GLEN INNES

SEVERN COUNCIL

URBAN DRAINAGE ASSET MANAGEMENT PLAN

2025-2029

TABLE OF CONTENTS

1. EXECUTIVE SUMMARY

Council has adopted a drainage charge levied on all eligible assets.

The charge has been set at a level that allows for maintenance of open drains, investigation of drainage issues and funding of long-term replacement of drainage assets. While the drainage assets are theoretically not due for replacement, some lines are subject to ground movement and have become disjointed. Tree root ingress has also occurred, but this is not as problematic in stormwater drains as it is in other asset classes due to the lack of permanent wet conditions.

A number of drainage problems existed around Glen Innes prior to the implementation of the drainage charge. These resulted in water not escaping during rain events, which in turn impacted on urban street pavement assets and nearby properties. Council has rectified the worse of these drainage issues through a combination of pipe cleaning and pipe replacement.

Council is now entering a more strategic phase and plans to investigate the drainage network in detail using CCTV equipment to accurately determine the current condition of underground pipes throughout the network.

Historic construction of the asset database has been difficult without the ability to see underground, and often assets have been mapped incorrectly due to the assumptions made all the time. The inspection program will also identify these anomalies.

This phase of improving Council's knowledge of its drainage assets was identified in the 2020 version of this plan but was hampered by multiple natural disaster events and the global pandemic. External contractor support will be sought for CCTV mapping and a full review of the asset register. Rural drainage assets will also be added to this plan.

In addition to the cost of renewal assets, many areas of Deepwater have inadequate drainage. Council has used the drainage charge funds to obtain a highly accurate aerial survey of the two villages of Emmaville and Deepwater, enabling hydraulic calculations to be performed into the future.

1.2 BACKGROUND

This asset management plan covers the following infrastructure assets.

ASSET TYPE	QUANTITY	REPLACEMENT VALUE $	ACCUMULATED DEPRECIATION -$
URBAN PIPES	31km	17,556,957.58	-7,753,502.69
URBAN PITS	1,482	2,956,899.85	-1,157,293.56
TOTAL	**N/A**	**$ 20,513,857.44**	**-$ 8,910,796.25**

Table 2.1 *Assets covered by this plan*

2. INTRODUCTION

2.2 GOALS AND OBJECTIVES OF ASSET MANAGEMENT

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

GOAL	OBJECTIVE	HOW GOAL AND OBJECTIVES ARE ADDRESSED IN AN AMP
3.1.5 Construct, renew, and maintain Council's infrastructure assets to adopted standards, time and budget. Build resilience and maintain capability to repair assets following extreme weather damage – Stormwater Management (Urban)	Urban drainage system is functional and sustainable.	This plan identifies the management plans needed to maintain and renew the drainage asset class.

2.3 PLAN FRAMEWORK

Refer to Core Asset Management Plan.

3. LEVELS OF SERVICE

3.1 CUSTOMER RESEARCH AND EXPECTATIONS

Council has performed an external customer service generally of its service provision.

Stormwater was not included as one of the functions to be assessed, however feedback from the roads consultative committee has routinely stressed the importance of having adequate drainage: particularly in the rural road network. For that reason, the drainage charge will be extended to cover these assets and this plan will be broadened in the next iteration to capture the expanded asset class.

3.2 LEGISLATIVE REQUIREMENTS

Refer to Core Asset Management Plan.

3.3 CURRENT LEVELS OF SERVICE

Refer to Core Asset Management Plan.

Council's current levels of service are set out in Tables 3.4a and 3.4b.

Where table entries are shown as '#' data are unavailable. Future AMP revisions will include this information, as it becomes available.

3.4 DESIRED LEVELS OF SERVICE

Refer to Core Asset Management Plan.

