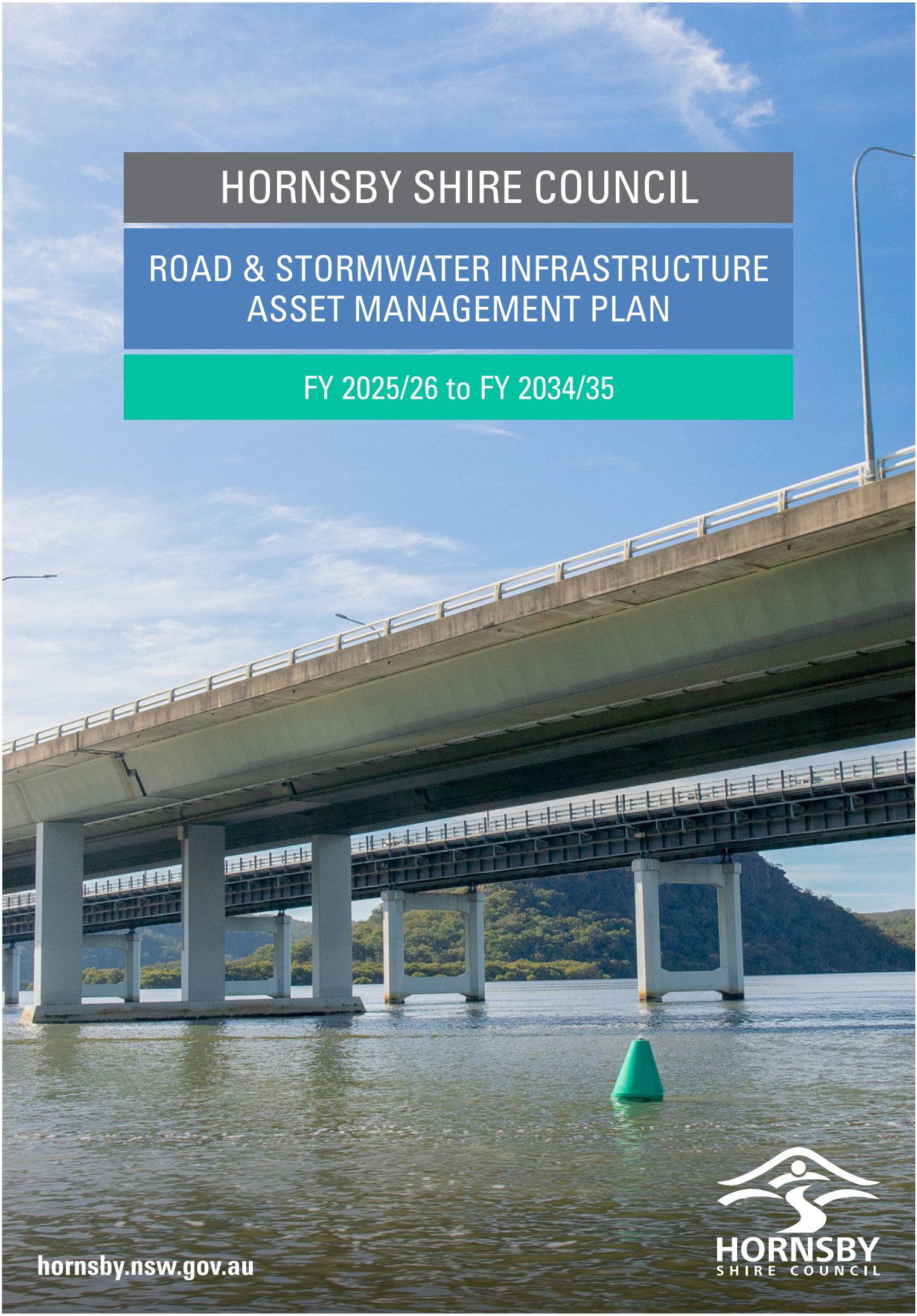
HORNSBY SHIRE COUNCIL

ROAD & STORMWATER INFRASTRUCTURE ASSET MANAGEMENT PLAN

FY 2025/26 to FY 2034/35



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HORNSBY SHIRE COUNCIL

January 2025

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Document Control		*Road & Stormwater Infrastructure Asset Management Plan (AMP)*			
Rev No	**Date**	**Revision Details**	**Author**	**Reviewer**	**Approver**
1	01/06/2024	Initial draft – 2024 version	AZ/MH	DC	-
2	01/01/2025	Final draft – 2024 version	AZ/MH	DC	GM

This document has been compiled by Council's Financial Services Branch.

