage or threatens the safety of people in the floodplain during a 1% AEP storm (100 year ARI) wherever technically possible and financially viable.

All new developments have a minimum design standard for the major system with the minimum freeboard (distance between top of flood water and house floor level) to be 200mm to ensure the buildings are not subject to inundation during a 1% AEP flood.

Detailed objectives for acceptable level of protection for the community are detailed in the Coastal Catchments Between Glenelg and Marino SMP.

3. Levels of Service

3.4 Legislation and Relevant Acts

Under the *Local Government Act 1999,* Council is required to develop and adopt an infrastructure and asset management plan covering a period of at least 10 years.

Council is additionally required to adopt a long-term financial plan (LTFP) associated with such service plans also covering a period of at least 10 years. There is a direct link between the development and implementation of these two plans, with the LTFP updated to reflect forecast expenditure as detailed within these plans.

Council considers the following legislative framework in the management of its stormwater assets.

Legislation	Requirements
Aboriginal Heritage Act 1988	An Act to provide for the protection and preservation of Aboriginal heritage; to repeal the Aboriginal and Historic Relics Preservation Act 1965 and the Aboriginal Heritage Act 1979; and for other purposes.
Australian Accounting Standards	Standards applied in preparing financial statements, relating to the valuation, revaluation, and depreciation of assets.
Climate Change and Greenhouse Emissions Reduction Act 2007	An Act to provide for measures to address climate change with a view to assisting to achieve a sustainable future.
Environment Protection Act 1993	Responsibility not to cause environmental harm (e.g. noise pollution, contamination of water).
Local Government Act 1999	Sets out role, purpose, responsibilities and powers of local governments including preparation of an LTFP supported by asset management plans for sustainable service delivery.

Legislation	Requirements
Local Government (Financial Management and Rating) Amendment Act 2005	Impetus for the development of a strategic management plan, comprising an asset management plan and an LTFP.
Local Government (Stormwater Management) Amendment Act 2007	Implementation of Stormwater Management Agreement and establishment of Stormwater Management Authority to ensure proper management of stormwater in SA. Formulates policy for stormwater management and facilitates stormwater management planning for councils including funding programs.
Landscape South Australia Act 2019	An Act to promote sustainable and integrated management of the State's landscapes, to make provision for the protection of the State's natural resources, and for other purposes.
Planning, Development and Infrastructure Act 2016	An Act to provide for matters relevant to the use, development and management of land and buildings, including by providing a planning system to regulate development within the State, rules with respect to the design, construction and use of buildings, and other initiatives to facilitate the development of infrastructure, facilities and environments that will benefit the community.
Work Health and Safety Act 2012	An Act to provide for the health, safety, and welfare of persons at work; and for other purposes.

Table 3.3 Legislative requirements
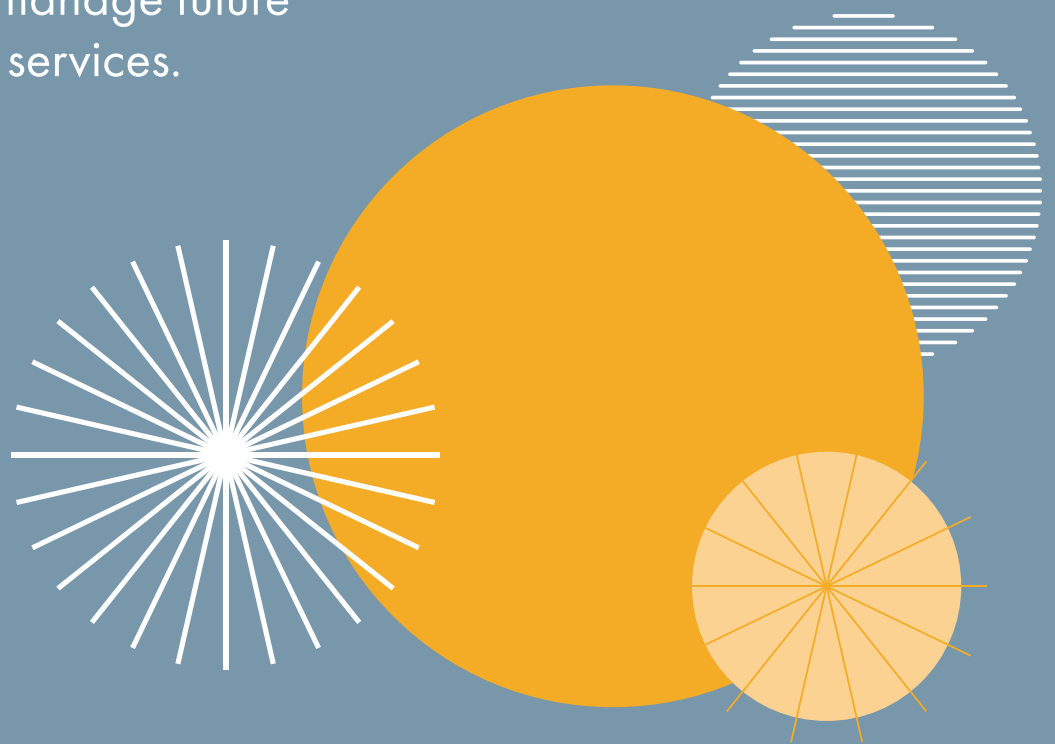
4. Demand Forecast

A community's demand for services may change over time depending on factors including environmental, technological and capacity requirements. Council may need to make changes to manage future demand for services.

4. Demand Forecast

Demand driver	Current position	Demand forecast
Population and housing density increases	Total estimated population 37,543 (2021); 51% of dwellings are medium to high density.	Planned to accommodate for 40,000 in Holdfast Bay by 2031.
Water quality	The stormwater system transports stormwater to the marine environment. Introduced impervious surfaces, human activities and industry since European settlement have all significantly altered the quantity, distribution and quality of water discharged to the marine environment. The cumulative impact of continuous and episodic land-based discharges has resulted in a significantly degraded coastal environment.	Pollutants will continue to be captured by the stormwater system, requiring water quality measures prior to entering the marine environment.
Environmental sustainability (climate mitigation)	Council and the community are increasingly aware of our impact on the environment and Council's role in environmental sustainability.	Council is committed to pursuing, supporting, and creating an environment that will sustain current and future generations.

Demand impact	Demand management	Impact on assets
Greater impervious areas through increased infill development have the potential to increase pressure on the stormwater network and cause local flooding problems.	Implementation of regional Stormwater Catchment Management Plan. Audit and management of stormwater drainage to ensure serviceability of the network. Installation of water-sensitive urban design features (WSUD).	Increased demand on stormwater capacity in the major and minor networks. Resulting in requirements to increase capacity or find alternate detention.
Increase demand for Council to introduce stormwater quality controls throughout the network.	To the extent it is technically possible, financially viable and without compromising flood protection; retrofit WSUD to capture and treat road runoff and retrofit GPTs to all stormwater outlets discharging to Adelaide beaches. Minimise pollutants entering the drainage network by maintaining effective programs for cleaning and maintenance of GPT and street sweeping. Installing and servicing of rubbish bins, particularly in commercial precincts.	Creates demand for new assets to treat stormwater quality such as WSUD and gross pollutant traps (GPTs). Creates demand for appropriate management of these assets and minimising debris and rubbish entering our stormwater systems.
Requirement to use fewer, recycled and renewable resources that can contribute to the development of a circular economy and reduce Council's carbon footprint. Greater environmental sustainability requirements placed on the construction industry.	Implement actions from the Environment Strategy 2020–25, Climate Governance Risk Assessment and Carbon Neutral Plan.	Higher costs associated with construction methods that are environmentally sustainable.