KEY PERFORMANCE INDICATOR	COMMUNITY LEVEL OF SERVICE	PERFORMANCE MEASUREMENT PROCESS	TARGET PEFFORMANCE	CURRENT PERFORMANCE
SAFETY	Minimize risk to the public from drowning, pollution and spread of diseases.	Accident reports, Customer Requests.	Nil incidents.	Nil incidents.
QUALITY	Provide efficient method of collection and disposal of storm water.	Customer Service Requests regarding flowing or storm water nuisance.	<5 per month.	<5 per month.
FUNCTION	Adequate capacity to accommodate flow rates generated by 1 in 10-year storms.	Customer Request Service. Australian Rainfall Runoff technical specifications and guidelines.	<20 storm water blockages per 100 km pipe per annum.	<10 Customer service requests have been received. Staff inspect pipes during rain events and problems are investigated by CCTV Contractors.
SUSTAINABILITY	Facilities are managed for future generations.	Master Planning. Long term financial plan.	Infrastructure backlog ration for drainage assets <2%.	Infrastructure backlog ratio is 10%.
CONDITION	Minimum blockage, cracks deformation / damage and /or system deficiencies.	Length of pipes / reconstructed per annum.	Renew 1% of drainage infrastructure per annum.	Planned asset renewal rate is 1%.
COST EFFECTIVENESS	Proactive scheduled maintenance.	Percent of maintenance done by proactive repairs.		

4. FUTURE DEMAND

4.1 DEMAND FORECAST

Refer to Core Asset Management Plan.

4.1.2 Demand Factors

In determining the need for construction or upgrading of storm water infrastructure, the following aspects have been considered.

- Providing satisfactory protection of properties from flooding.

To enable fair and planned distribution of funding throughout the Council area, some of the factors influencing the prioritising of works are:

- Changing community expectations and demographics;
- Known areas of drainage under-supply;
- Storm water systems with high maintenance demands.

In the relevant asset classes, some issues which may influence future asset provision are:

- Resident expectations will be raised in the established areas and townships for kerb and storm water management provision matching those enjoyed by the newer areas.
- There will be an increased need to renew drainage in older areas.
- Expectations created by the introduction of a drainage charge that will drive demand for works in village and rural areas in particular.

4.2 CHANGES IN TECHNOLOGY

Further implementation of closed-circuit television (CCTV) inspections will improve the management of drainage infrastructure, particularly the coordination of maintenance activities , through enhanced data collection, analysis and dissemination systems.

Where drains are renewed, in-situ rehabilitation/replacement without surface disturbance may become more feasible. The incorporation of more recycled material into new products may increase also.

4.3 DEMAND MANAGEMENT PLAN

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

Opportunities identified to date for demand management are shown in Table 4.3. Further opportunities will be developed in future revisions of this asset management plan.

SERVICE ACTIVITY	DEMAND MANAGEMENT PLAN
STORMWATER MAINTENANCE AND UPGRADES	Upgrade systems to meet population growth demand and changes identified in review reports and planning studies. Construct mains in existing areas where drainage is substandard.
FLOOD ZONES / SAFETYIMPROVEMENT PLAN	Utilize the flood study model to optimize drainage design within Glen Innes

Table 4.3: *Demand Management Plan Summary*

4.4 NEW ASSETS FROM GROWTH

There are no new assets planned.

4.4.1 Assumptions Used in Projected Asset Growth

Refer to Core Asset Management Plan.

5. LIFECYCLE MANAGEMENT PLAN

The lifecycle management plan details how Council plans to manage and operate the assets at the agreed levels of service (defined in section 3) which optimizing life cycle costs.