Consultation and contribution were provided by the relevant staff responsible for the management and operation of Council's asset portfolio as defined in document **POL00480** "Asset Management – Roles & Responsibilities", namely:

- ***Asset Custodians****;*
- ***Asset Deliverers****;*
- ***Service Managers****;*
- ***Asset Coordinator(s)***;
- ***Strategic Coordinators/Place Managers****;*

as well as all members of the Executive Leadership Team (ELT).

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We acknowledge the Traditional Custodians of this land, the Dharug and GuriNgai peoples, and pay respect to their Ancestors and Elders past and present and to their Heritage. We acknowledge and uphold their intrinsic connections and continuing relationships to Country.

EXECUTIVE SUMMARY

The Asset Management Plans (AMP) for Road infrastructure and Stormwater infrastructure is presented jointly as there is often overlap between activities and projects involving assets within these classes.

The Road infrastructure asset class has a Gross Replacement Cost (GRC) of approximately **$700,000,000** and the Stormwater infrastructure asset class has a GRC of over **$670,000,000**. Together these two asset classes comprise almost **80%** of the GRC of Council's infrastructure asset base.

Each asset class managed by Council is comprised of several asset types.

Asset Types within the Road infrastructure class include:

- Sealed & unsealed road pavements;
- Footpaths, shared paths & cycleways;
- Kerb & gutter; and
- Bridges & road culverts.

Asset types within the Stormwater infrastructure class include:

- Stormwater pits & pipes;
- Concrete box culverts;
- Lined & unlined open channels; and
- Outlet structures (i.e.: headwalls).

To continue to deliver Road and Stormwater infrastructure assets at the current levels of service over the 10year timeframe of this plan, requires an average annual expenditure of: **$17,433,000**

With the awarding by IPART of the Special Rate Variation (SRV) in 2023, the above required expenditure is **fully funded** within Council's Long Term Financial Plan (LTFP).

TABLE (I): ROAD & STORMWATER INFRASTRUCTURE PROJECTED EXPENDITURE

Year	25/26	26/27	27/28	28/29	29/30	30/31	31/32	32/33	33/34	34/35
ROAD INFRASTRUCTURE ('000)										
Recurrent General Funds	$10,533	$10,827	$11,130	$11,429	$11,748	$12,075	$12,424	$12,769	$13,097	$13,433
Approved SRV Funding	$580	$594	$597	$623	$638	$641	$670	$686	$704	$721
Add. Funding Required	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Road Infrastructure TOTAL	**$11,113**	**$11,421**	**$11,727**	**$12,052**	**$12,386**	**$12,716**	**$13,094**	**$13,455**	**$13,801**	**$14,154**

STORMWATER INFRASTRUCTURE ('000)										
Recurrent General Funds	$2,932	$3,008	$3,096	$3,187	$3,281	$3,377	$3,479	$3,585	$3,679	$3,777
Approved SRV Funding	$1,314	$1,357	$1,401	$1,434	$1,481	$1,516	$1,567	$1,606	$1,646	$1,687
Add. Funding Required	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Stormwater Infrastructure TOTAL	**$4,246**	**$4,365**	**$4,497**	**$4,621**	**$4,762**	**$4,893**	**$5,046**	**$5,191**	**$5,325**	**$5,464**
Road & Stormwater Infrastructure Shortfall	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***

An estimated **$1,500,000** on average each year for Road and Stormwater infrastructure assets is sourced from recurrent Grant funding (either directly or indirectly). While there is no indication that this funding will be withdrawn in the near future, the budget currently provided is predicated on these funds continuing to be received.

Council's Stormwater infrastructure asset base is rated as "good" (2 out of 5) based on the most current available data. However, the quality of the overall data is deemed to be "Uncertain" (**Table 5.2**). Consequently, this plan includes recommendations to improve the quality of Council's condition data collection process (**Section 6.2**) and funds have been allocated to use CCTV to directly inspect the condition of Council's piped stormwater drainage network.

Sealed roads account for over **70%** of the value of the Road infrastructure asset class, which is managed through Council's "GoAsset" Pavement Management System (formerly SMEC PMS). The target Pavement Condition Index (PCI) for Council's Sealed Road network is **8.2**, and this has been achieved with additional funding provided over the previous 10-years (up from a PCI of approximately 7.6 in 2011). Significant weather events in 2021-2022 damaging the sealed pavement network resulted in Council receiving a one-off $6.5m maintenance grant under the Regional and Local Roads Repair Program (RLRRP). The entire sealed pavement network was condition assessed in early 2024 to review the effectiveness of the RLRRP program undertaken in conjunction with Council's regular road maintenance and renewal program across FY 2022/23 and FY 2023/24. The sealed pavement condition data received in August 2024 shows that, subsequent to the damaging rainfall events and the RLRRP, the PCI for Council's Sealed Road Network has returned to **8.2.**

As Council's asset base increases in line with Section 7.11/Section 7.12 completed projects, so too does the requirement for increased maintenance funding. The long-term implications of not providing enough funds to maintain the current and planned asset base are:

- a slow decline in asset condition; and
- a reduction in level of service leading to increased community dissatisfaction with Council's performance.