4. Demand Forecast

Demand driver	Current position	Demand forecast
Climate change (adaptation)	Increase in severe weather events including droughts, extreme heat events, storms, storm surges, high tides, and sea level rise.	Severe weather events to increase based on current trends, including more intense rainfall events. Rise in sea level and coastal storm events.
Technology change	Trialling new available technologies for stormwater management.	Ongoing review of efficient and effective stormwater management improvements.

Demand impact	Demand management	Impact on assets
More intense rainfall events are likely to place increased pressure on the existing drainage network to carry larger volumes of stormwater runoff. Sea level rise will potentially cause blockages or reduced outlet capacity through sand and seawater inundation of the drainage network adjacent to the coast.	Ongoing review and update of design standards due to increased rainfall intensity. Management of sand surrounding stormwater outlets adjacent to the coast. Stormwater management planning (improvement actions 1 and 2). Resilient Asset Management Program (RAMP) assessing resilience and suitability of assets under changing climate conditions.	In the future, as definitions regarding expected rainfall intensity change, it may be required to construct larger pipes to achieve the same design standard. Upgrade the drainage capacity of current stormwater networks. Extension of the drainage network to new areas at risk of flooding.
Taking advantage of opportunities through studies and grants to progress stormwater management technology.	Using new technologies to monitor or control stormwater flows.	Trailing new technology will require additional budgets. Opportunities through SMP development.

Table 4.1 Demand factors

5. Lifecycle Planning
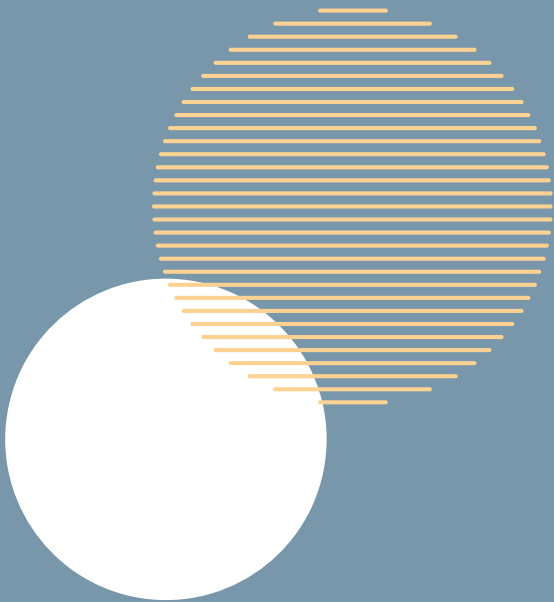
Asset lifecycle planning outlines how Council plans to manage stormwater assets in an optimised cost-effective manner while ensuring delivery of agreed service levels.

The lifecycle of assets can be defined in four stages:

› Creation/acquisition (planning, design, procurement, construction)

› Operations and maintenance (operate, maintain, monitor)

› Capital renewal/replacement

› Decommission/disposal.

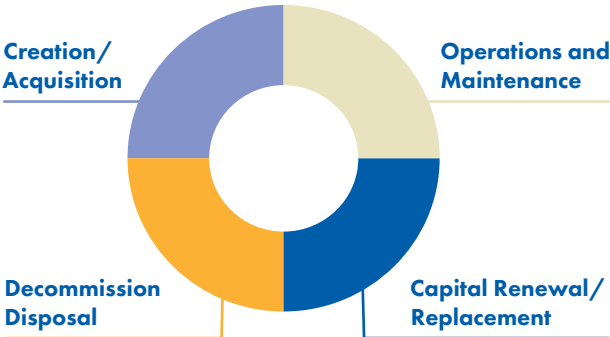Each of these stages is further detailed in this lifecycle planning section.

Creation/ Acquisition

Operations and Maintenance

Decommission Disposal

Capital Renewal/ Replacement

Figure 5.1 Asset lifecycle

5. Lifecycle Planning

5.1 Asset Life

Throughout the asset lifecycle, assets are inspected, condition-rated and revalued on a periodic basis. Asset condition and expected useful life are used to estimate the remaining life of each asset.

Stormwater assets are managed financially using a straight-line depreciation method whereby an asset has a current replacement cost that is depreciated over time using an expected useful life.

Assets may be renewed or replaced based on several factors including condition, capacity, function and increasing requirement for asset maintenance and repair as an asset ages. The service life of an asset may therefore differ from the design life or the useful life. During an asset's service life, maintenance and repair works will be required to maintain the service level provided by the asset.

A summary of expected useful lives of stormwater assets is provided in Table 5.1.

Stormwater assets	Expected useful life (years)
PVC pipes	70
Concrete pipes	120
Box culvert drains	120
Concrete channels	80
Side entry pits	80
Small grated inlet pits	50
Grated inlet pits	80
Junction boxes	80
Gross pollutant traps	80
Headwalls	60
Pump stations	58
Pumps	20
Rain gardens	50
Tree net inlets	50

Table 5.1 Useful lives

5. Lifecycle Planning

5.2 Asset Condition

Council is responsible for maintaining stormwater assets in the appropriate condition for the defined Level of Service (section 3). This is achieved through the following work:

› Periodic inspection and asset condition audits of the stormwater pit assets

› CCTV inspection and condition audit of stormwater pipes and drains as required to confirm alignments and requirements for associated work

› Regular sweeping of streets and cleaning of stormwater pits to minimise inundation of leaves and waste into the stormwater drainage system

› Development of a forward works program for capital renewal works and maintenance/ operational activities.

During the service life of a stormwater asset, it should be maintained and inspected regularly to ensure the asset remains safe for use and fit for purpose and to ensure the service life is achieved.

The condition scoring criteria adopted for stormwater asset audits is based on the IPWEA condition rating guidelines and is summarised in Table 5.2.

Condition grade	Condition	Description	Condition
0	Not rated	Asset has not been properly decommissioned, no longer exists or is unable to be rated due to serviceability issues	N/A
1	Very good	Excellent physical condition. Observable deterioration is insignificant, routine maintenance is preserving asset condition	100% to 80%
2	Good	Sound physical condition, minor deterioration/minor defects observed.	80% to 50%
3	Fair or moderate	Moderate deterioration evident, minor components or isolated sections of the asset need replacement or repair.	50% to 20%
4	Poor	Serious deterioration and significant defects are evident, affecting structural integrity. Significant intervention is required to arrest deterioration. Renewal of all of the asset is required within short term.	20% to 5%
5	Very poor	Failed or failure imminent. Immediate need to replace most or all of asset. Major work including replacement or rehabilitation required urgently.	5% to 0%

Table 5.2 Condition score criteria

5. Lifecycle Planning

A summary of stormwater node asset condition from data captured during 2022–23 and 2023–24 is provided in Table 5.3.