5.1 BACKGROUND DATA

5.1.1 Physical Parameters

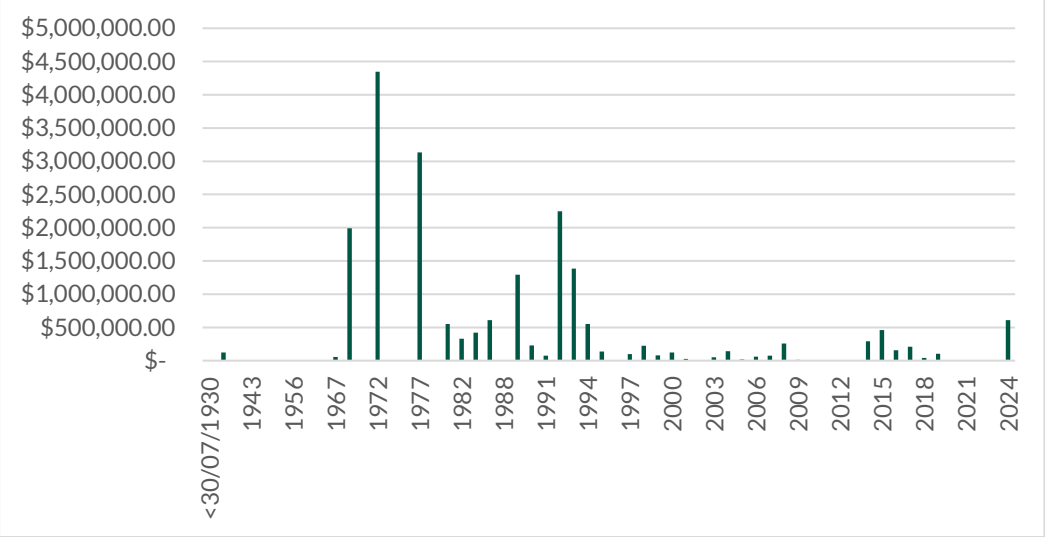

Figure 5.1.1 *Asset Age Profile*

5.1.2 Asset Capacity and Performance

Council's services are generally provided to meet design standards where these are available.

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

LOCATION	SERVICE DEFICIENCY
STORM WATER PIPES	Ground movement and improper construction practices have been identified in some pipes. These issues have led to early loss of function through the formation of holes at joints and lifting points, in some cases causing minor sinkholes to develop in road pavements and nature strips.
STORM WATER PITS / HEADWALLS	Blockages, breakages and movement of downstream pipes causes early failure of these assets. Increase land divisions which increase the load and volumes beyond

Table 5.1.2 *Known Service Performance Deficiencies*

The above service deficiencies were identified from regular safety and technical inspections undertaken by GISC Infrastructure staff.

5.1.3 Asset Condition

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

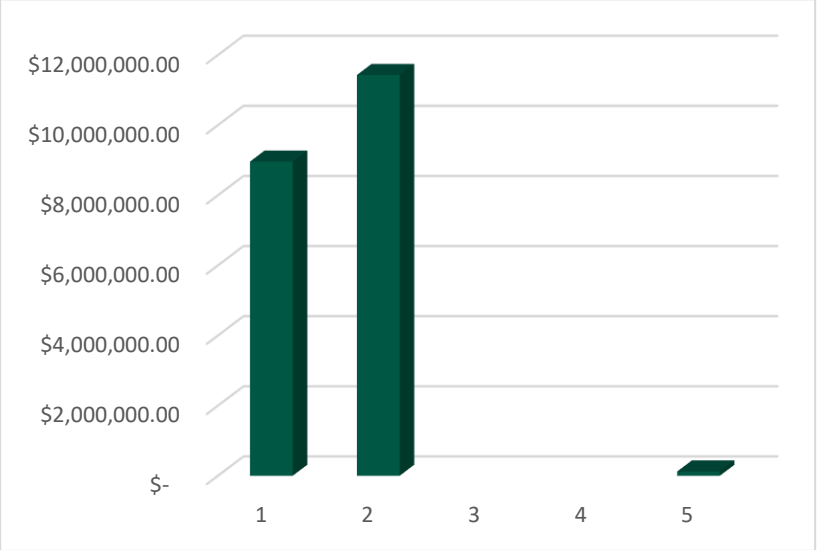

Figure 5.1.3 *Asset Condition Profile*

Condition is measured using a 1 – 5 rating system. [1]

RATING	DESCRIPTION OF CONDITION
1	Excellent Condition – Only planned maintenance required,
2	Very Good – Minor maintenance required plus planned maintenance.
3	Good – Significant maintenance required.
4	Average – Significant renewal; / upgrade required.
5	Poor – Unserviceable.

5.1.4 Asset Valuations

The value of assets at 2021 covered by this asset management plan is summarized below. Assets were last revalued internally in 2020. Assets are valued at Greenfield rates and do not include open drainage assets.

ASSET TYPE	QUANTITY	REPLACEMENT VALUE $	ANNUAL DEPRECIATION -$
RURAL PIPES	2,468		
URBAN PIPES	31km	17,556,957.58	181,023.27
URBAN PITS	1,482	2,956,899.85	27,744.96
TOTAL	**N/A**	**$ 20,513,857.44**	**-$ 208,768.23**

Table 5.1.4a: *Asset Summary*

[1] IIMM 2006, Appendix B, p B:1-3 ('cyclic' modified to 'planned')

Council's sustainability reporting reports the rate of annual asset consumption and compares this to asset renewal and asset upgrade and expansion.