Given the somewhat unique complexities of stormwater drainage infrastructure projects (**Section 1.5**), the following funding strategies are recommended (**Section 5.2**):

- Any yearly unspent funds for stormwater infrastructure assets are restricted to build a reserve for large, planned renewal projects; and

- Funds have been specifically allocated annually to allow the systematic investigation of the internal condition of the piped stormwater drainage network to ensure Council's physical asset database remains current.

Section 6 details recommendations for how Council is to improve AMP/works program confidence and the sustainable physical and financial management of its asset base with recommendations assigned a priority of low, medium or high based on risk and the benefit/improvement to be achieved from completing the recommendation. High priority recommendations for the Road infrastructure asset class and the Stormwater infrastructure asset class (**Tables (II)** and **(III)** respectively) are as follows:

TABLE (II): HIGH PRIORITY IMPROVEMENTS – ROAD INFRASTRUCTURE ASSET CLASS

Observation	Implication	Recommendation
Lack of documented periodic inspection procedure.	Increased physical and financial risk from deteriorating assets.	Develop and implement inspection methodologies for all bridge and culvert assets.
Potentially unidentified assets.	Incomplete physical and financial asset base leading to poor decision making.	Collect physical data for all car parks and footpaths including those in parks.
Detailed Capital and Maintenance works programs produced by GoAsset are not used to full effect.	Difficulty in achieving the community and technical services levels for assets coupled with risk of financial shock for asset upgrades.	Undertake comprehensive review of the "GoAsset" pavement management system to ensure that work schedules produced are accurate and can be followed.
Council has an established practice of condition assessing the road network over a four-year rolling program. However, data was not collected over some recent years.	Road condition data may become out of date, which could lead to inaccurate expenditure forecasts and work schedules.	Re-commence rolling condition inspection methodology for all sealed road assets over a four-year period (e.g.: 25% p.a.).

TABLE (III): HIGH PRIORITY IMPROVEMENTS – STORMWATER INFRASTRUCTURE ASSET CLASS

Observation	Implication	Recommendation
Lack of recent asset condition data.	Incomplete or out-of-date physical and financial asset base leading to poor decision making.	Develop and implement a rolling program of drainage infrastructure condition inspections (CCTV or similar).

Other lower priority AMP process improvement points are provided in **Table 6.2**.

A high-priority asset management improvement point raised in the previous version of this AMP was the need for a stormwater infrastructure works prioritisation model/approach. In October 2024, Council's Executive Leadership Team (ELT) approved the use of a newly developed in-house methodology for this purpose. Further detail can be found in **Section 2.4.2**.

The above recommendations are discussed quarterly as part of Council's established Asset Management Governance Committee. However, progress throughout the prior financial year has been slower than initially hoped. The importance of completing the improvement points has been recently highlighted in Council's revised 2024/25 – 2033/34 Long Term Financial Plan. The CCTV inspection and condition rating of stormwater infrastructure has re-commenced in FY 2024/25 and is expected to form not only the basis of ongoing rolling inspections but also the basis for asset revaluations.

1. INFRASTRUCTURE OVERVIEW

1.1. THE PURPOSE OF THIS PLAN

This Asset Management Plan (AMP) covers Council-owned infrastructure assets that:

- provide safe and unimpeded vehicular, pedestrian and cycle movements around the Shire (Road infrastructure assets); and
- provide for the passage of stormwater through both private and public land within the Shire (Stormwater infrastructure assets).

This plan defines the services that are to be provided by road and stormwater infrastructure, how these services are provided and details the required level of funding to provide the services over a 10-year planning period. It also details actions required to provide the determined level of service in a cost-effective manner while outlining associated risks.

1.2. OVERVIEW

1.2.1. ROAD INFRASTRUCTURE ASSETS OVERVIEW

Based on the data held in Council's physical asset register, the assets covered in the Hornsby Shire Council Roads AMP include:

- ***570km*** of sealed road pavement;
- ***13km*** of unsealed road;
- Over ***400km*** of footpaths, shared paths and cycleways;
- Over ***770km*** of constructed kerb & gutter;
- ***44*** separate road bridge structures (including multi-cell road culverts).

Road infrastructure assets have significant value totalling almost **$700,000,000**.