Asset category	Count	Average condition rating	Target condition rating	Percentage below condition 3 (PVP)	Target percentage (PVP)
Side entry pit	1,732	2.0	3.0	2.3%	10%
Junction box	459	0.9	3.0	0.0%	10%
Grated inlet pit	86	1.3	3.0	0.9%	10%
Gross pollutant trap	9	0.9	3.0	0.0%	10%
Headwall	25	0.8	3.0	0.0%	10%
Pump station	3	N/A	3.0	N/A	10%
WSUD	55	N/A	3.0	N/A	10%
Total	**2,369**	**1.6**	**3.0**	**1.6%**	**10%**

Table 5.3 Stormwater node condition summary

In the past five years, 6,740m of CCTV footage has been captured throughout the network across 198 surveys. The average condition rating of the pipes surveyed was 1.8 with 14% in poor or very poor condition.
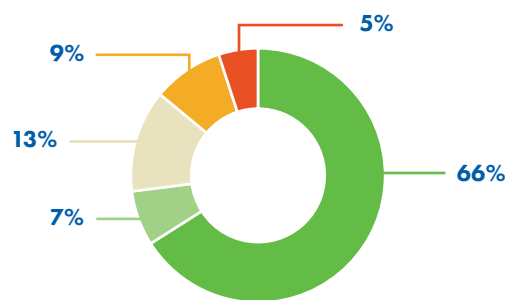
A summary of the stormwater asset condition data, based on data captured in the past five years is provided in Figure 5.2.

STORMWATER PIT CONDITION
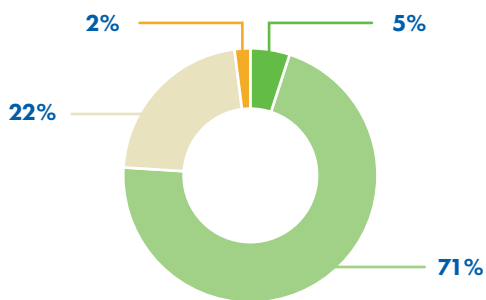
STORMWATER PIPE CONDITION

| Very Good | Good | Fair | Poor | Very Poor |

Figure 5.2 Stormwater condition profile

Through the improvement program and maintenance forecasting, annual CCTV condition inspections of pipes will be increased from 1.3km a year to 5km a year, targeting areas associated with existing projects, investigation requests, high-risk areas and known gaps in the network data.

The condition data is currently negatively skewed to poor condition as a majority of our inspections occur as a result of a failure or serviceability issue. The above pipe data may not be an accurate representation of the whole network.

As we increase our condition inspections, it is expected the condition data will produce a more accurate picture of the network.

Condition data found through the accelerated inspection programs will inform our renewal planning and projects. Opportunities to improve the capacity of our underground drainage network will be applied in line with our service levels and stormwater standards.

5. Lifecycle Planning

5.3 Historical Expenditure

Historical expenditure for 2019–20 to 2022–23 for operation, maintenance, new assets and renewal of existing assets for the stormwater asset class is summarised in Figure 5.3. The actual expenditure for each year has been indexed by the local government price index (LGPI) to create 2024–25 equivalent expenditure.
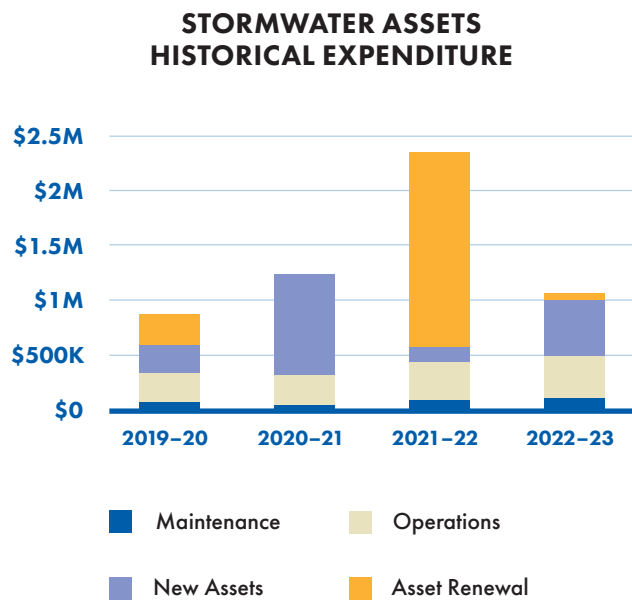
STORMWATER ASSETS HISTORICAL EXPENDITURE

Figure 5.3 Historical expenditure

5.4 Operation and Maintenance Plan

Assets are maintained and serviced throughout the lifecycle to ensure service delivery and safety are maintained.

Typical operations associated with stormwater assets include pit and pipe cleaning, CCTV inspections, GPT cleaning and street sweeping.

Maintenance activities include all actions required to retain an asset's condition and amenity and can be classified as either reactive or planned.

Expenditures from previous financial years have been indexed by the local government price index (LGPI) to create 2024–25 equivalent expenditure.

The operations and maintenance costs of stormwater assets are forecast to trend in line with the previous four years of costs as the number of assets and the services provided have not changed and are not expected to change substantially.

Annual amounts of $317,025 for operations and $86,152 for maintenance have been adopted based on the average of the previous four years to provide equivalent 2024–25 estimates.
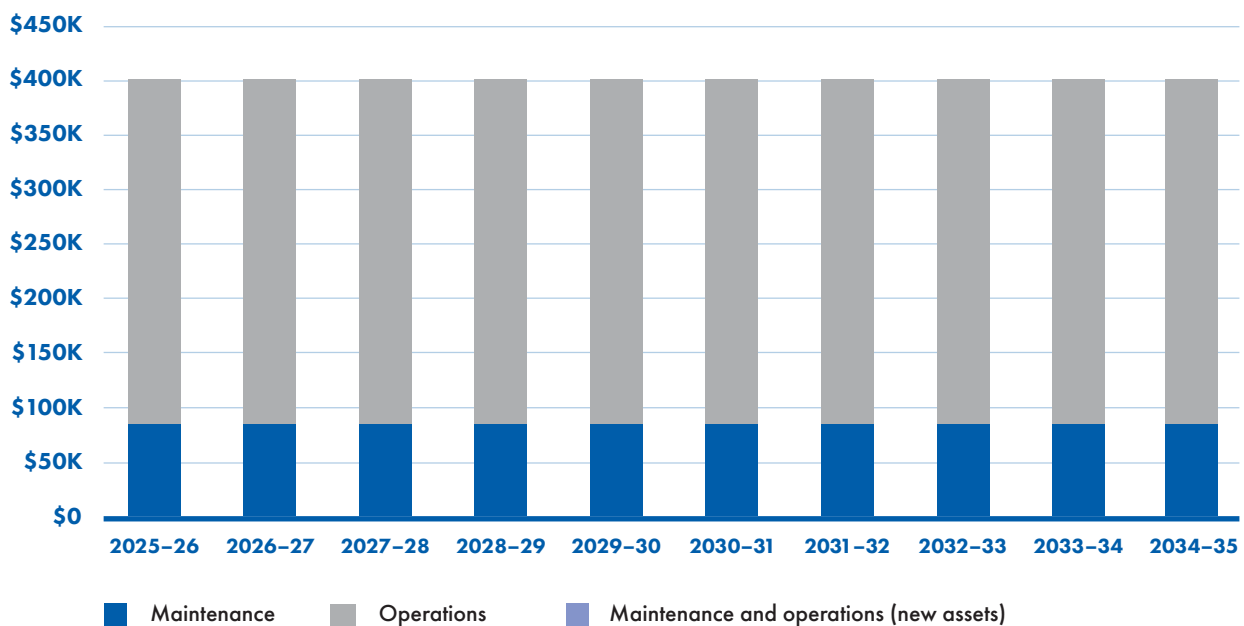
10-YEAR OPERATIONS AND MAINTENANCE PLAN

