Stormwater Drainage Asset Management Plan

2025

WAVERLEY
COUNCIL

Contents

1. Purpose and Scope

The Stormwater Drainage Asset Management Plan (AMP) outlines Waverley Council's approach to managing of stormwater infrastructure to meet Council's asset management objectives in risk mitigation, community service level achievement, long term financial and environmental sustainability, legislative and regulatory compliance, and continuous improvement.

The Stormwater Drainage AMP establishes:

- **Current asset inventory, valuation, and types of assets** within the stormwater asset class.
- **Current condition** of the stormwater assets, and how it is measured.
- **Community engagement outcomes**, methodology, and its influence on Council's targets.
- **Asset levels of service**, current state and its implications.
- **10+ Year financial forecast** for OPEX and CAPEX required for stormwater assets.
- **Maintenance, operations, and renewals** required for stormwater assets.
- **Risk minimisation approach and critical assets** within the stormwater asset class.
- **Continuous improvement** and operational efficiency opportunities for stormwater assets.

2. Asset Class Summary

Waverley Council owns and maintains a diverse $130 million portfolio of stormwater drainage assets that represent 9% of Council's total infrastructure asset portfolio value. The Stormwater Drainage asset class is crucial in supporting the safety and health of our community and its infrastructure during wet weather events. These assets minimise suburban flooding and control pollution within Waverley Council's 14 catchment areas, while harvesting stormwater for re-use.

The stormwater drainage asset portfolio is identified as an ageing long-lived infrastructure profile. The assets have been maintained in alignment with condition service levels, represented by an asset consumption ratio of 28%. Council acknowledges a need to continue to prioritise the maintenance and renewal of stormwater drainage assets to prevent accelerated asset degradation in the 10+ year period ahead. A total MoRUN expenditure of $2.6 million per year is required to ensure that the asset management objectives are achieved for this crucial asset class.

3. Asset Inventory and Valuation

As of the 30th of June 2024, the Stormwater Drainage asset portfolio has a calculated replacement cost of $130.2 million, and a depreciated value of $93.1 million that is attributed to the age and deterioration of the assets.

Table SW1: Valuation and Quantity of Asset Types - Stormwater Drainage Asset Class

ASSET CATEGORY	ASSET TYPE	CURRENT REPLACEMENT COST (CRC)	DEPRECIATED VALUE (NET CARRYING AMOUNT)	QUANTITY OF UOM	UOM	COUNT OF ASSETS
Stormwater Conduits	Box Culvert Rectangular	$22,849,783	$16,187,914	3,679	length(m)	158
Stormwater Conduits	Pipe Circular	$76,750,100	$53,407,249	84,568	length(m)	4548
Stormwater Harvesting	Gross Pollutant Trap	$1,644,163	$1,493,726	9	No.(each)	9
Stormwater Harvesting	Raingarden	$631,450	$507,512	305	area(m2)	19
Stormwater Harvesting	Stormwater Harvesting	$646,356	$595,342	6	No.(each)	6
Stormwater Pits	Converter Outlet	$164,801	$93,962	49	No.(each)	49
Stormwater Pits	Footpath Grate	$302,776	$176,096	132	No.(each)	132
Stormwater Pits	Grated Inlet Pit	$15,695,716	$12,340,140	2,865	No.(each)	2865
Stormwater Pits	Junction Pit	$10,649,105	$7,833,051	1,616	No.(each)	1616
Stormwater Pits	Kerb Inlet	$820,149	$433,510	122	No.(each)	122
	Total	**$130,154,400**	**$93,068,502**			**9524**

The current replacement cost and depreciated value is measured for each of the 9,524 individual assets within Council's asset register that constitute the Stormwater Drainage asset class.

The current replacement cost represents the full estimated expenditure that would be incurred by Council to replace the existing assets with new like-for-like assets. This is measured by a variety of evidence-based cost inputs detailed within Council's unit rate register.

The depreciated value represents the estimated remaining value of the assets that have deteriorated from the value of the assets since construction. It is a representation of the expected remaining useful life of the asset.

Waverley Council schedules a comprehensive revaluation for its stormwater asset class at least once every four years in line with requirements from AASB 13, The NSW Office of Local Government, and NSW Treasury. The comprehensive revaluation constitutes a review of asset condition, useful life, and unit rates within the asset class. Interim revaluations take place annually between comprehensive revaluations and typically constitute a desktop review with the application of published indices onto unit rates.

Table SW2: Revaluation Schedule - Stormwater Drainage Asset Class

FY 2022-23	FY 2023-24	FY 2024-25	FY 2025-26	FY 2026-27	FY 2027-28
Comprehensive Revaluation	Interim Revaluation	**Comprehensive Revaluation**	Interim Revaluation	Interim Revaluation	Interim Revaluation

A comprehensive revaluation for the Stormwater Drainage asset class was last completed on the 30th of June 2023 and the next comprehensive revaluation is scheduled to take place on 30th June 2025.

4. Asset Condition and Current State

Waverley Council requires specialist stormwater contractors to provide structural condition ratings and serviceability ratings of pits and pipes that are surveyed. The CCTV footage is then processed in VAPAR as a sanity check. VAPAR is an AI software that produces condition ratings from our CCTV footage; its machine learning is trained to assess condition through the WSA 2020 Conduit Inspection Reporting Code providing scores of 1 - Very Good to 5 - Very Poor. Through the FY24-25 pit and pipe audit program, Waverley Council has commenced the development of an ongoing defect register to record all low, medium, and high priority structural and serviceability issues.

In FY23-24, Council developed and implemented its Fair Valuation Methodology to ensure financial reporting compliance, and to support the planning process for its $1.3bn infrastructure asset portfolio. The Fair Valuation process identified the need for periodic condition assessments across all asset classes that would support a planned 4-yearly Comprehensive Revaluation. This program was developed in alignment with the OLG Code of Accounting Practice and Australian Accounting Standards Board.

The assessment yielded that Stormwater Drainage was an ageing infrastructure asset class approaching its end of life, with the majority of the infrastructure designed and built in the 1930s and 1940s amongst a planned design life of 100-120 years. Due to extensive costs and complexity in identifying and assessing these long-life underground assets, there has been limited data and condition collection programs developed for Stormwater Drainage within Waverley's history. Furthermore, recent history has presented concerns with increased severe weather events, rainwater, demand and loading resulting in reactive enquiries across this crucial infrastructure.

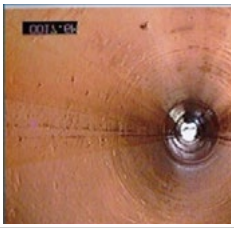
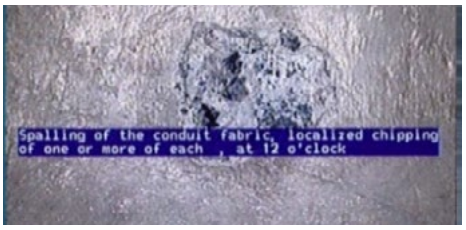
The Stormwater Drainage asset class was subsequently nominated for prioritised Comprehensive Revaluation in FY24-25, which provided Council with the opportunity to:

- Standardise the robotic CCTV condition assessment scope to provide benchmarked Structural Condition ratings (1-5), Serviceability ratings (1-5); supporting cost planning for inspections moving forward.
- Commence a defect capture program to support maintenance and capital renewal program demand, as well as root cause analysis moving forward.
- Centralise the inspection program function between Council teams including Civil Maintenance, Public Places, Infrastructure Programs, Asset Networks and Major Projects to ensure inspection programs are appropriately prioritised and completed without overlaps. This is supported through a Fortnightly Stormwater Activities Coordination meeting.
- Ensure that all inspections completed and appropriately captured in asset registers for financial reporting compliance.
- Ensure that all footage and condition ratings are centralised and shared with all Council staff and communicated to operations and planning teams through our spatial asset information tool, "Discover".
- Improve cost effectiveness through bulk inspection programs to ensure minimal contractor charges to travel costs and site preparation