TABLE 1.1: FINANCIAL SUMMARY - ROAD INFRASTRUCTURE ASSETS (AT 30 JUNE 2024)

ASSET TYPE	GROSS REPLACEMENT COST ('000)	CURRENT DEPRECIATION ('000)	WRITTEN DOWN VALUE ('000)
Bridges	$24,514	$5,607	$18,907
Sealed Roads	$499,892	$61,878	$438,013
Unsealed Roads	$4,339	$4,103	$235
Kerb and Gutter	$85,566	$30,537	$55,029
Cycle ways	$877	$526	$351
Car Parks	$3,027	$1,490	$1,537
Footpaths	$78,464	$31,498	$46,965
TOTAL:	***$696,679***	***$135,639***	***$561,037***

1.2.2. STORMWATER INFRASTRUCTURE ASSETS OVERVIEW

Based on the data held in Council's fixed asset register, the assets covered in the Hornsby Shire Council Stormwater Infrastructure AMP include:

- Over ***300km*** of concrete pipes and box culverts;
- *Over* ***15km*** of open channels (earthen/concrete lined); and
- Over ***17,000*** individual pits and outlet structures (headwalls).

These infrastructure assets have an estimated value of over **$670,000,000**.

TABLE 1.2: FINANCIAL SUMMARY - STORMWATER INFRASTRUCTURE ASSETS (AT 30 JUNE 2024)

ASSET TYPE	GROSS REPLACEMENT COST ('000)	CURRENT DEPRECIATION ('000)	WRITTEN DOWN VALUE ('000)
Pipes	$537,585	$130,766	$406,819
Culverts	$31,729	$5,379	$26,350
Pits	$98,901	$22,991	$75,909
Headwalls	$603	$15	$589
Channels	$3,721	$954	$2,766
TOTAL:	***$672,539***	***$160,105***	***$512,433***

1.3. FINANCIAL SUMMARY

With the inclusion of funds sought through the successful Special Rate Variation (SRV) approved by IPART in 2023, estimated available funding for the next 10 years as per the Long-Term Financial Plan (LTFP) is:

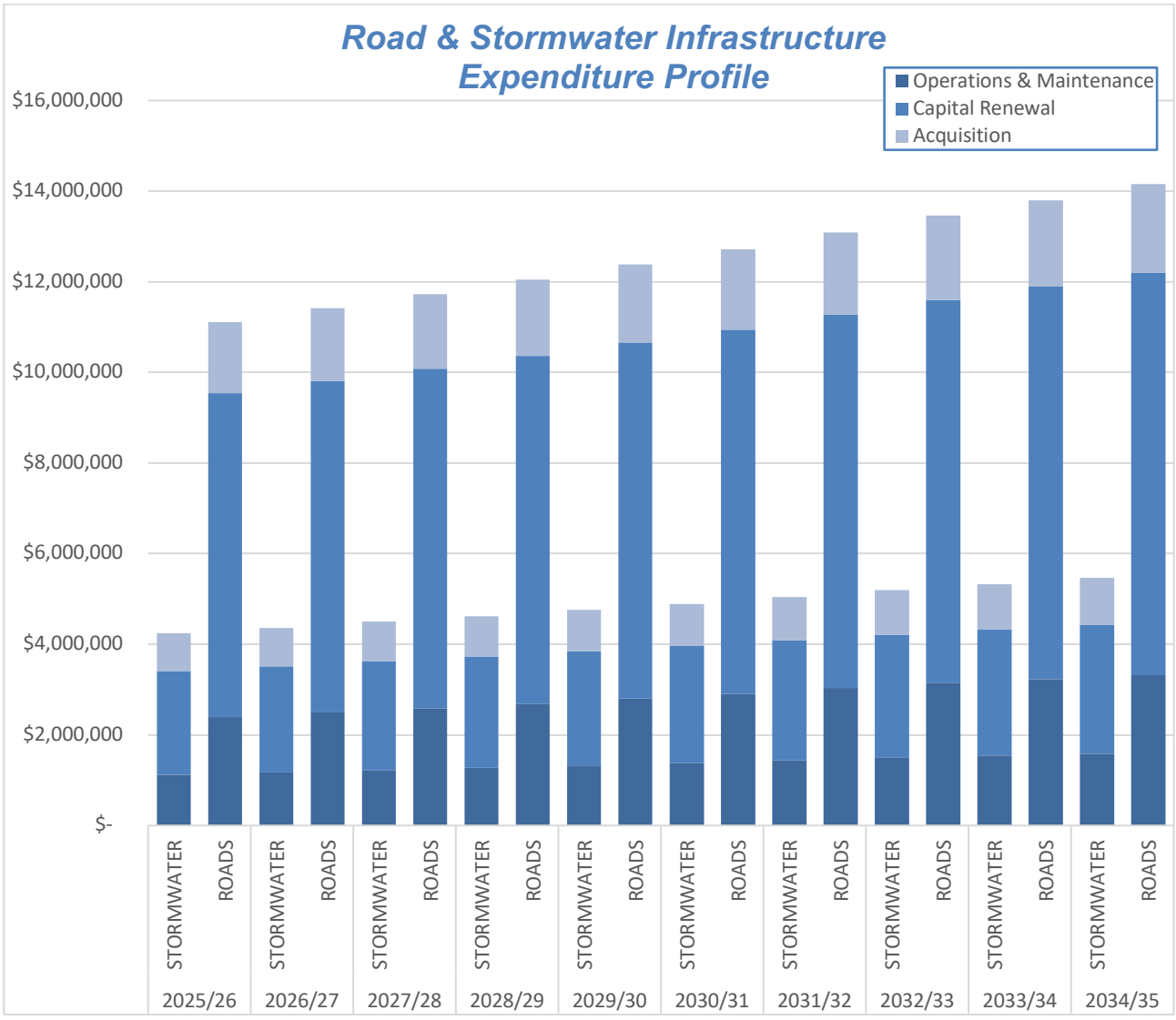
Road Infrastructure Assets: **$125,921,000** or **$12,592,100** on average per year;