FINANCIAL REPORTING CRITERION	PERCENT OF GROSS %
ASSET CONSUMPTION RATE	1%
ASSET RENEWAL RATE	0%
ASSET UPGRADE EXPANSION RATE	0%

5.2 RISK MANAGEMENT PLAN

An assessment of risks associated with service delivery from infrastructure assets has identified critical risks to Council. The risk assessment process identifies credible risks, the likelihood of the risk event occurring, the consequences should the event occur, develops a risk rating, evaluates the risk and develops a risk treatment plan for non-acceptable risks.

Critical risks, being those assessed as 'very high' – requiring immediate corrective action and 'High' – requiring prioritized corrective action identified in the Infrastructure Risk Management Plan are summarised in Table 5.2.

ASSET AT RISK	WHAT CAN HAPPEN	RISK RATING	RISK TREATMENT PLAN
HEADWALLS	Soil erosion may cause an element to collapse injuring people of other species	Medium	Register defect in customer request system. Maintenance, erosion protection and stabilization.
STORM WATER PIPES	Subsidised trenches are likely to cause injuries and property damage. Collapsed pipes or heavy rain events cause upstream overflowing with potential health and environmental impacts.	High High	Register defect in customer request system. Proactive maintenance, strict quality control of materials and workmanship during the installation / repairing and conformance with the specifications is essential. Percentage of flooding incidents or blocked drains and watercourse erosion incidents.
STORM WATER PITS	Misplaced lids and covers are major hazard for traffic and pedestrians.	High	Register defect in customer request system.
GROSS POLLUTANT TRAPS	The failure of storm water quality control devices	High	Proactive maintenance.
STORM WATER DRAINAGE DESIGN	The accuracy of catchment modelling	High	Design structures in accordance with the Australian Standards referenced in 5.3.2.

Table 5.2 *Critical Risks and Treatment Plans*

5.3 ROUTINE MAINTENANCE PLAN

Routine maintenance is the regular on-going work that is necessary to keep assets operating including instances where portions of the asset fail and need immediate repair to make the asset operational again.

5.3.1 Maintenance Plan

Maintenance includes reactive, planned, and cyclic maintenance work activities.

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

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

Regular vegetation control in open drains is required. Consideration will be given to the installation of low flow pipes to maintain a dry channel able to be mowed routinely where possible.

5.3.2 Standards and Specifications

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

- AS NZS 3500.3.2003 Plumbing and Drainage Part 3: Storm water drainage
- Australian Rainfall and Runoff 4th Edition
- Auspec and Nat spec

5.3.3 Summary of Future Maintenance Expenditures

Future maintenance expenditure is forecast to trend in line with the value of the asset stock as shown in Figure 5.3.3. Note that all costs are shown in current dollar values.

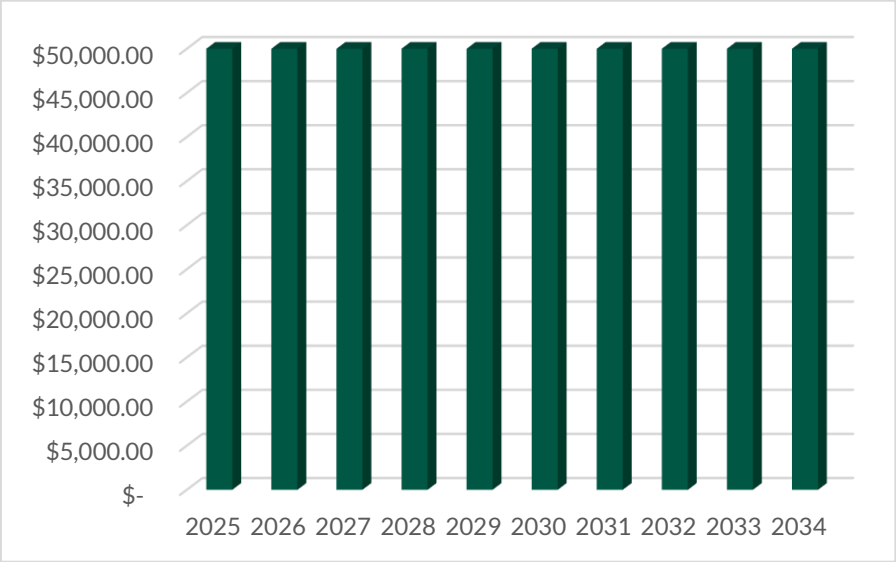

Figure 5.3.3 *Planned Maintenance Expenditure*

Deferred maintenance i.e., works that are identified for maintenance and unable to be funded are to be included in the risk assessment process in the Infrastructure Risk Management Plan.