In FY24-25, Council allocated $200,000 to its Stormwater Pit and Pipe audit to commence this program and to engage specialist stormwater contractors. With the consumption of $160,000 of this budget, Council has surveyed about 10% of the entire stormwater drainage network. This comprises 459 pipes out of Council's entire network 4663 pipes; or about 8.1km of Council's network of 87.2km of pipeline,

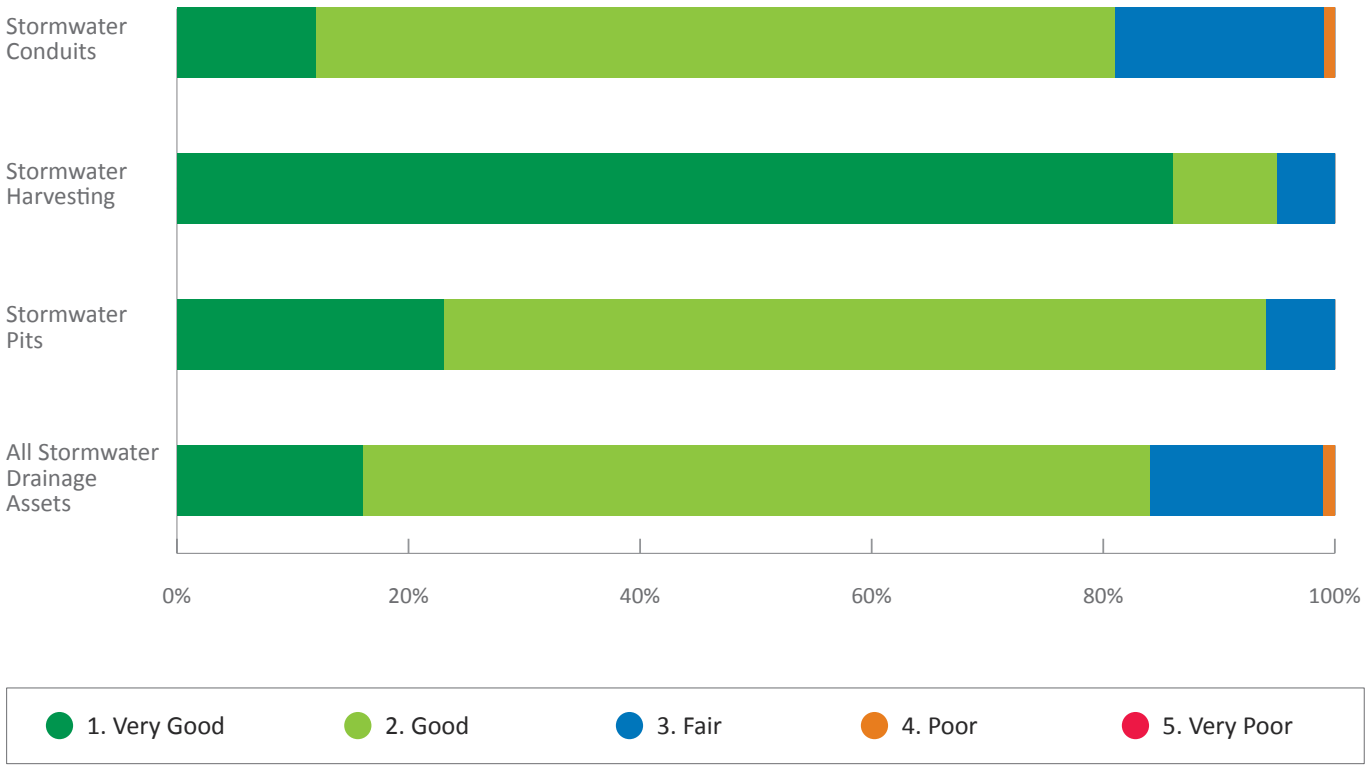
The centralised inspection program and standardised scope not only provides more holistic reporting outcomes to serve all of Council's operational and planning needs, but Council also estimates a cost and productivity efficiency gain of 200% to 300% in cost per pipe inspection compared with non-centralised and reactive engagements in previous years.

Table SW3: Asset Condition Examples - Stormwater Drainage Asset Class

ASSET CONDITION RATING	PHOTO	DESCRIPTION	REMAINING USEFUL LIFE
1 - Very Good	 	New pipe or no significant damage. This condition state includes relined pipes. Healthy raingarden.	95%
2 - Good		Minor Displaced Joint (0.2 to 0.5 x pipe thickness). Minor Open Joint (0.2 to 0.5 x pipe thickness). Minor Surface Damage. Minor Localised Cracking, less than 1m long.	72.5%
3 - Fair	 	Medium Displaced Joint (0.5 to 1 x pipe thickness). Medium Open Joint (0.5 to 1 x pipe thickness). Medium Surface Damage / exposed reinforcement / spalling. Moderate circumferential, longitudinal or crocodile cracking.	50%
4 - Poor	 	Large Displaced Joint (more than 1 x pipe thickness). Large Open Joint (more than 1 x pipe thickness). Significant Cracking. Large Surface Hole (hole diameter more than 0.6 x pipe diameter). Reduction in cross-sectional area (more than 40%).	27.5%
5 - Very Poor	 	Significant defects and asset end of life reached. Deformed or collapsed asset and full replacement is required. End of life HydroCon pipe.	5%

As of the 30th of June 2024, Council maintains an asset portfolio with 99% of Stormwater Drainage infrastructure (by valuation) in condition 3 - Fair or better.

Graph SW4: Condition by Asset Category - Stormwater Drainage Asset Class



5. Community Consultation

Between November 2024 and January 2025, Waverley Council conducted a series of community consultation activities to gather feedback on priorities and satisfaction levels regarding infrastructure assets.

SAMP Deliberative Panel Workshops (5th and 7th Nov 2024): Council representatives provided an overview of its infrastructure asset portfolio. The 26 randomly selected residents provided feedback to inform Council's asset management resourcing prioritisation and service levels.

Issues Workshop (13th Nov 2024): Council representatives provided an overview of the challenges and issues that Waverley Council faces. The maintenance of public infrastructure and local centre upgrades was discussed with 49 community participants who provided their feedback, their high importance assets, and their satisfaction levels.

SAMP Online Budgeting Tool (12th Nov 2024 to 31st Jan 2025): An online budgeting tool was made available to the community via Council's Have Your Say website. A total of 18 people provided a submission where they ranked and prioritised a limited funding budget to Council's asset classes.

Council has identified the below opportunities through the three community consultation activities.

- **Service Levels and Prioritisation:** Stormwater drainage assets were identified to be a low priority asset class from the community, ranking 2nd lowest priority for maintenance and lowest priority for renewal amongst other infrastructure asset classes. The SAMP deliberative panel workshops yielded above average scores for satisfaction, while the issues workshop yielded below average satisfaction. Council notes that the low priority rating and inconsistency in satisfaction may have been a result of lesser general public knowledge about these underground stormwater assets which some participants also stated.
- **Flood Minimisation:** Participants highlighted concerns about blocked stormwater drainage as a result of debris being swept from the kerb and gutter into the stormwater pits. This practice may be investigated and assessed for impact to easing blockages in the stormwater pits and pipes.

5.1. SAMP Deliberative Panel Workshops

In November 2024, Waverley Council engaged residents to inform the Strategic Asset Management Plan. An external agency was engaged to independently recruit a demographically diverse panel of 26 interested participants. The selection of participants was designed to reflect the diverse mix of the community within the Waverley LGA. This included location, age, gender, housing tenure, language spoken at home, ability, and whether the participant was a First Nations person.

Through a mixture of online Zoom call presentations and physical asset information packs, Council provided an overview of the Stormwater Drainage asset class, including its current condition, maintenance, and renewal programs. Participants used Mentimeter (an interactive online polling tool) to provide feedback on their satisfaction levels and future priorities.

Waverley Council obtained the below key insights from participants regarding the stormwater drainage asset class.