Stormwater Infrastructure Assets: **$48,409,000** or **$4,840,900** on average per year;

Road & Stormwater Infrastructure Assets combined: **$174,330,000** or **$17,433,000** on average per year.

Per Council forecasts, this level of funding is sufficient to maintain and renew (as required) Council's existing road and stormwater infrastructure asset portfolio.

FIGURE 1.3.1: FORECAST EXPENDITURE – ROAD & STORMWATER INFRASTRUCTURE ASSETS



1.4. BACKLOG

1.4.1. ROAD INFRASTRUCTURE

Financial reporting for FY 2023/24 presents an overall road infrastructure backlog of **$1,077,000** across all asset types within this class. Over half of this value is comprised of unsealed road and Council-owned car parks, both of which do not have a current regular inspection regime in place. With respect to sealed pavements, it should be noted that using a pavement management system, such as GoAsset, to manage maintenance and renewal of sealed pavements requires a small percentage of road segments to be of poorer condition in any given year. Therefore, this level of backlog is considered to be part of the normal course of providing services at any given time and is not a financial concern.

1.4.2. STORMWATER INFRASTRUCTURE

Financial reporting for FY 2023/24 stated a combined stormwater infrastructure backlog of **$990,000**. Of this, pipes and culverts represent over 70% of this value. Given the level of funding provided stormwater infrastructure through the successful SRV application, and the commencement of regular CCTV condition inspections during FY 2023/24, this is not considered to be of immediate financial concern. However, due to issues described in the following Section (**1.5**) and **Section 4**, it is recommended that this value of work undergo reassessment as additional current condition data is obtained.

1.5. ISSUES SPECIFIC TO STORMWATER INFRASTRUCTURE ASSET MANAGEMENT

Stormwater infrastructure is constructed to manage the flow of stormwater through both public and private property, usually discharging to natural creek lines and receiving waters. It is constructed within discrete "catchments" that are defined by topography, with water flowing from crests towards the outlet, or lowest point, of the catchment. These may then be divided further into sub-catchments which aggregate to form the overall catchment. Flows do not naturally pass between sub-catchments except to add flows to the "downstream catchment" at the outlet.

Constructed assets generally form part of a "major-minor" stormwater drainage network, where the constructed asset (i.e.: pit and pipe network) is designed to convey "minor" flows and land above is assessed for its capacity to convey "major" flows. Major and minor flows are usually defined in statistical terms, such as a "5% AEP event" or a "1% AEP event" (a 1% AEP, or "Annual Exceedance Probability", event has a 1% chance of being exceeded in any given year).

Stormwater infrastructure assets are usually constructed in conjunction with either road and/or housing development. This means stormwater infrastructure assets have been constructed by numerous entities and to differing standards across the more than 100 years of development and expansion throughout Hornsby Shire. Stormwater infrastructure is usually constructed of long-life materials (i.e.: concrete, brick, rock) and Council's current asset base has been built to meet varying standards and is of significantly varying age, which can be difficult/impossible to ascertain. This and the usually buried nature of the assets, results in maintenance, repair, renewal and upgrade programs which are generally reactive in nature, responding to complaints regarding the functional standard of infrastructure or responding to issues relating to condition.

The pipe/culvert network are buried assets and similarly pits are often accessible through only a small opening and may be located in a hazardous environment for inspection access (e.g.: roadside). The majority of the constructed infrastructure network, with the exception of open channels, is considered to be a "confined space", with special requirements for access and inspections.