Figure 5.4 Operations and maintenance plan

5. Lifecycle Planning

5.5 Renewal Plan (capital)

Asset renewal is capital work which restores, rehabilitates, replaces, or renews an existing asset to its original service potential.

Asset renewal is undertaken for reasons including deteriorating asset condition, function, and amenity considerations, or to align works in an area to minimise disruption and undertake works efficiently.

The stormwater replacement program outlined in this plan has been developed based on:

› Condition data

› Standard useful lives of assets

› Reported defects and failures.

The annual CCTV program will inform our renewal planning and projects.

Opportunities to improve the capacity of our underground drainage network will be applied in line with our service levels and stormwater standards within the renewal program.

An average of $200,000 has been allocated to stormwater renewal for the next 10 years with an incremental increase. This rate of renewal is very low in comparison to the stormwater portfolio due to the long life of stormwater assets and the relatively good condition and age profile.

Based on the age profile, it is anticipated there will be incremental increases to the renewal program over time until a substantial increase from the 2040s onwards. Ongoing CCTV condition inspections are used to identify renewal works in the next 10 years.

STORMWATER 10-YEAR RENEWAL PLAN
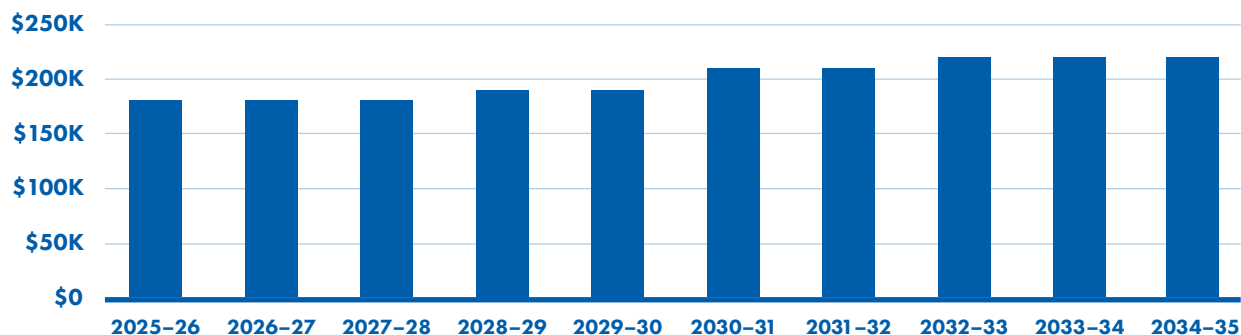
Figure 5.5 10-year renewal plan

5. Lifecycle Planning

5.6 Acquisition Plan (new capital)

Acquisitions are new assets that did not previously exist or works resulting in significant upgrade of the asset and an increased capacity to deliver a service. The requirement for an acquisition may result from growth, changed demand, social or environmental needs. Assets may also be donated to Council.

New stormwater works are typically triggered by a Stormwater Management Plan (SMP) and corresponding Implementation Plan. These projects are delivered to address stormwater quantity (flooding risk) and stormwater quality (pollutants).

The Stormwater Management Plan Coastal Catchments Between Glenelg and Marino 2014 (Coastal Catchments SMP) covers a vast majority of the Holdfast Bay region. The remaining areas will be covered by the Stormwater Management Plan for the Urban Catchments of Lower Sturt River, which is currently being developed.

The existing new capital budget from the Coastal Catchments SMP includes $1,000,000 funding for both 2025–26 and 2026–27 in the LTFP. There is no funding allocated from 2027–28 onwards at this point in time.

The SMP Coastal Catchments Between Glenelg and Marino is set for a review in 2024–25. The asset acquisition plan is currently based on the Coastal Catchments SMP 2014 implementation plan. Following the 2024–25 update of the Coastal Catchments SMP it is anticipated a new implementation plan will be developed for inclusion in the LTFP for a period exceeding the current funding allocation timeframe.

The Stormwater Management Plan for the Urban Catchments of Lower Sturt River will be excluded from this acquisition plan and the outcomes are currently unknown.

This plan will require an update following the adoption or update of an SMP or associated investment plan.

5.7 Disposal Plan

Disposal of assets refers to activities associated with disposing of a decommissioned asset including sale, demolition, or relocation of assets. Council's Disposal of Assets Policy outlines this process.

Council has no upcoming disposals for stormwater assets and currently there is no funding requirement for stormwater asset disposals.

6. Financial Summary

This section outlines the stormwater asset class financial requirements.
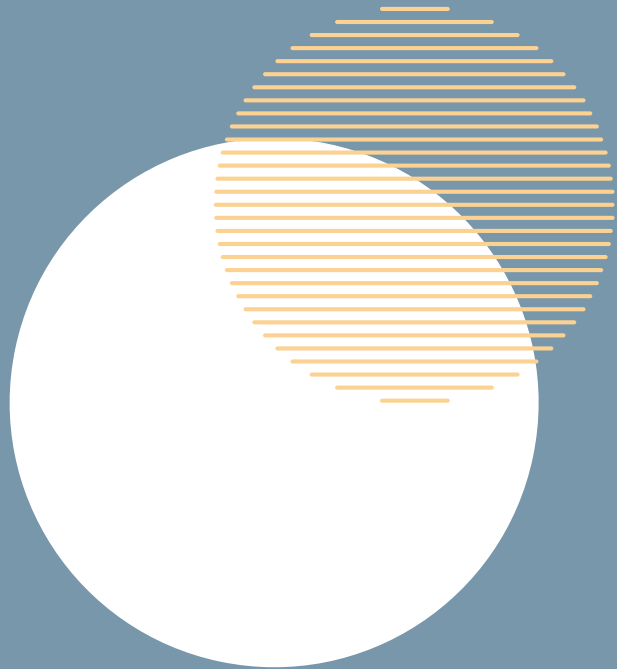
5. Financial Summary

6.1 Asset Valuation

Asset values are projected to increase as additional assets are added through capital works. Unit rates are also expected to increase over time as construction costs for infrastructure increase.

Additional assets will generally increase the requirement for maintenance and operations as well as future renewal.

Valuations are undertaken for each asset class in alignment with Australian Accounting Standard AASB 13 Fair Value and are undertaken at minimum every five years.