- **Satisfaction levels:** On average, the participants expressed slightly more satisfaction in the stormwater assets than a neutral position. Some participants indicated that they did not have enough knowledge about this asset class to provide informed feedback.
- **Resourcing:** Some participants felt that it would be sufficient to maintain the same level of resourcing to stormwater asset maintenance and renewals, while others recommended more resources to be allocated. Population growth and heavy rain forecasts were identified as reasons to continue to place importance on stormwater drainage to prevent flooding, water on roads, and poor water quality. Of the 6 asset classes discussed, stormwater drainage was identified as the 2nd highest lowest priority for maintenance resource allocation, and lowest priority for renewal resource allocation.
- **Localised overflow:** Some participants noted heavy rain as an issue in localised areas of the LGA such as Edward Street, Penkivil Street and Bondi Road. Concern was raised that street sweeping activities often swept or blew debris into the stormwater pits which could be a cause to blockages during heavy rain. Parked cars also meant that sweeper trucks could not reach the gutters, resulting in the need for someone to walk ahead of the truck to blow out debris and clear the gutters.
- **Water quality:** Some participants stated a need for improved water quality, to replace old pipes, and to prevent debris being washed into the ocean after rain events.

Figure SW5: : Satisfaction levels using Mentimeter Platform - Stormwater Drainage Asset Class
(1 = Strongly Disagree, 5 = Strongly Agree).

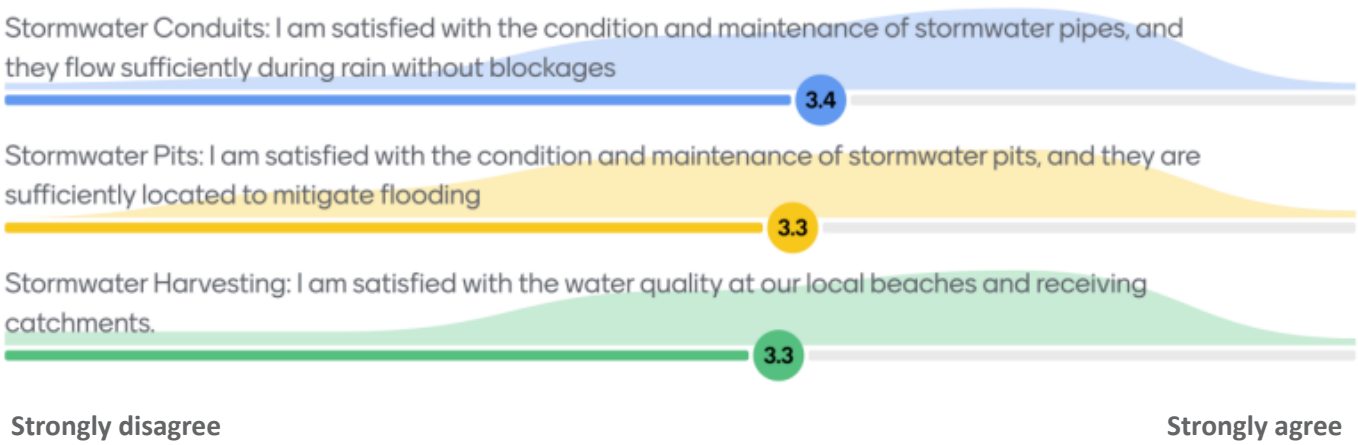


Figure SW6: Asset Class Prioritisation Ranked by Residents for Maintenance Resourcing

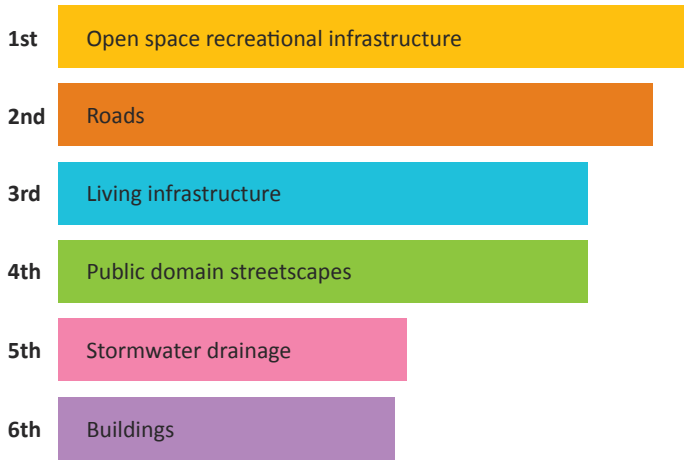
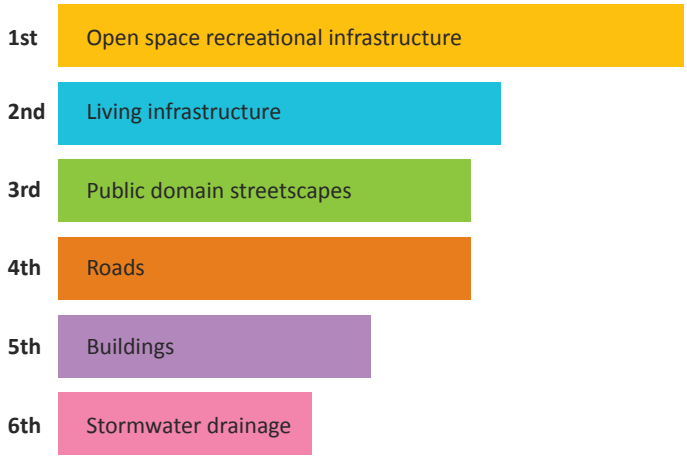


Figure SW7: Asset Class Prioritisation Ranked by Residents for Renewal Resourcing



5.2. Issues Workshop

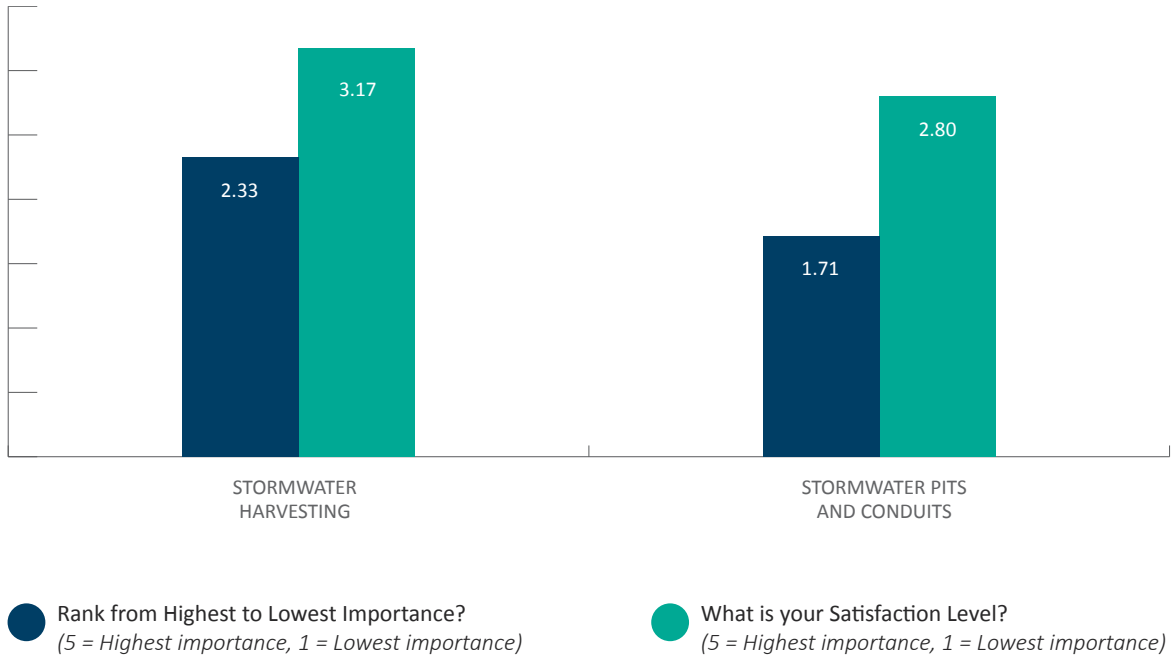
In November 2024, Waverley Council hosted an Issues Workshop at the Bondi Pavilion, where 49 residents provided feedback on public infrastructure maintenance and local centre upgrades, amongst other important topics. Participants registered via the Have Your Say website.