Maintenance is funded from Council's operating budget and grants where available. This is further discussed in Section 6.2.

5.4 RENEWAL / REPLACEMENT PLAN

Renewal expenditure is major work which does not increase the asset's design capacity but restores, rehabilitates, replaces or renews an existing asset to its original service potential. Work over and above restoring an asset to original service potential is upgrade/expansion or new works expenditure.

5.4.1 Renewal Plan

Candidate proposals are inspected to verify the accuracy of remaining life estimates and to develop a preliminary renewal estimate. Verified proposals are ranked by priority and available funds and scheduled in future works programs. The priority ranking criteria is detailed in Table 5.4.1.

CRITERIA	WEIGHTING
RENEWAL AND MAINTENANCE OF STORM WATER DRAINAGE	Assessed by known sinkhole issues and the CCTV inspection program.
OPEN DRAINS	Drains are prioritized according to observed flow issues during storm events and hydraulic models developed through analysis of the elevation contour data obtained.

Table 5.4.1 *Renewal Priority Ranking Criteria*

Renewal will be undertaken using 'low cost' renewal methods where practical. The aim of low-cost renewals is to restore the service potential or future economic benefits of the asset by renewing the assets at a cot less than replacement cost. In some cases, this will involve reusing pipes that are in sound condition but have become displaced by ground movement.

5.4.2 Renewal Standards

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

- AS/NZS 3500.3.2003 Plumbing and Drainage Part 3: Storm water drainage using a 10% ARI.
- Australian Rainfall Runoff – 4th Edition
- Auspec and Natspec.

5.4.3 Summary of Future Renewal Expenditure

Projected future renewal expenditures are forecast to increase over time as the asset stock ages. The costs are summarized in figure 5.4.3a. Note that all costs shown are n current dollar values.

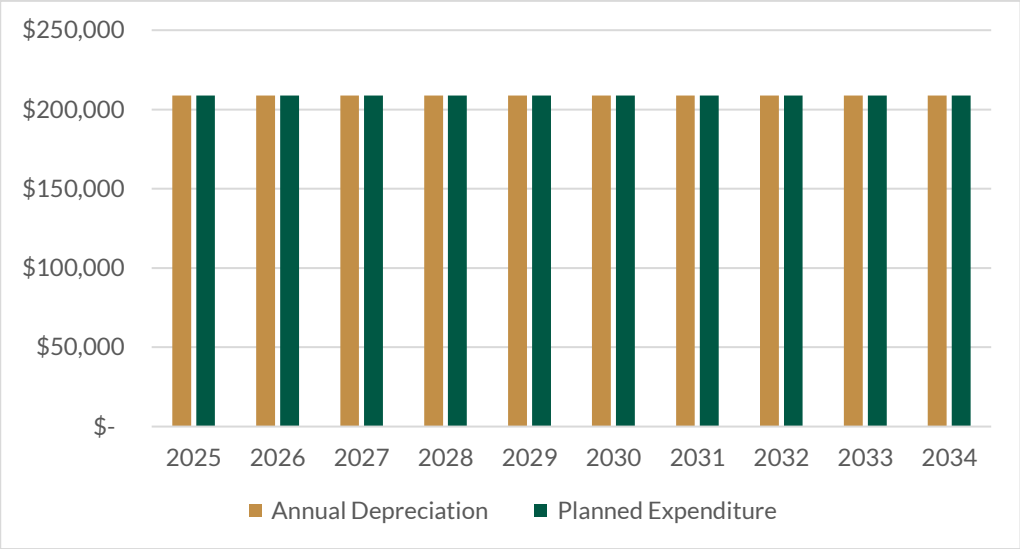

Figure 54.3 *Projected Capital Renewal Expenditure*

Renewals are to be funded from Council's capital works program and grants where available. This is further discussed in Section 6.2.