The revaluation of Council's stormwater asset class was last undertaken as a desktop valuation as of 30 June 2022. Stormwater asset data review and update was undertaken in 2022 and an inspection and condition audit of the stormwater pits have been undertaken in the past two financial years.

The next stormwater asset class revaluation will use the updated stormwater pit data collected in 2022–23 and 2023–24. All stormwater drain assets have a length in metres assigned as the primary dimension, used to calculate estimated replacement costs. The stormwater pits are generally valued per item.

The valuation of Council's stormwater asset class as of 30 June 2024 is summarised in Table 6.1.
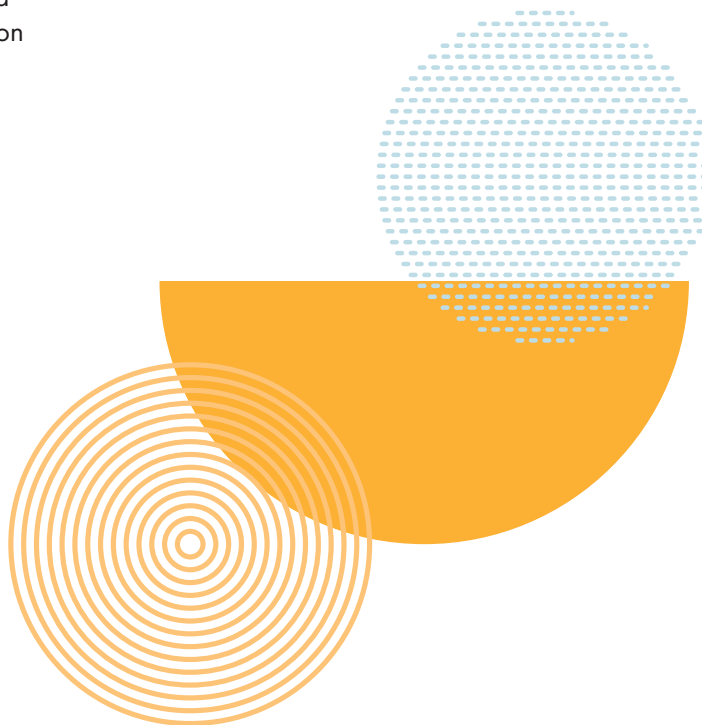
Asset category	Current asset cost	Accumulated depreciation	Carrying value	Number of in-use assets
Stormwater pipes	$39,854,025	$16,380,741	$23,473,284	2,277
Culverts and channels	$14,091,296	$6,517,982	$7,573,314	173
Stormwater pits	$7,928,994	$3,618,744	$4,310,250	2,264
WSUD	$1,583,648	$159,278	$1,424,370	55
Pumps	$551,847	$101,080	$450,767	3
Headwalls	$4,103,338	$918,878	$3,184,460	25
Gross pollutant traps	$1,395,122	$410,457	$984,665	9
Total	**$69,508,270**	**$28,107,161**	**$41,401,109**	**5,354**

Table 6.1 Stormwater asset valuation

6. Financial Summary

STORMWATER ASSET VALUATION

Stormwater Pits
$7,928,994

WSUD
$1,583,648

Pumps $551,847

Culverts and
Channels
$14,091,296

Headwalls
$4,103,338

Stormwater Pipes
$39,854,025

- Stormwater Pipes
- Culverts and Channels
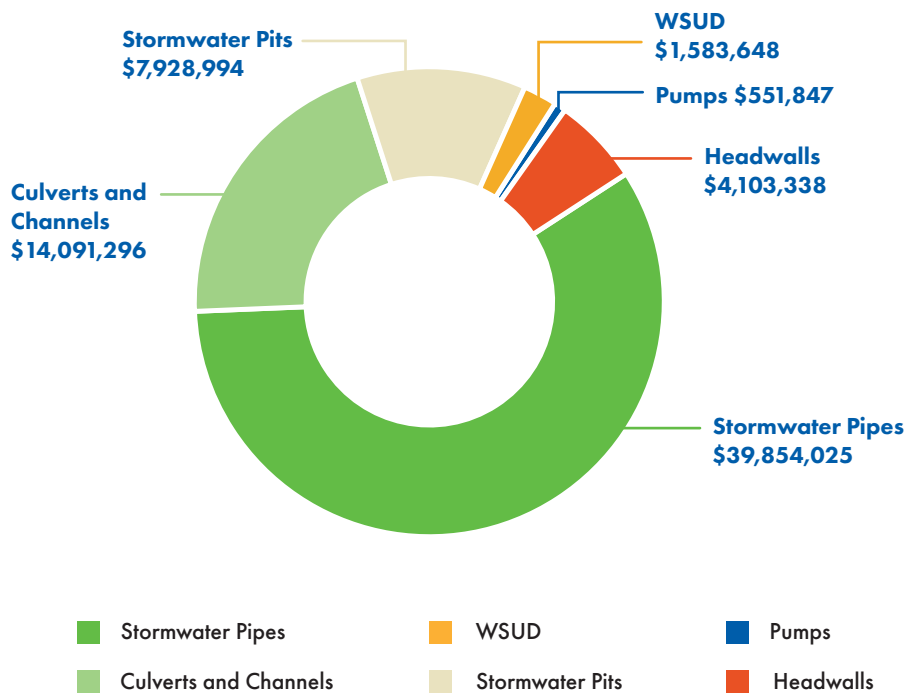- WSUD
- Stormwater Pits
- Pumps
- Headwalls

Figure 6.1 Stormwater assets valuation

6.2 Expenditure Forecast Summary

The overall stormwater expenditure forecast for operations, maintenance, renewal of existing assets and acquisition of new assets is provided in Figure 6.2 and Table 6.2. The stormwater asset renewal forecast is provided in Table 6.3.
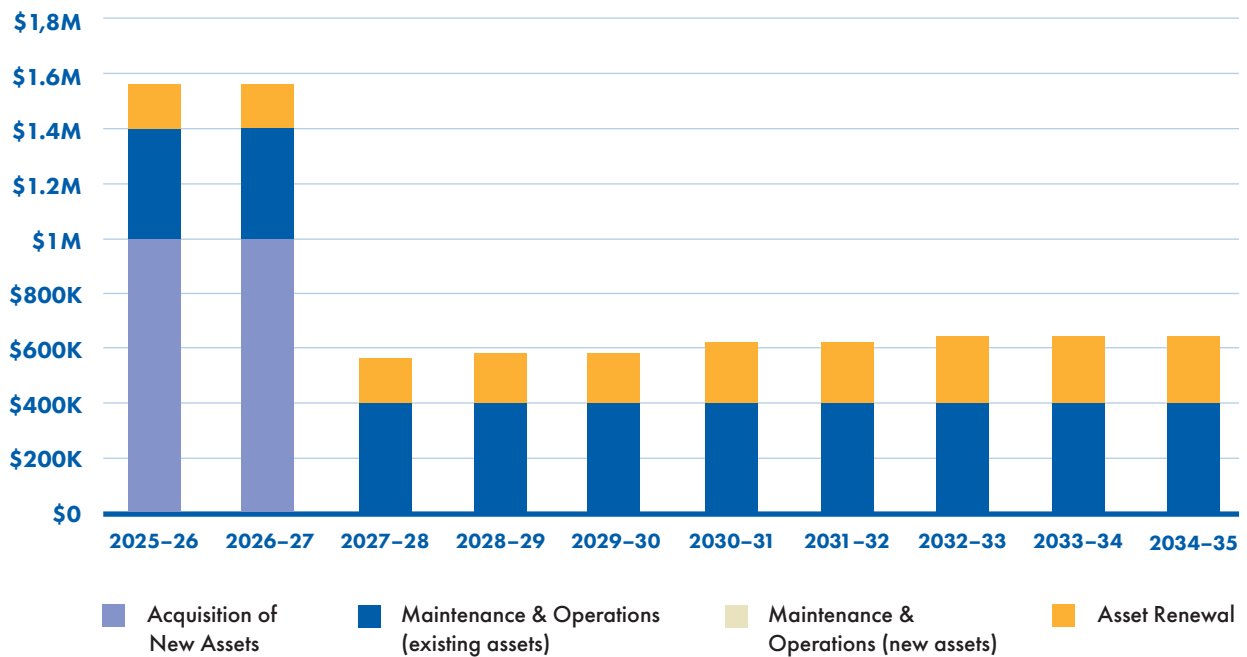
FORECAST EXPENDITURE - STORMWATER