The issues workshop covered all infrastructure assets, and Council obtained the below key insights regarding the Stormwater Drainage asset class.

Blocked drains: Participants raised a range of issues related to leaf litter blocking drains and poor stormwater infrastructure, resulting in concerns of flooding within the LGA.

Satisfaction levels: The stormwater drainage asset class was given an average satisfaction score of 2.98 out of 5 which was lower than the average score of 3.5 out of 5 across all asset classes. Participants who responded, provided a low satisfaction score for Council's stormwater harvesting, pits, and conduits

Graph SW8: Asset Categories Ranked for Importance and Satisfaction - Stormwater Drainage Asset Class

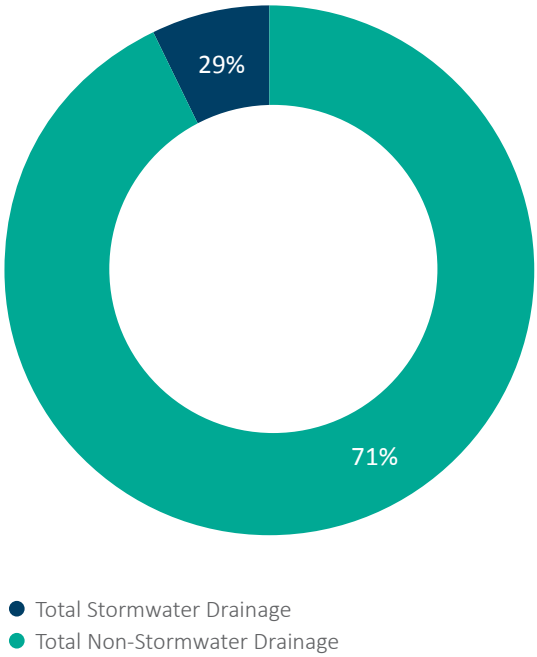


5.3. SAMP Online Budgeting Tool

Waverley Council opened an online budgeting tool on its Have Your Say website between 12th November 2024 and 31st January 2025. This tool provided flexibility for all members of the community to complete online, and in their own time. Participants were given a hypothetical budget of $100 that they could distribute across 20 asset categories using a sliding scale. Council received a total of 16 submissions through this tool.

On average, participants chose to allocate 7% ($7 of the total $100) of Council's asset renewal budget to stormwater drainage assets.

Graph SW9: Residents' Prioritisation of Renewals Budget - Stormwater Drainage Asset Class



6. Asset Levels of Service

Waverley Council monitors five key measures of asset service levels to ensure alignment and success with its asset management objectives and principles.

6.1. Asset Condition and Performance

Asset condition and performance is assessed based on the structural condition (1 – Very Good to 5 – Very Poor) for each stormwater asset type and category. The service levels are maintained through the delivery of effective asset maintenance schedules and renewal programs, ensuring that assets remain above the minimum condition standard.

These service levels are designed to minimise risk to the community, meet community expectations for infrastructure performance, and ensure long-term financial and environmental sustainability. The target performance for asset condition is determined through a combination of optimised financial maintenance and renewal intervention points, safety risk assessments to reduce hazards, and community feedback from the asset satisfaction and importance surveys.

Waverley Council strives to enhance the asset condition and quality service levels through the below improvements.

- Using benchmarked and empirical data to refine asset degradation profiles and aligning financial depreciation to these profiles.
- Identifying optimal maintenance and renewal intervention points and methodologies using benchmarked and data-driven financial and engineering models.
- Expanding community survey sample sizes to improve the reliability and consistency of satisfaction and importance surveys.
- Using these insights to model funding scenarios to strike a balance between engineering best practices, financial sustainability, and community expectations.

This streamlined approach to defining and achieving minimum condition standards ensures cost-effective infrastructure upkeep and higher service reliability for the community through evidence-based asset management decisions.

Table SW10: Preferred Minimum Structural Condition - Stormwater Drainage Asset Class

PERFORMANCE MEASUREMENT	ASSET TYPE / CATEGORY	TARGET PERFORMANCE	PERFORMANCE AS AT 30/06/2024
Council's asset condition assessments and asset register	Stormwater Conduits	80% in condition 1 and 2 100% in condition 1, 2, and 3	81% in condition 1 and 2 99% in condition 1, 2, and 3
	Stormwater Harvesting	80% in condition 1 and 2 100% in condition 1, 2, and 3	95% in condition 1 and 2 100% in condition 1, 2, and 3
	Stormwater Pits	80% in condition 1 and 2 100% in condition 1, 2, and 3	94% in condition 1 and 2 100% in condition 1, 2, and 3

6.2. Asset Availability and Response Time

The asset availability and response time service level is assessed based on Council's ability to respond to and resolve infrastructure-related customer requests within the timeframes set by Council's Customer Charter. This service level is designed to ensure that infrastructure issues are addressed promptly, meeting community expectations while minimising risks associated with stormwater asset defects.

To improve service delivery, Waverley Council strives to achieve the following improvements.

- Defining response time targets for infrastructure related enquiries for initial inspections and triaging to ensure that resources are allocated efficiently.
- Creating a defect classification register, mapping different stormwater asset defect types to predefined rectification work orders to ensure appropriate resolution methods and timeframes are allocated.
- Implementing risk-based resolution times such that work orders are allocated due dates and prioritised based on the criticality of asset locations and defect classifications.
- Establishing an integrated system for customer requests, asset information, and work order management to centralise and streamline the approach to acceptance of request, prioritisation of request, triaging of issue, and resolution of issue.
- Establishing performance monitoring dashboards to track and report response time metrics, improving accountability and service resilience.

This structured response and works management system will enable Waverley Council to deliver higher service reliability, reduce risks, and meet community expectations efficiently. It ensures that stormwater infrastructure issues are addressed in a timely manner based on asset criticality, defect and location risk, and community needs.

PERFORMANCE MEASUREMENT	ASSET TYPE / CATEGORY	TARGET PERFORMANCE
Council's Customer Request Management System (Merit)	All stormwater drainage asset types.	90% of requests are responded to and resolved within Council's customer charter.

6.3. Community Satisfaction

Waverley Council measures community satisfaction service levels through community engagement surveys and asset satisfaction reports. These surveys assess whether infrastructure services align with community expectations and ensure that Council's asset management activities effectively address public needs.

The community satisfaction surveys enable Council to understand and evaluate public perception of asset quality, maintenance, and response times. It identifies gaps in service delivery and areas for improvement and resource prioritisation to refine service levels and infrastructure planning. Feedback sessions, satisfaction trends, and community concerns enable Council to assess resource adequacy in meeting service expectations in maintenance schedules, renewal priorities, and response times.

By continuously engaging with the community, Waverley Council ensures a responsive and community centric approach to asset management.

PERFORMANCE MEASUREMENT	TARGET PERFORMANCE
Community satisfaction report	Attaining a 'High' or 4 out of 5 satisfaction score.

6.4. Financial Sustainability

The financial sustainability of Waverley Council's stormwater assets is assessed based on asset condition, renewal expenditure, and the rate of asset depreciation. By achieving these service levels, Council ensures that infrastructure assets are sufficiently funded to maintain their minimum required condition now, and into the future. Capital expenditure is strategically allocated to the most critical assets at the most financially viable intervention points.