A large-scale identification of stormwater infrastructure assets was undertaken by Council in the mid- to late-1990's. This included the identification of attributes such as pit/pipe size, material type, connections, condition, and depth to invert (base of pit or internal base of pipe/culvert). Since the completion of this initial data collection project, Council has attempted, as funds are available, to continue a rolling program of re-survey and condition inspection of stormwater infrastructure assets across the 12 major catchments/40 sub-catchments in the Shire. To date, 70% of the sub-catchments have been resurveyed, however none since 2015 (refer **Figure 1.5.1**) and not all infrastructure is resurveyed, restricted generally to pits within the roadway. As pits are inspected and located through survey, a "reverse periscope" is placed at the entrance

to each inlet outlet to a pit. This enables a visual inspection of the first section(s) of pipe only and does not determine the overall condition along the entire length of the pipe/culvert.

While most stormwater infrastructure is either wholly or partially buried and hence contained in a somewhat static environment, accurate and documented condition monitoring is required to mitigate any risks and consequences that arise from failing or damaged infrastructure. Damage can occur in a number of ways and may not always be immediately apparent. Modes of failure include:

- Pipe dislocation at joints or at pit connections due to bedding (support) issues;
- Cracking and damage to pipes during manufacture, transportation and installation;
- Crushing/cracking to pipes due to excessive loading;
- Failure of pit walls due to inappropriate support or loading;
- Damage to inverts of pipes and culverts due to erosive materials;
- Erosion of inverts and sides of channels during large events; and
- Significant blockage due to debris, sediment and tree root intrusion.

Any of the above failure modes, or others, can result in stormwater flows being concentrated outside of the constructed network, creating safety hazards and the potential for significant damage to public infrastructure and private property.

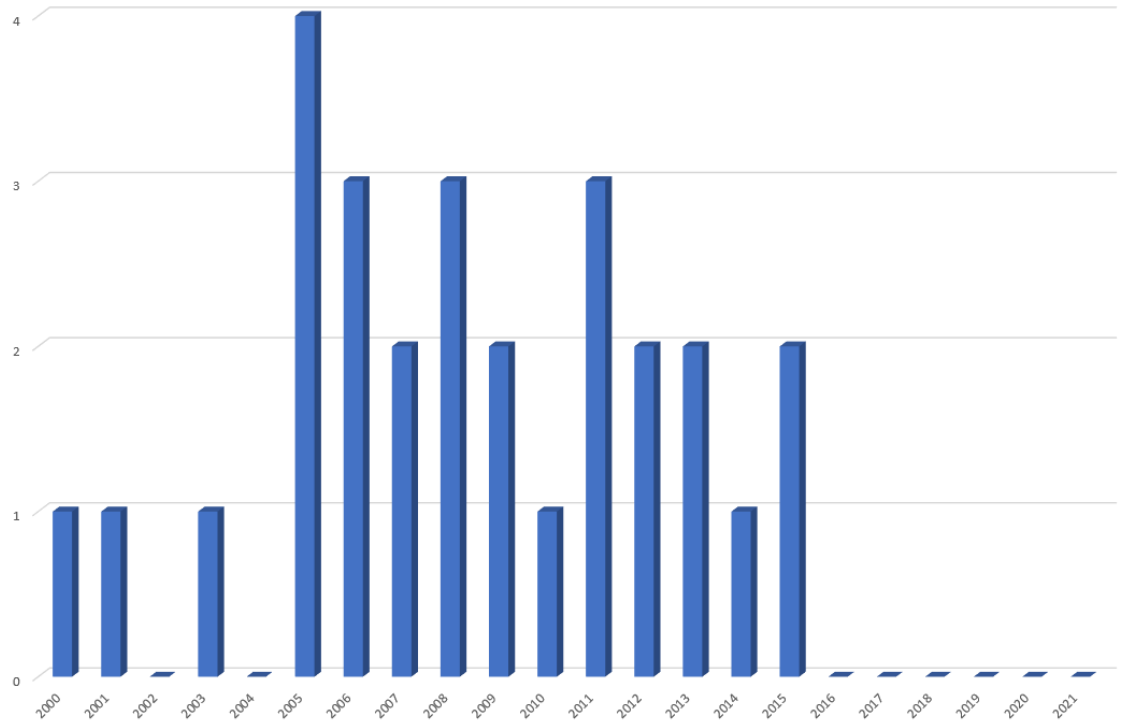
Additionally, once identified, stormwater infrastructure renewal projects contain complexities that can significantly increase the lead time from project inception to construction. These include:

- Difficulties in accurate hydrologic/hydraulic modelling to define the issue;
- Difficulties in achieving design standards due to topographic or other constraints; and
- Significant consultation with affected residents including difficulties in obtaining consent.

The abovementioned can result in stormwater infrastructure renewal and/or improvement projects requiring to be funded across multiple years.

With funding now available as part of Council's recently approved Special Rate Variation, an inspection program is currently under development to provide a more comprehensive and ongoing condition assessment of stormwater infrastructure through a regular CCTV inspection program. It should be noted that a continual inspection regime of stormwater infrastructure assets may potentially lead to a more targeted proactive maintenance approach. However, due to the dynamic and highly variable nature of storm events and weather patterns, most instances of damage or deterioration to the stormwater drainage network cannot be planned for. Hence the primary mode of maintenance expenditure may remain reactive, however the collected data will inform how the network is deteriorating as a whole and subsequent revaluation of stormwater assets.