Figure 6.2 Stormwater forecast expenditure

6. Financial Summary

Financial year	2025–26	2026–27	2027–28	2028–29
Acquisition of new assets	$1,000,000	$1,000,000	$0	$0
Maintenance and operations (existing assets)	$403,177	$403,177	$403,177	$403,177
Maintenance and operations (new assets)	$0	$0	$0	$0
Asset renewal	$180,000	$180,000	$180,000	$190,000
Asset disposal	$0	$0	$0	$0
External grant funding	$0	$0	$0	$0
Council funding required	**$1,583,177**	**$1,583,177**	**$583,177**	**$593,177**

Financial year	2025–26	2026–27	2027–28	2028–29
Stormwater pipes and pits renewal	$180,000	$180,000	$180,000	$190,000
Total renewal	**$180,000**	**$180,000**	**$180,000**	**$190,000**

2029–30	2030–31	2031–32	2032–33	2033–34	2034–35
$0	$0	$0	$0	$0	$0
$403,177	$403,177	$403,177	$403,177	$403,177	$403,177
$0	$0	$0	$0	$0	$0
$190,000	$210,000	$210,000	$220,000	$220,000	$220,000
$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0
$593,177	**$613,177**	**$613,177**	**$623,177**	**$623,177**	**$623,177**

Table 6.2 Forecast expenditure

2029–30	2030–31	2031–32	2032–33	2033–34	2034–35
$190,000	$210,000	$210,000	$220,000	$220,000	$220,000
$190,000	**$210,000**	**$210,000**	**$220,000**	**$220,000**	**$220,000**

Table 6.3 10-year renewal plan

6. Financial Summary

6.3 Funding Strategy

Key strategic activities that will affect the future financial position for stormwater:

› The Asset Management Plan to inform the Long Term Financial Plan

› Stormwater Management Plan Coastal Catchments Between Glenelg and Marino update

› Stormwater Management Plan for the Urban Catchments of Lower Sturt River development

› Coastal adaptation planning

› Stormwater valuation 1 July 2026 using recently collected condition data

› Ongoing CCTV inspection program and next pit condition assessment in 2028

› Carbon Neutral Plan implementation

› Resilient Asset Management Program implementation.

6.4 Assumptions

The following assumptions have been adopted in developing financial forecasts:

› The renewal program has been based on stormwater data collected in 2022–23 and 2023–24

› Condition data and standard useful lives have been used to estimate remaining lives of assets and the forecast renewal date for each asset

› The pit renewal program is based on replacing pits identified in conditions 4 or 5 over the period of this plan

› The pipe renewal program is based on reported defects and failures confirmed through CCTV

› Operation and maintenance budget forecasts have been based on actual operation and maintenance costs for a four-year period adjusted to 2024–25 costs

› Acquisition costs have been added for projects approved by Council through the Stormwater Management Plan

› No decommissioning of assets has been assumed.

6.5 Data Confidence

Expenditure requirements for asset replacement and operational costs have been based on the best available data. Asset replacement costs have generally been based on stormwater revaluation data current as of 30 June 2022 with some adjustments where more up-to-date information is available.

Current stormwater asset register data is based on the following recent improvements:

› A desktop stormwater revaluation as of 30 June 2022

› Spatial data review and update to align and correct stormwater drain and pit locations

› Stormwater pit asset condition audit 2022–23 and 2023–24

› 10% of the underground pipe network has had a CCTV condition assessment

› GPT data based on pit condition assessment and cyclic GPT cleaning

› WSUD data is collected in asset register at varying levels of maturity.

Data confidence for this asset class is classified as "C—Uncertain" based on the IPWEA data confidence scale. The data is based on sound records, procedures, investigations and analysis. The dataset is complete and estimated to be accurate ±5%. The IPWEA data confidence grading system in provided in Table 6.4.

The pit data is "B—Reliable" following the condition audit, with only a minor number of pits inaccessible, while pipe data is "C—Uncertain" due to only 10% of the network having CCTV inspections.