5.5 CREATION / ACQUISITION / UPGRADE PLAN

New Works are those works that create a new asset that did not previous exist or works which upgrade or improve an existing asset beyond its existing capacity. They may result from growth, social or environmental needs. Assets may also be acquired at no cost to the Council from land development. These assets from growth are considered in Section 4.4.

5.5.1 Selection Criteria

New Assets and upgrade / expansion of existing assets are identified from various sources which as councillor or community requests, proposals identified by strategic plans or partnerships with other organisations.

Candidate proposals are inspected to verify need and to develop a preliminary renewal estimate. Verified proposals are inspected to verify need and to develop a preliminary renewal estimate. Verified proposals are ranked by priority and available funds and scheduled in future works programs. The priority ranking criteria is detailed below.

CRITERIA	WEIGHTING
NEW STORM WATER PIPES AND PITS DUE TO DEVELOPMENT	These are constructed at the expense of the developer as the development occurs.
NEW STORM WATER PIPES AND PIT DUE TO LACK OF CAPACITY.	Pipes and pits are added or upgraded where other assets (normally roads) are being renewed, and the design capacity of the existing stormwater drainage is less than 10% ARI.
OPEN DRAIN UPGRADES	Deep open drains in Oliver Street Glen Innes will be considered for upgrade to a piped drain or reshaped and include a low flow pipe to facilitate dry ground for mowing where possible.
STORM WATER QUALITY (POLLUTANT TRAPS, INFILTRATION TRENCHES)	No current plans are in place to construct these assets.
EROSION/SEDIMENTATION MEASURES	No current plans are in place to construct these assets.

Table 5.5.1 *New Assets Priority Ranking Criteria*

5.5.2 Standards and Specifications

Standards and specifications for new assets and for upgrade/expansion of existing assets are the same as those for renewal shown in Section 5.4.2.

5.6 DISPOSAL PLAN

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

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

6. FINANCIAL SUMMARY

6.1 FINANCIAL STATEMENTS AND PROJECTIONS

6.1.1 Sustainability of Service Delivery

There are two key indicators for financial sustainability that have been considered in the analysis of the services provided by this asset category, these being long term life cycle costs and medium-term costs over 10-year financial planning period.

Long Term Life Cycle Cost

Life cycle costs (or whole of life costs) are the average costs that are required to sustain the service levels over the longest asset life. Life cycle costs include maintenance and asset consumption (depreciation expense). The annual average life cycle cost for the services covered in this asset management plan is $258,000.

Life cycle costs can be compared to life cycle expenditure to give an indicator of sustainability in service provision. Life cycle expenditure includes maintenance plus capital renewal expenditure. Life cycle expenditure will vary depending on the timing of asset renewals. The life cycle expenditure at the start of the plan is $258,000.

A gap between life cycle costs and life cycle expenditure gives an indication whether present consumers are paying their share of the assets they consume each year. The purpose of this storm water asset management plan is to identify levels of service that the community needs and can afford and develop the necessary long-term financial plans to provide the service in a sustainable manner.

The life cycle sustainability index is 100%.

Medium term 10 year financial planning period

Funding for the remainder of the delivery program will be adequate to keep pace with asset consumption using the previous financial modelling that is contained in the asset register. These will be reviewed, and it is hoped that actual costs will prove to be much lower than have been adopted in the past. The current iteration of this plan provides accurate modelling as project history accumulates and costs with associated variables become more accurately known.

Council will manage the ‘gap’ by developing this asset management plan to provide guidance on future service levels and resources required to provide these services.

6.2 FUNDING STRATEGY

Projected expenditure identified in Section 6.1 is to be funded from Council's operating and capital budgets. The funding strategy is detailed in the Council's 10-year long-term financial plan and is sourced from a drainage charge levied on properties within the area serviced by drainage assets. Longer term asset renewals require the setting aside of funds by current users of the assets to prevent placing an unfair burden on future generations.

Achieving the financial strategy will require an ongoing commitment to fund the increasing demand for asset renewals.

6.3 VALUATION FORECASTS

Asset values are forecast to increase as additional assets are added to the asset stock from construction and acquisition by Council and from assets constructed by land developers and others and donated to Council. Fig 6.3 shows the projected replacement cost asset values over the planning period in current dollar values.