FIGURE 1.5.1: RESURVEYED SUB-CATCHMENTS PER YEAR



1.6. RESTRICTION OF FUNDS FOR STORMWATER INFRASTRUCTURE PROJECTS

As stormwater infrastructure works require significant levels of time and expense during the planning, design and consultation stages, it is recommended that any unspent allocated funds each year be placed in a stormwater infrastructure-specific Restricted Asset Reserve to ensure continuation of funding across multiple financial years. Building the reserve will also allow for the planned renewal/upgrade of infrastructure that has an estimated project cost greater than an individual financial years' budget allocation.

2. SPECIAL RATE VARIATION (2023/24-2032/33)

2.1. APPLICATION TO IPART

In 2023 the Independent Pricing and Regulatory Tribunal (IPART) approved Councils application for a special rate variation (SRV). As a result of the SRV funding gaps identified in the previous version of this asset management plan are now fully funded.

Significant work was completed prior to Council's application for a Special Rate Variation with an Asset Management Strategy and revised asset management plans prepared which covered 95% of Council's depreciable asset base. The success of the application for an SRV means that adequate funding is available over the next ten years to maintain and renew the following asset classes to the level of service required:

- Roads, bridges, footpaths, kerb and guttering
- Stormwater infrastructure
- Specialised and non-specialised buildings including aquatic centres
- Open spaces (largely related to park assets such as playing surfaces and equipment, and park furniture).

The process undertaken by Council Officers to prepare asset management plans centred around producing detailed data based ten-year forecasts for maintenance, renewal and operational expenditure from 'the bottom up' by calculating the individual forecast requirements for each of Council's assets at a granular level (for example at the level of road section, park bench, kitchen, bathroom, pipe length etc.). The following methodology was used:

- Review of existing granular data with the aim of ensuring data exists for each individual asset within each class.
- Identification of data omissions.
- The collection of new data where omissions are present including the engagement of consultants and contractors to survey assets at a detailed level (based on the condition assessment of each component of each asset).
- Independent physical asset inspections for each asset class by qualified experts to test asset data including an independent review of condition compared to Council's recorded condition levels.
- Community satisfaction survey to assess current service levels compared to desired levels of service which is covered in more detail in Council's Asset Management Strategy.
- The creation of ten-year expenditure forecasts for each class compared to available budgets which is covered in more detail in Council's Asset Management Strategy.

This version of the Asset Management Plan and Asset Management Strategy forms part of the NSW Office of Local Government's Integrated Planning & Reporting (IP&R) Framework cycle from FY 2025/26 with a focus on continuous improvement.

2.2. INTERNAL GOVERNANCE OF SRV FUNDS

Following the success of Councils application for the SRV an internal Asset Management Governance Committee was established. The Committee meets quarterly to monitor additional asset management expenditure funded through the SRV and to progress the improvement points identified in each Asset Management Plan. Completion of each improvement point will provide further assurance of Council's ability to maintain its asset base into the future and will further reduce the risk of budget shocks from asset failure or reactive remediation work that could affect the budget in any given year.

2.3. STRATEGIC INITIATIVES

In addition, the SRV includes separate funding for a number of initiatives required to deliver improved services to the community for each of Council's unique disciplines. Special initiatives which relate to stormwater drainage and road assets are detailed in the table below. The amounts shown in this table represent annual funding for each initiative over the next 10 years:

TABLE 2.1: SRV STRATEGIC INITIATIVES RELATED TO ROAD & STORMWATER INFRASTRUCTURE ASSET MANAGEMENT

Strategic Initiative	Asset class	Annual funding over 10 years
Hornsby Park Operations & Maintenance	*Multiple*	*Varies*
Hornsby Park Asset Renewals	*Multiple*	*Varies*
Prioritised stormwater drainage	Stormwater	$1,000,000
Connected walking and cycling paths	Roads	$1,392,600

Council Officers have developed an internal governance process to ensure that SRV funds can only be allocated in accordance with this program of works and to ensure that the detailed program of works included in the budget commences with the highest priority projects out of all available options for each strategic initiative. Council's Executive Leadership Team (ELT) are responsible for the endorsement of projects and SRV funds are only released after this endorsement has been received. SRV expenditure is reported to Council's ELT quarterly including a review of expenditure incurred to date to ensure it complies with the purpose for which it was intended. The Annual Report will also include reporting in respect of each of the Strategic Initiative Allocations listed above.