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

Table 6.4 Data confidence

7. Risk Management
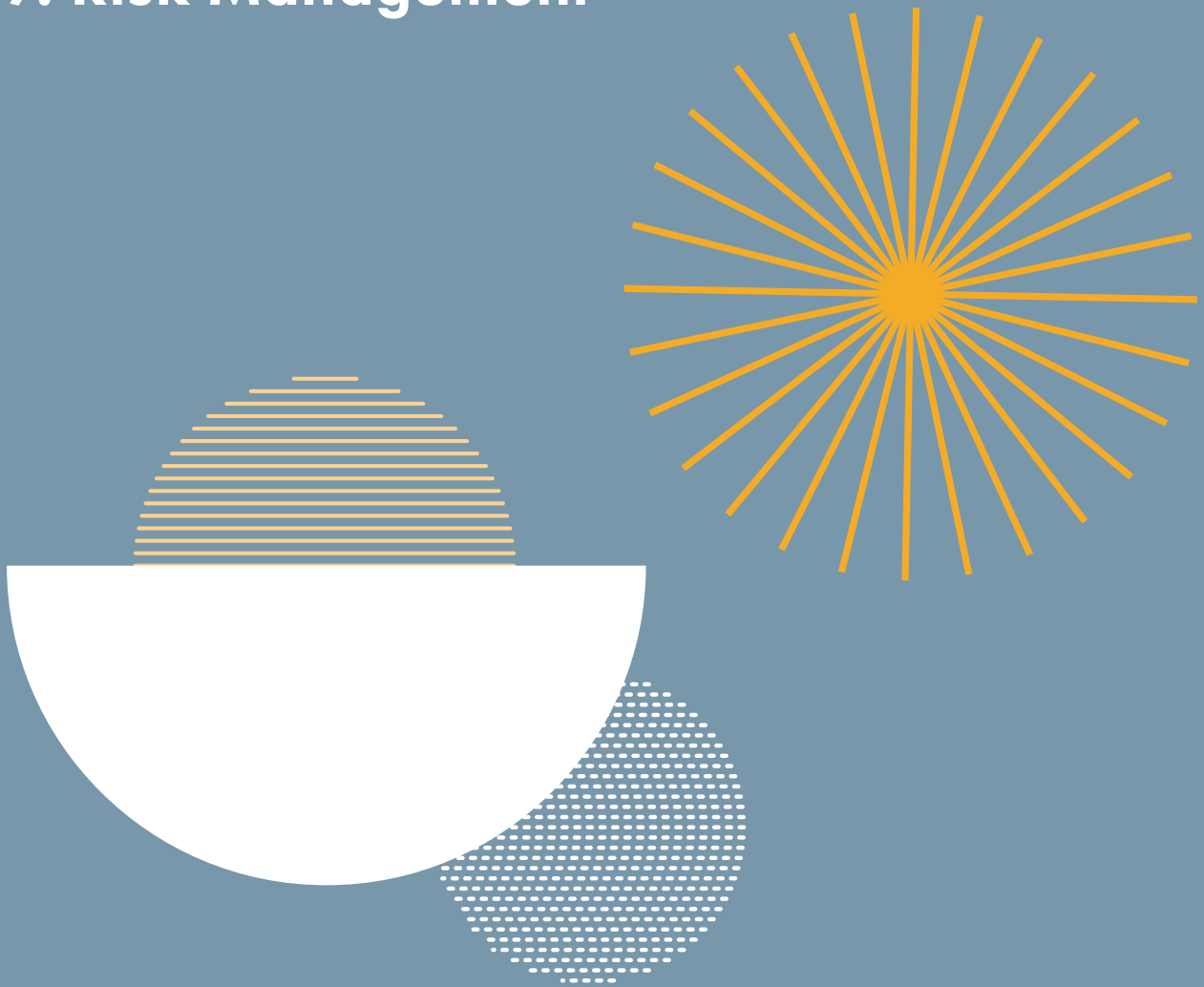
The objective of the risk management process is to ensure all significant asset management risks are identified and assessed.

Following a risk assessment and consideration of both likelihood and consequence, risks identified as high or very high in the short to medium term are investigated. Strategies and treatments are implemented to mitigate or address unacceptable risks.

An assessment of risks in-line with Council's risk matrix (Figure 7.1) associated with the stormwater asset class are detailed in Table 7.1.

Table 7.1 summarises the asset management risk register, which is reviewed and updated at minimum annually in-line with our risk management procedures. The asset management risk register should be review in line with the strategic an operational risk register.

			CONSEQUENCE			
			Insignificant	Minor	Moderate	Major	Catastrophic
			1	2	3	4	5
Almost Certain	E	Medium	Medium	High	Extreme	Extreme
Likely	D	Low	Medium	High	High	Extreme
Possible	C	Low	Medium	Medium	High	High
Unlikely	B	Low	Low	Medium	Medium	High
Rare	A	Low	Low	Low	Medium	Medium

LIKELIHOOD

Figure 7.1 Risk matrix

7. Risk Management

Stormwater risk statement	Current controls	Residual risk rating
Climate change affecting service and useful life of assets	› Ongoing participation in the Resilient Asset Management Program (RAMP) with Resilient South Councils. › Coastal adaptation planning in place including hazard identification and assessment. › Consideration of climate change risks in strategic and long-term planning.	HIGH
Inconsistency caused by changes Elected Members or Senior Leadership personnel.	› Alignment of asset management framework (AM Policy, Strategy and plans) including service levels and long-term financial plans. › Development of AM Steering Committee. › Regular asset management updates provided to Elected Members.	MEDIUM
Insufficient budget to meet service levels for maintenance and renewal	› Clear budget planning process, identifying any funding dependencies within planned/major upgrades. › Operational management plans for complex and high-risk sites. › 10-year financial planning and rolling three-year capital works program. › Regular condition audits of assets. › Community service levels developed through ongoing feedback.	MEDIUM
Lack of accuracy and consistency in asset management source data	› Satisfactory data confidence level in current asset information data levels through cyclic condition audits. See confidence levels. › Annual cyclic data collection schedule in place. › Ongoing improvements to data management guidelines. › Regular updates from routine maintenance spot checks/ issue reporting.	MEDIUM

Further risk treatments/actions	Target risk rating
› Implement RAMP actions for all asset classes and across the asset lifecycle. › Complete coastal adaptation planning including data collation, risk assessments and community engagement. › Integrated IPWEA Practice Note 12.1 into asset project design and planning processes.	MEDIUM
› Improving asset management maturity aligned with Asset Management Strategy improvement plan. › Keep Elected Members and Senior Leadership Committee informed via the Asset Management Steering Committee. Identify training where required.	MEDIUM
› AM Strategy Improvement Program Action Number 8 and Improvement Action 4: Review operational LoS and update responsibilities, resourcing and planning to meet agreed LoS. Implement system to prioritise, assess and action requests in-line with operational LoS. › AM Strategy Improvement Program Action Number 4: Undertake cyclic data collection to continue to improve data quality for decision making.	MEDIUM
› AM Strategy Improvement Program Action Number 3: Establish the data management framework and guidelines for asset register to future proof for predictive modelling. › AM Strategy Improvement Program Action Number 4: Undertake cyclic data collection to continue to improve data quality for decision making.	LOW

7. Risk Management

Stormwater risk statement	Current controls	Residual risk rating
Insufficient capacity for stormwater demands	› Stormwater Management Plan (SMP). › Stormwater AMP reflecting requirements from SMPs. › Future demands considered in SMP.	HIGH
Serviceability failure –clear blockages, appropriate fall, clean GPTs	› Regular inspections and responsive repairs/incident attendance. › CCTV inspection register and CCTV inspections of pits and pipes. › Regular street sweeping program and reactive cleaning of pits/pipes as required. › Pit audit 2023–24. › Cyclic GPT cleaning.	MEDIUM
Risk of change in community service standards or expectations	› Track service levels with Quality of Life Survey. › Community feedback through customer requests records. › Feedback through community engagement on strategies and plans.	MEDIUM

| Further risk treatments/actions	Target risk rating
› Improvement Plan Action 1: Review SMP (Glenelg to Marino). › Improvement Plan Action 2: Develop SMP (Sturt River). › Review and enforce agreed minimum standards in the Stormwater Management Plan. › Ensure there is an appropriate funding mechanism to complete infrastructure upgrades required in the SMP. › Development of Coastal Adaptation Planning to consider coastal storm events. › Continue to incorporate climate change projections into stormwater planning.	MEDIUM
› Increase budget for CCTV inspections. › Improvement Plan Action 3: Undertake increased inspections. › Increase kerb repair budget and undertake additional kerb repairs as prioritised.	MEDIUM
› Improvement actions 1 and 2 to complete SMPs. › Improvement action 4 to undertake a service review.	LOW

Table 7.1 Risk assessment

8. Improvement Plan

The following tasks have been identified for improving stormwater asset management practices and future versions of this plan.