Waverley Council uses four key financial ratios to evaluate funding sufficiency and renewal efficiency:

- **Asset Consumption Ratio:** This ratio measures the extent to which an assets useful life has been consumed. The ratio is important for long-term distribution of renewal demand and financial sustainability. A position below the target would indicate that Council is overspending and renewing assets too early. A position above the target would indicate that assets are not meeting minimum asset condition expectations from the community, and that Council is accumulating unsustainable backlog.

$$\text{CONSUMPTION RATIO} = \left(\frac{\text{ACCUMULATED DEPRECIATION}}{\text{TOTAL ASSET REPLACEMENT COST}} \right) \times 100$$

The stormwater asset class consists of long-lived assets that deteriorate over time due to loading, weather conditions, and material aging. To maintain an optimal balance between serviceability and financial sustainability, Waverley Council targets an Asset Consumption Ratio of 30% to 50%. This ensure that stormwater assets are neither renewed too early and too frequently, nor are they underfunded and resulting in increased risk and backlog to Council.

Council strives to ensure that the consumption ratio is appropriately designated across different stormwater asset types and locations based on criticality and optimal renewal intervention points. A well distributed asset consumption across the LGA ensures financial sustainability and a balanced distribution of asset renewal intervention points year-on-year over the long term.

- **Annual Renewal Funding Ratio:** This ratio measures how effectively Council has funded stormwater asset renewals and replacements when compared with the depreciation of the assets. This measure provides insight into whether the assets are renewed at a sustainable rate each year.

$$\text{RENEWAL FUNDING RATIO} = \left(\frac{\text{ACTUAL RENEWAL EXPENDITURE}}{\text{DEPRECIATION EXPENSE}} \right) \times 100$$

To meet minimum asset performance targets, stormwater assets are maintained, refurbished, or reconstructed to at least Condition 3 – Fair. Assets that reach Condition 4 – Poor (72.5% consumption) must be renewed to prevent safety and reputational risks to Council.

Stormwater assets will be scheduled for a full rectification as they approach Condition 4. In circumstances where asset damage is localised (e.g. isolated pipe breakage), partial renewals, patching or relining may be undertaken. Pipe relining and patching is assessed to be more cost effective than full pipe replacement due to material cost, labour cost and construction time, as it minimises site preparation and establishment costs including traffic control, as well as project management overheads.

Council typically partially renews assets when they reach 27.5% remaining useful life, which is consistent with maintaining minimum asset condition levels that align with community expectations. Council avoids running assets to complete failure and deterioration to Condition 5 – Very Poor (100% consumption), as failed stormwater assets would pose significant safety and reputation risk to Council and the community through flooding and infrastructure collapses.

Council sets its Renewal Funding Ratio target between 90% and 110% as stormwater assets are typically partially renewed to good condition as they approach 72.5% consumption, and very rarely are the assets run to 100% consumption before full renewal.

- **10+ Year Long-Term Funding Ratio:** This ratio is similar to the Renewal Funding Ratio. However, rather than measuring the previous year's renewal expenditure, it assesses whether Council's 10+ Year planned renewal expenditure is adequate in supporting the services and expectations of Council's existing infrastructure and the forecasted depreciation expense.

$$\text{LTFR} = \left(\frac{\text{PLANNED ASSET RENEWAL EXPENDITURE (10+YRS)}}{\text{ACCUMULATED DEPRECIATION EXPENSE (10+YRS)}} \right) \times 100$$

As with the targets set for the Renewal Funding Ratio, Council sets its 10+ Year Long-Term Funding Ratio target between 90% and 110% as stormwater assets are typically partially renewed as they approach 72.5% consumption and restored to good condition. Very rarely are the assets run to 100% consumption before full renewal.

- **Backlog Ratio:** This ratio measures the proportion of infrastructure assets that are in Condition 4 – Poor and Condition 5 – Very Poor that require renewal. The backlog ratio allows Council to assess the extent of deferred renewal, renewal funding adequacy, and risks to community service levels.

$$\text{BACKLOG RATIO} = \left(\frac{\text{TOTAL ASSET BACKLOG REPLACEMENT COST}}{\text{TOTAL ASSET REPLACEMENT COST}} \right) \times 100$$

Council aims to achieve a backlog ratio of less than 2% to demonstrate that renewal programs are prioritised to deteriorating assets as to prevent decline into poor condition and to minimise risks to the community.

Table SW11: Financial Sustainability Service Level Performance - Stormwater Drainage Asset Class

PERFORMANCE MEASUREMENT	ASSET TYPE / CATEGORY	TARGET PERFORMANCE	PERFORMANCE AS AT 30/06/2024
Asset Consumption Ratio	All stormwater drainage asset types.	Between 30% and 50%	28%
Annual Renewal Funding Ratio	All stormwater drainage asset types.	Between 90% and 110%	76%
10+ Year Long-Term Funding Ratio	All stormwater drainage asset types.	Between 90% and 110%	91%
Backlog Ratio	All stormwater drainage asset types.	Less than 2%	0.8%

6.5. Safety

Waverley Council prioritises safety in the quality, design, and usage of its stormwater drainage infrastructure, as well as in the services that it provides to the community. The safety service level is assessed based on a commitment to continuous improvement in reducing stormwater incidents and safety incidents within the LGA. Waverley Council ensures that stormwater assets are constructed and maintained in compliance with Australian Standards and regulatory requirements to minimise risks for the community.

Table SW12: Safety Service Level Performance - Stormwater Drainage Asset Class

PERFORMANCE MEASUREMENT	ASSET TYPE / CATEGORY	TARGET PERFORMANCE
Annual inspections, operational reports and safety audits	All roads infrastructure asset types.	Three-year annual average traffic accidents are decreasing
Compliance and customer surveys	All roads infrastructure asset types.	Compliance with relevant Australian Standards and regulatory requirements

7. Long Term Financial Plan and Sustainable Funding Scenario

In December 2024, Waverley Council engaged external financial and asset management consultants to assess Council's long term financial sustainability and advise on the development of Council's Asset Management Strategy. A sustainable funding scenario was developed based on the technical levels of service, which were used to calculate the funding that would be required to sustainably treat and manage the assets.

The technical levels of service model guides service delivery through the MoRUN framework: Maintenance and Operations, Renewal, Upgrade and New. The scenario prioritises asset renewal and replacement to maintain service levels, acknowledging that the construction of new and upgraded infrastructure results in higher ongoing maintenance and operations costs.

Table SW13: Average Annual Funding Requirement based on Sustainable Funding Scenario - Stormwater Drainage Asset Class

ASSET CATEGORY	CURRENT REPLACEMENT COST (CRC)	ANNUAL O&M COST REQUIREMENT AS A PERCENTAGE OF CRC	ANNUAL O&M COST REQUIREMENT	ANNUAL CAPITAL RENEWAL REQUIREMENT	ANNUAL CAPITAL NEW & UPGRADE REQUIREMENT
Stormwater Conduits	$99,599,883	0.50%	$497,999	$1,025,248	$-
Stormwater Harvesting	$2,921,969	5.00%	$146,098	$30,078	$-
Stormwater Pits	$27,632,548	2.00%	$552,651	$284,440	$-
Total	**$130,154,400**	**0.9%**	**$1,196,749**	**$1,339,766**	**$-**

The Sustainable Funding Scenario equates to a full OPEX and CAPEX program of about $25.4 million over the next 10-Years, while the current Long Term Financial Plan Projection comprises about $26.2 million over the same period. This 3.3% variance is attributed to existing Upgrade & New project demand and commitments.