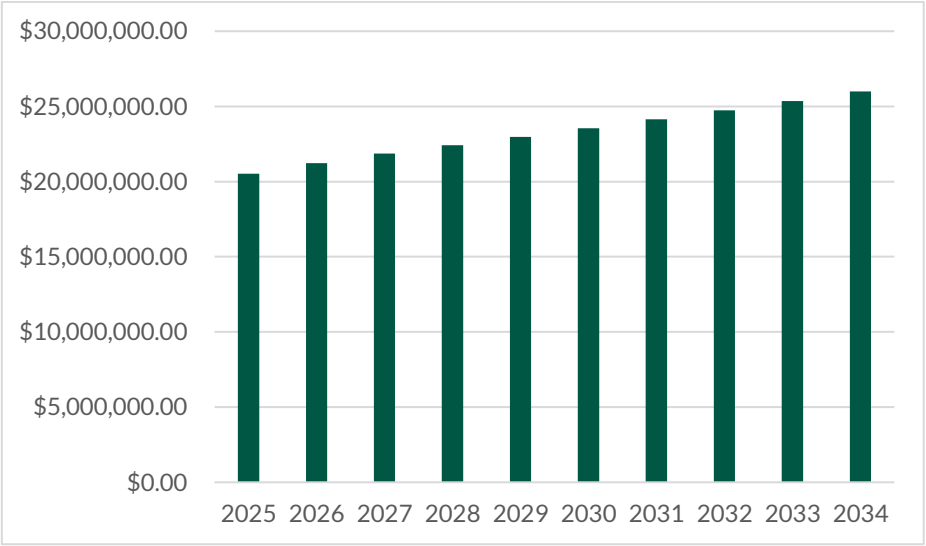

Figure 6.3a *Projected Asset Values*

6.4 KEY ASSUMPTIONS MADE IN FINANCIAL FORECASTS

This section details the key assumptions made in presenting the information contained in this asset management plan and in preparing forecasts of required operating and capital expenditure and asset values, depreciation expense and carrying amount estimates. It is presented to enable readers to gain an understanding of the levels of confidence in the data behind the financial forecasts.

Key assumptions made in this asset management plan are:

- Assumption of a normal weather conditions.
- Assumption that expected and adopted useful life of pipes, pits and headwalls will be achieved.

Accuracy of future financial forecasts may be improved in future revisions of this asset management plan by the following actions.

- Monitoring of the useful life of the existing pipe network via CCTV inspection.
- Undertaking regular defect surveys on drainage pits / headwalls.

- Undertake analysis of the increase of defects with time, and build this into future revisions of this Asset Management Plan

7. ASSET MANAGEMENT PRACTICES

7.1 ACCOUNTING / FINANCIAL SYSTEMS

Refer to Core Asset Management Plan

7.2 ASSET MANAGEMENT SYSTEMS

Refer to Core Asset Management Plan

7.3 INFORMATION FLOW REQUIREMENTS AND PROCESSES

Refer to Core Asset Management Plan

7.4 STANDARDS AND GUIDELINES

Refer to Core Asset Management Plan

7.5 DATA CONFIDENCE LEVEL

Data confidence levels for this AMP are rated as B or C.

8. PLAN IMPROVEMENT AND MONITORING

8.1 PERFORMANCE MEASURES

Refer to Core Asset Management Plan

8.2 IMPROVEMENT PLAN

The asset management improvement plan generated from this Asset Management Plan is shown in Table 8.2

TASK NO	TASK	RESPONSIBILITY	RESOURCES REQUIRED	TIMELINE
1	**Undertake yearly condition assessments of the drainage network with the aim for 100% coverage every five (5) years.**	Manager of Integrated Water Services	Yes	Annually
2	**Develop priority ranking system for storm water drainage upgrade program**	Manager of Infrastructure Delivery	Yes	Annually
3	**Undertake a review of this Asset Management Plan**	Assets Officer	Yes	Annually
4	**Separate maintenance expenditure into reactive and proactive lines**	Chief Financial Officer	Yes	During implementation of new finance system.
5	**Undertake proactive CCTV inspection of pipes by environmental conditions populate a condition database**	Manager of Infrastructure Delivery	Yes	Using in-house mains CCTV programs.

8.3 MONITORING AND REVIEW PROCEDURES

Refer to Core Asset Management Plan

REFERENCES

Refer to Core Asset Management Plan