Task No	Task	Responsibility	Resources required	Due for review
1	Review the Stormwater Management Plan (Coastal catchments between Glenelg and Marino).	Manager Engineering	Existing	December 2026
2	Complete the Stormwater Management Plan (Sturt River) with partner councils.	Manager Engineering	Existing	June 2027
3	Maintain CCTV register for critical pipe assets. Develop and undertake annual proactive and reactive CCTV inspection programs.	Project Manager (Civil)	Existing	June 2026 and Ongoing
4	Define operational service levels for assessment, prioritisation and action as part of the operational service level review.	Project Manager (Civil)	Existing	June 2027

Table 8.1 Improvement plan

Glossary of Terms
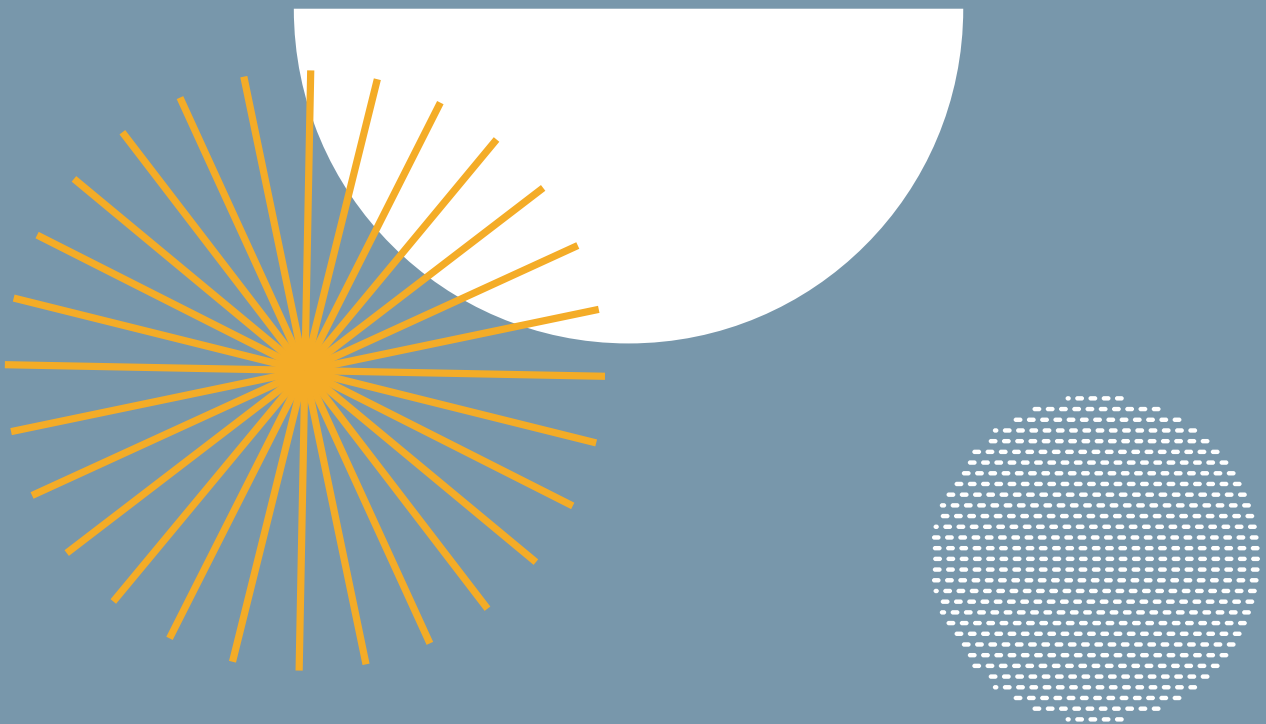
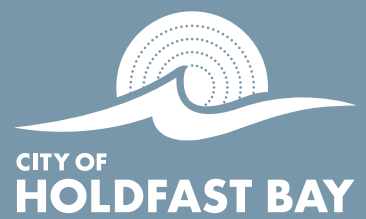| Key Term	Definition
Accumulated depreciation	The total amount of depreciation charged to an asset from when it was first recognised to a given point in time.
Asset	An individual or group of physical objects, which has value and enables services to be provided. This typically includes buildings, plant and equipment, playgrounds, sporting infrastructure, roads, pathways, stormwater drainage, and infrastructure.
Asset Category	Second tier in the data structure, a subset of assets with similar attributes.
Asset Class	An asset class is a grouping of assets of a similar nature and use. First tier in the data structure in line with the five asset management plans.
Asset Lifecycle	The lifecycle of assets can be defined in four stages including creation/acquisition, operations and maintenance, capital renewal/replacement, and decommission/disposal.
Asset Management	The combination of management, financial, economic, engineering and other practices applied to assets with the objective of providing the required service level in the most cost-effective manner.
Asset Management Framework	The Asset Management Framework consists of the three key asset management documents, the Asset Management Policy, Asset Management Strategy and Asset Management Plans.
Asset Management Plan	Long-term plans (usually 10 years) that outline the asset activities and programs for each asset class and resources applied to provide a defined level of service in the most cost-effective way.
Asset Management Strategy	The Asset Management Strategy outlines the high level, strategic approach to asset management. In other words, how it proposes to manage its assets.
Asset Management System	Encompasses all processes and interactions of asset management activities. Inclusive of organisational strategy, objectives, processes and procedures, asset register and software, data management, risk, and asset lifecycle activities.
Asset Sub-Category	Third tier in the data structure, a further second subset of assets with similar attributes.
Asset Type	Specific attribute with a unit rate used for valuation.

Glossary of Terms

Key Term	Definition
Capital expenditure	Expenditure which contributes to or results in a physical asset.
Capital renewal expenditure	Expenditure to replace or rehabilitate an existing asset.
Carrying value	The amount at which an asset is recognised after deducting any accumulated depreciation and accumulated impairment losses.
Commissioned assets	Assets within Council's asset register that have been assigned a value and are subject to depreciation.
Current Asset Cost	The cost of replacing an existing asset with a substantially identical new asset or a modern equivalent.
IIMM	International Infrastructure Management Manual providing guidelines for best management practices for infrastructure assets.
In-use assets	Assets within Council's asset register that currently exist and are providing a service.
ISO 55000	The ISO 55000 international standard for asset management provides terminology, requirements and guidance for implementing, maintaining and improving an effective asset management system.
Level of service	The defined service quality for a particular service/activity against which service performance may be measured.
Long term financial plan	Council's financial plan for a period of 10 years. Demonstrates financial sustainability in the medium to long term, while achieving the objectives in the Strategic Plan.
Maintenance expenditure	Any activity performed on an asset to ensure it is able to deliver an expected level of service until it is scheduled to be renewed, replaced or disposed.
New capital expenditure	Expenditure which creates a new asset in addition to Council's previously existing assets.
Operational expenditure	Ongoing expenditure for activities throughout an asset's life such as electricity, fuel, cleaning and inspections.
Useful Life	The useful life (UL) of an asset is the estimated length of time during which the asset is likely to be able to deliver a satisfactory level of service.