Table SW14: Sustainable Funding Scenario Versus LTFP Projection - Stormwater Drainage Asset Class

SCENARIO	ANNUAL O&M FUNDING REQUIREMENT	ANNUAL CAPITAL RENEWAL FUNDING REQUIREMENT	ANNUAL CAPITAL UPGRADE & NEW FUNDING REQUIREMENT	ANNUAL TOTAL	10-YEAR TOTAL
Sustainable Funding Scenario	$1,196,749	$1,339,766	$-	$2,536,515	$25,365,148
LTFP Projection	$1,112,703	$890,000	$618,182	$2,620,885	$26,208,850
Variance	-7.0%	-33.6%		3.3%	3.3%

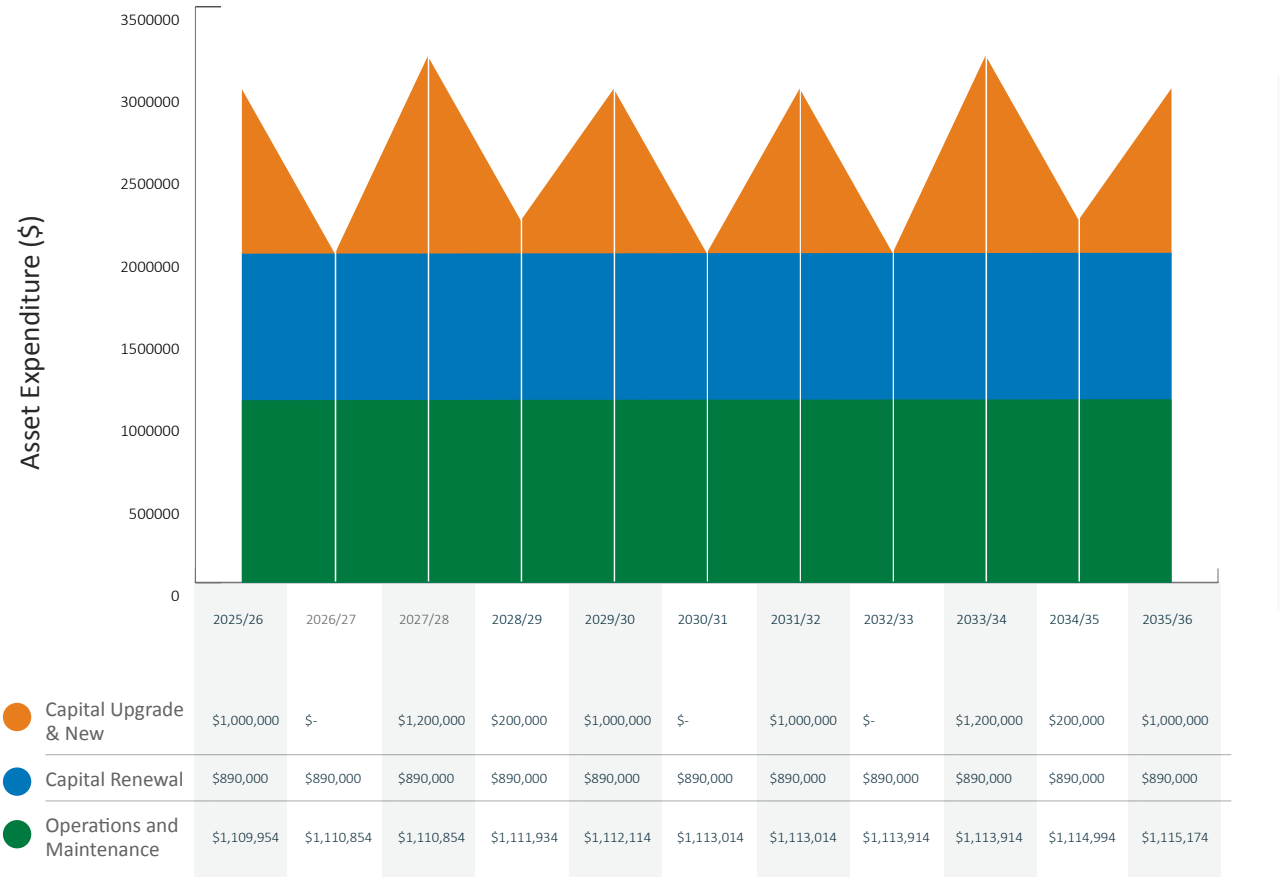
In developing Council's asset renewals plans, consideration is given to the target service levels in each asset category and the current condition of the asset inventory. Council's overall strategy for asset renewal is to initially ensure that the overall network condition is maintained. This will be achieved by renewing assets at the optimum point of their life cycle to maximise Council's renewal expenditure and achieve the desired service level. As such, Council's renewal strategy will be a bottom-up approach.

Table SW15: Planned 11 Year LTFP CAPEX Program - Stormwater Drainage Asset Class

LTFP 7 CAPITAL WORKS PROGRAM	GRANT FUNDING	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	TOTAL PROPOSED COSTS
Stormwater Drainage Infrastructure	**$4,190,372**	$1,890,000	$912,250	$2,195,806	$1,173,811	$2,086,206	$1,006,953	$2,191,821	$1,057,930	$2,546,462	$1,361,261	$2,419,360	**$18,841,860**
Stormwater Conduits & Pits Renewal	**$1,952,189**	$850,000	$871,250	$893,031	$915,357	$938,241	$961,697	$985,739	$1,010,383	$1,035,642	$1,061,534	$1,088,072	**$10,610,946**
Stormwater Conduit & Pit Condition Based Renewals	**$1,952,189**	$850,000	$871,250	$893,031	$915,357	$938,241	$961,697	$985,739	$1,010,383	$1,035,642	$1,061,534	$1,088,072	**$10,610,946**
Stormwater Harvesting Renewal	**$91,868**	$40,000	$41,000	$42,025	$43,076	$44,153	$45,256	$46,388	$47,547	$48,736	$49,955	$51,203	**$499,339**
Stormwater Harvesting Condition Based Renewals	**$91,868**	$40,000	$41,000	$42,025	$43,076	$44,153	$45,256	$46,388	$47,547	$48,736	$49,955	$51,203	**$499,339**
Stormwater Drainage Improvement Program	**$2,146,315**	$1,000,000	$-	$1,260,750	$215,378	$1,103,813	$-	$1,159,693	$-	$1,462,083	$249,773	$1,280,085	**$7,731,575**
Water Saving & Quality Improvement Program	**$183,791**	$-	$-	$210,125	$215,378	$-	$-	$-	$-	$243,681	$249,773	$-	**$918,956**
Floodplain Risk Mitigation Program	**$1,962,524**	$1,000,000	$-	$1,050,625	$-	$1,103,813	$-	$1,159,693	$-	$1,218,403	$-	$1,280,085	**$6,812,619**

Graph SW16: Council's Planned 11 Year LTFP Expenditure - Stormwater Drainage Asset Class

Note: 0.9% of each year's Capital Upgrade & New value is added to the required Operations and Maintenance expenditure the following year.



	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36
Capital Upgrade & New	$1,000,000	$-	$1,200,000	$200,000	$1,000,000	$-	$1,000,000	$-	$1,200,000	$200,000	$1,000,000
Capital Renewal	$890,000	$890,000	$890,000	$890,000	$890,000	$890,000	$890,000	$890,000	$890,000	$890,000	$890,000
Operations and Maintenance	$1,109,954	$1,110,854	$1,110,854	$1,111,934	$1,112,114	$1,113,014	$1,113,014	$1,113,914	$1,113,914	$1,114,994	$1,115,174

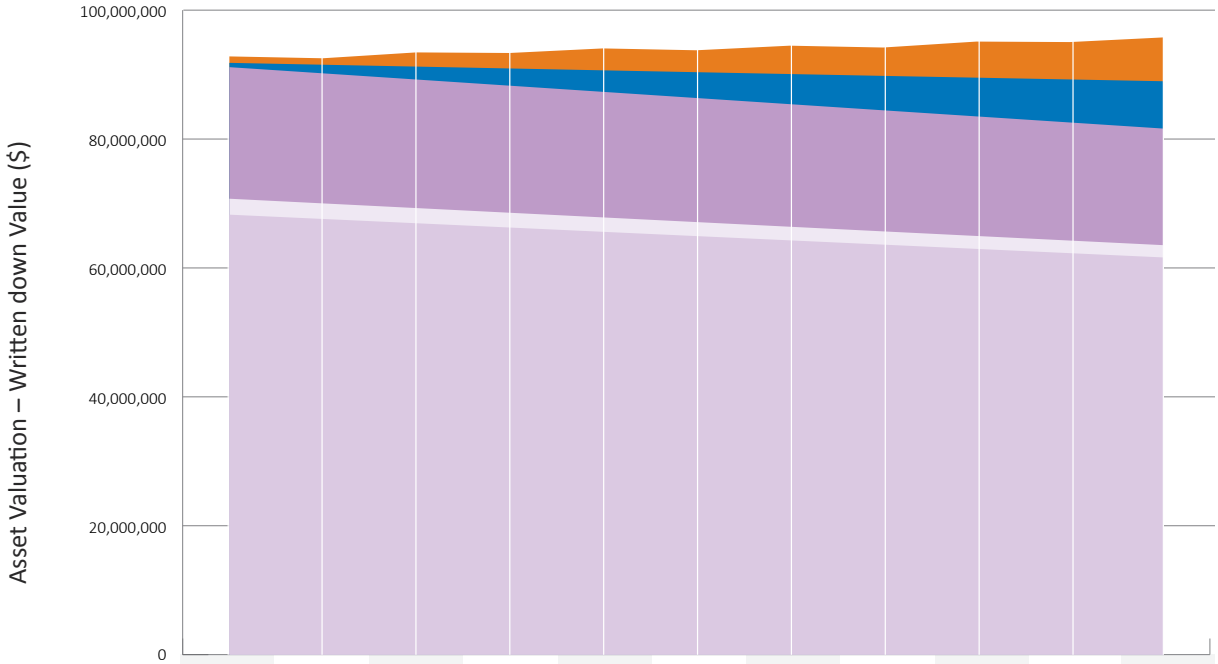
The stormwater drainage asset class experiences an annual depreciation expense of $957,404 each year. This means that without any capital works taking place, the stormwater drainage asset class would deteriorate from 70% to 63% in the 11-years between FY2025/26 and FY2035/36. The implementation of the current LTFP will improve asset health to 66% in FY2035/36.

This projected asset health assumes 100% of Capital Upgrade & New is capitalised as an addition to existing asset valuation, and 75% of Capital Renewal is capitalised as an addition to existing asset valuation. This is because capital renewals will typically replace assets that are at about 25% asset health.

Graph SW17: Asset Value Depreciation and Capitalisation over 11 Years - Stormwater Drainage Asset Class

Note: This graph demonstrates the projected Written Down Value of Stormwater Drainage Assets as they depreciate annually. It also demonstrates the impact of the LTFP capital upgrades, new, and renewals on the asset valuation.

Asset Value Depreciation and Capitalisation over 11 Years - Stormwater Drainage Infrastructure (No Indexation - Present Value 01/07/2025)



	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36
Accumulated Capital Upgrade & New	$1,000,000	$1,000,000	$2,200,000	$2,400,000	$3,400,000	$3,400,000	$4,400,000	$4,400,000	$5,600,000	$5,800,000	$6,800,000
Accumulated Capital Renewal	$667,500	$1,335,000	$2,002,500	$2,670,000	$3,337,500	$4,005,000	$4,672,500	$5,340,000	$6,007,500	$6,675,000	$7,342,500
Stormwater Pits	$20,412,163	$20,179,865	$19,947,567	$19,715,269	$19,482,971	$19,250,673	$19,018,375	$18,786,077	$18,553,779	$18,321,481	$18,089,183
Stormwater Harvesting	$2,476,616	$2,416,634	$2,356,652	$2,296,669	$2,236,687	$2,176,705	$2,116,723	$2,057,949	$2,007,745	$1,957,542	$1,907,338
Stormwater Conduits	$68,264,915	$67,599,791	$66,934,667	$66,269,543	$65,604,419	$64,940,679	$64,278,339	$63,616,006	$62,953,672	$62,291,339	$61,629,006

8. Maintenance, Operations and Renewals

Waverley Council operates a periodic and preventive maintenance program for its Stormwater Drainage Infrastructure, while also delivering capital renewal programs, and responding to reactive maintenance requests. Periodic and preventive maintenance takes place to uphold the safety and structural integrity of its stormwater infrastructure, while also preventing further deterioration of aged assets.

Council used the Modelve funding scenario software to visualise the impact of various funding scenarios on the asset health of the stormwater asset class. When planning for stormwater drainage asset replacements, the asset health is projected to improve over the 10 years in the Sustainable Funding Scenario.

Table SW18: Stormwater Drainage Health and Value over 10-Year period

ELEMENT	SUSTAINABLE FUNDING SCENARIO
Capital Renewal Expenditure	$13,397,664
Capital New & Upgrade Expenditure	$0
Estimated Operations & Maintenance	$13,523,712
Estimated Depreciation	$11,956,665
Total Scenario Cost	**$38,878,041**
Asset Health as at 2024	71.51%
Asset Health estimated by 2034	81.92%
Current Worth as at 2024	$93,068,502
Projected Worth estimated by 2034	$106,622,485
Change of worth	**$13,553,982**

Figure SW19: Stormwater Drainage Network Health – Sustainable Funding Scenario (Modelve Software)

8.1. Stormwater Conduits

Waverley Council manages an 88.2km network of stormwater conduit that includes 3.7km of box culverts and 84.5km of circular pipe to support flood mitigation within the 14 catchment areas. The stormwater conduits are crucial to redirecting stormwater away from residential areas and infrastructure to prevent flooding.

Concrete Pipe

Concrete Box Culvert

A 0.5% factor is applied to the current replacement cost of the stormwater conduit asset category to estimate the operations and maintenance costs for below activities on an annual basis.

- CCTV inspections for structural integrity checks, cracks, blockages, and sediment build up
- Debris and sediment removal with high pressure water jetting
- Tree root cutting to remove root intrusions

8.2. Stormwater Harvesting

Waverley Council manages a diverse portfolio of stormwater harvesting assets including 19 raingardens, 9 gross pollutant traps, sump pits, and stormwater tanks. Stormwater harvesting assets are crucial to Waverley Council's sustainability in water quality management and re-use.

The gross pollutant traps are designed to trap large debris and pollutants such as litter, leaves, and sediment from stormwater before it flows downstream, preventing downstream blockages and improving water quality. Raingardens use natural vegetation to filter pollutants from stormwater runoff, while enhancing our urban landscapes and providing habitat for local flora and fauna.

Raingarden at Hollywood Avenue

Gross Pollutant Trap Cleaned

A 5% factor is applied to the current replacement cost of the stormwater harvesting asset category to estimate the operations and maintenance costs for below activities on an annual basis.

- Routine Gross Pollutant Trap (GPT) inspections for corrosion, litter, sediment, and debris build up
- Removal of trapped pollutants in GPTs with vacuum trucks
- Routine raingarden inspections for plant health, soil media and water infiltration
- Routine vegetation management of raingardens including pruning and weeding
- Sediment removal from garden bed inlet zones and filters
- Pump and filtration inspections of stormwater tanks
- Cleaning and water quality monitoring of stormwater tanks

8.3. Stormwater Pits

Waverley Council manages about 4,800 stormwater pits that serve its 14 catchment areas. Approximately 3,100 of these pits are inlet pits that capture surface stormwater to mitigate surface flooding in areas with impervious surfaces. These pits collect sediment and debris from entering and blocking the downstream drainage pipes. The remainder 1,700 junction pits serve as nodes that connect and redirect stormwater segments within the drainage network.

Kerb Inlet Pit

Maintenance Shaft Junction Pit

A 2% factor is applied to the current replacement cost of the stormwater pits asset category to estimate the operations and maintenance costs for below activities on an annual basis.

- Routine inspections for debris accumulation, structural integrity, cracks, and blockages
- Removal of litter and sediment buildup with vacuum trucks

9. Minimising Risks to Community and Council

In line with its asset management objectives, Waverley Council is committed to the mitigation of risks associated with its stormwater drainage infrastructure and services. The safety and wellbeing of the community, visitors and Council staff is paramount to stormwater asset management planning and delivery. Asset prioritisation decisions are made through the determination and application of risk prevention approaches that consider severity, likelihood, criticality and resilience across communities, infrastructure assets, and services. Waverley Council considers the below risk areas when prioritising stormwater maintenance, operations, renewal, and upgrade activities.

- Safety and wellbeing impacts
- Reputational impacts
- Financial impacts
- Regulatory compliance and legal risks
- Service delivery and asset availability risks
- Environmental impacts
- Loss of corporate knowledge, data loss, and risks to resilience and continuity

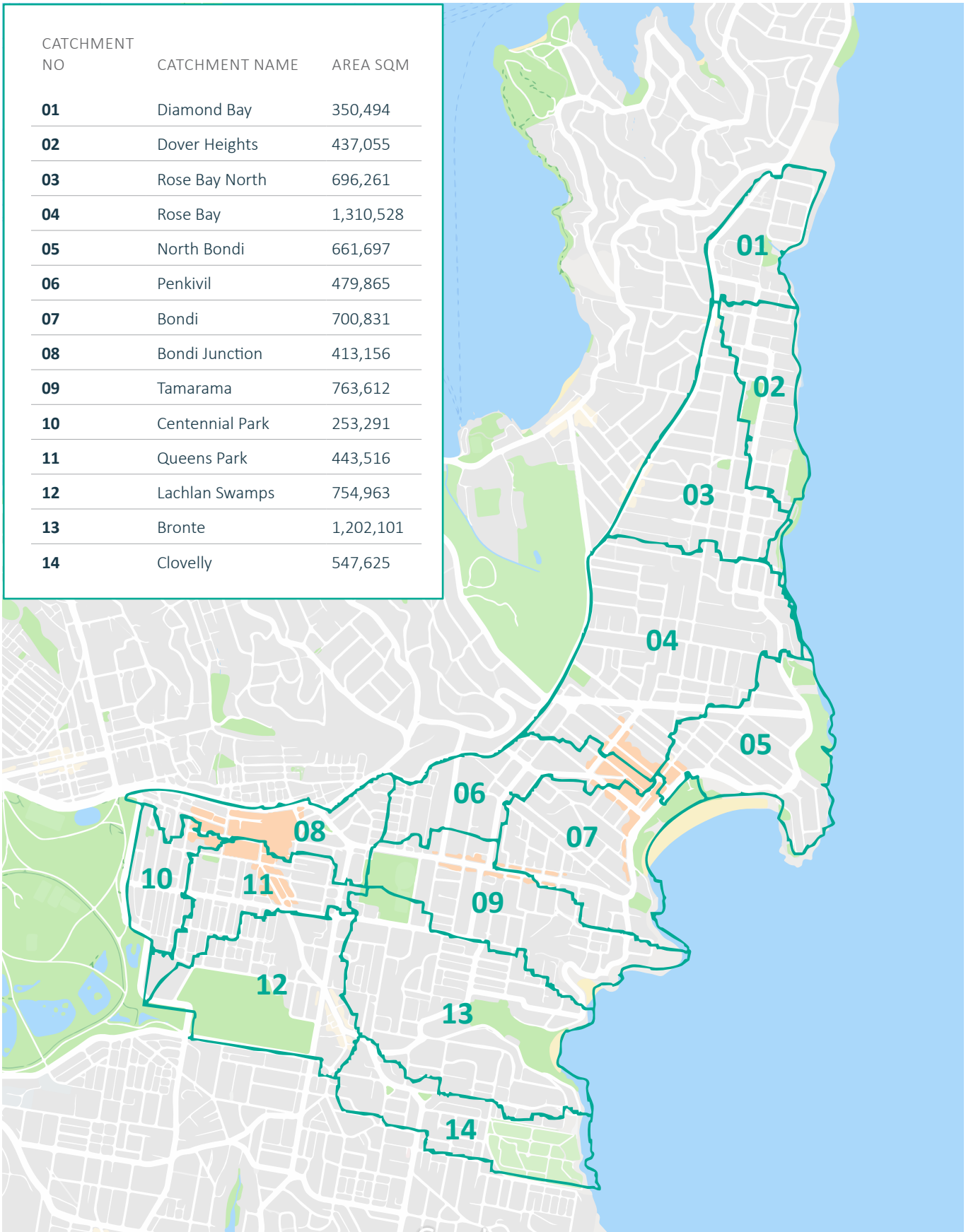
9.1. Critical Assets

Waverley Council prioritises stormwater assets and CCTV inspections using a three-tier approach.

- Reactive maintenance requests: Inspections in this category are typically initiated through residential enquiries, reports of localised flooding, or findings from routine maintenance activities. Requests are reviewed during the Fortnightly Stormwater Activities Coordination meeting, where Council's teams collaborate to assess priorities and share insights. This prioritised and coordinated process ensures that present issues are identified and addressed to reduce the risk to public safety.
- Target planned inspections associated with flood study hotspot areas: Waverley's flood study and flood model have identified locations that are exposed to higher risks of flooding. Twelve priority hotspot areas have been identified through this process and are targeted as both preventive measures to identify structural and serviceability issues, while capturing data to support future design and capacity studies.
- Catchment prioritisation based on flood risk: Council has developed a prioritisation listing for all 14 catchments within the LGA. High, medium, and low flood risk precincts have been identified to enable Council to survey all pipelines within the LGA, and to ensure that all compromised assets are identified and appropriately prioritised for future renewal programs.

Figure SW20: The 14 Catchment Areas served by the Stormwater Drainage Network

CATCHMENT NO	CATCHMENT NAME	AREA SQM
01	Diamond Bay	350,494
02	Dover Heights	437,055
03	Rose Bay North	696,261
04	Rose Bay	1,310,528
05	North Bondi	661,697
06	Penkivil	479,865
07	Bondi	700,831
08	Bondi Junction	413,156
09	Tamarama	763,612
10	Centennial Park	253,291
11	Queens Park	443,516
12	Lachlan Swamps	754,963
13	Bronte	1,202,101
14	Clovelly	547,625



10. Continuous Improvement and Operational Efficiency

In line with its asset management objectives, Waverley Council strives to be proactive in enhancing the operational efficiency of its asset management processes, and in pursuing continuous improvement. The development and delivery of Council's Asset Management Improvement plan is crucial to ensuring that Council's asset management objectives are achieved in the most sustainable, resilient, and efficient manner.

Table SW21: Asset Management Improvement Plan – Stormwater Drainage Asset Class

STRATEGY COMPONENT	TASK	DESCRIPTION OF REQUIREMENTS	EXPECTED TIMEFRAME FOR IMPLEMENTATION
Asset Information Management System	Define Data Attribute Requirements	Define data attribute requirements for informed decision making and implement into the Asset Information Management System.	12 months (High Priority)
Asset Financial Planning	Develop Asset Maintenance and Operations Plans	Develop asset maintenance and operations plans whereby reactive maintenance demand is accurately costed and based on historic annual requests. Routine and preventive maintenance demand is accurately costed and based on agreed levels of service. Identify resourcing requirements.	18 months (High Priority)
Work Order Management System	Define Work Orders and Defects	Define routine and reactive maintenance work orders and defect types. Configure and implement into the Work Order Management System.	18 months (High Priority)
Asset Management Culture	Asset Management Education	Conduct annual workshops with all asset stakeholders to understand the roads asset lifecycle management approach.	12 months (Medium Priority)
Asset Financial Planning	Asset Useful Life and Depreciation	Review asset useful lives based on the actual life of assets achieved by the Council. Consider applying different useful lives to locations and assets based on projected utilisation, wear, and tear. Consider applying asset depreciation models to different roads asset categories based on data, evidence and/or studies.	24 months (Medium Priority)
Asset Operations	Asset Condition Assessments and Defect Capture	Develop detailed stormwater drainage asset condition assessment and defect capture manual. Ensure that operations and maintenance teams capture asset conditions and defects in the works management system.	24 months (Medium Priority)
Risk Management Approach	Develop Asset Criticality Matrix	Use demand and impact data including population density to develop a criticality matrix and scoring method for all stormwater drainage assets to guide maintenance frequencies and response times, as well as renewal investment prioritisation.	24 months (Medium Priority)

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