2.4. PRIORITISATION MODELS

The following models have been developed for the prioritisation of the above Strategic Initiatives:

2.4.1. SHARED PATHS

Appendix 2 of Council's Walking and Cycling Strategy contains a list of Shared Path initially prioritised projects. These have been re-assessed using the following criteria (based on TfNSW Active Transport guidelines):

1. Addresses a current missing link or constraint.
2. Complete or extend an existing network.
3. Previous Walking and Cycling Strategy priority rank.
4. Located within a growth area/location experiencing significant increased demand.
5. Located in area with inadequate/no existing active transport linkages.
6. Urban/rural location.
7. Located in low-speed residential environment/suitable off-road alternative exists (points deduction).
8. Located where may be removed due to future planning requirements (points deduction).
9. Traffic risk (higher points for higher risk areas, indicating off-road alternatives needed).
10. Significant improvement to overall safety (speed environment/accident history).
11. Evidence of existing use of proposed route.
12. Connection to relevant facilities/locations (commercial, education, retirement, recreational, etc).
13. Potential to be used as a scenic/tourist activity.
14. Identified as a priority by the community.

The reassessed prioritisation model was presented to and approved by Councillors in the December 2024 meeting. A model of prioritisation should be also applied to the projects listed in Appendix 1 ("Footpaths") and Appendix 3 ("Bushwalking Tracks") of the Walking and Cycling Strategy.

2.4.2. STORMWATER INFRASTRUCTURE

The prioritisation of one stormwater project over needs to consider the balance between potentially significant costs with societal/environment/other benefits. In October 2024, Council's ELT approved the use of an in-house developed approach to stormwater infrastructure work prioritisation. The prioritisation model requires scoring against criteria within the following 7 categories (with number of sub-criteria and category weighting shown):

1. Value for Money - 3 criteria (10% of Final Score)
    - *Is there a sound business case for the works/ are the works aligned with Council's LTFP?*
2. Customer Service - 5 criteria (30%)
    - *Does the project resolve a number of issues or improve key flooding evacuation routes?*

3. Strategic Alignment - 2 criteria (30%)
    - *Does the project align with objectives of Council's current strategies, including the Hornsby Floodplain Risk Management Study and Plan (FPRMSP)?*
4. Requests - 2 criteria (10%)
    - *Have there been resident, Councillor or other stakeholder requests for these works?*
5. Maintenance Factors - 2 criteria (10%)
    - *Are there impacts to maintenance frequencies and/or existing maintenance budgets?*
6. Catchment & Environmental Sustainability - 2 criteria (5%)
    - *Does the project support Water Sensitive Urban Design principles and overall catchment health?*
7. Grant/Co-funding Opportunities - 2 criteria (5%)
    - *Does the project have potential to be whole/part funded through grants/external sources?*

The projects identified in the Hornsby Shire Council FPRMSP have been prioritised using the above methodology and are presented in **Appendix A**. Noting the complexities of Stormwater infrastructure project delivery highlighted in **Section 1.5**, the prioritised list presented in **Appendix A** forms the current approach to the 10-year Stormwater infrastructure works schedule. Should additional projects come to light through additional/refined modelling or actual storm events and representations to Council, the relative priority of the works is required to be assessed through the above methodology and presented to the ELT and/or Council.

3. CURRENT STATE OF ROAD INFRASTRUCTURE

The following Sections detail the condition profile(s) of individual asset types within the Road infrastructure asset class and how current levels of funding and expenditure compare with predicted expenditure to meet the agreed levels of service of these assets over the 10-year AMP/LTFP projection.

3.1. BACKGROUND DATA & GENERAL INFORMATION

The type and quantity of assets covered by this AMP and their financial value are shown in **Section 1.2.1** and **Table 1.1** respectively.

Currently data relating to the physical assets is held within several systems/registers in Council:

- The GoAsset PMS holds physical condition and general asset data;
- Council's Corporate System (TechnologyOne) contains financial data for the calculation of ongoing depreciation; and
- Council's GIS system (separate database) contains geographic information with limited physical data.

Physical data held in the GoAsset PMS database for Road infrastructure assets generally includes the following:

- Asset ID and description (including location);
- Construction date;
- Last date of inspection (survey); and
- Condition rating (usually a scale 1 to 5 as detailed in **Table 3.1**).

In addition to the above, sealed roads/pavements are inspected with specialist equipment and hence pavement-specific information is recorded including rutting, roughness, and overall Pavement Condition Index (PCI) for each segment.

In response to reported issues with footpaths approximately 10 years ago, Council's Risk & Audit Department began maintaining a register of all claims made with respect to Council's physical assets and operations. Accordingly, this register contains complaints relating to trips, falls, hazards and damage occurring on Council's footpaths and adjacent nature strips. This led to the development of a separate schedule of footpath defects being developed. Currently yearly maintenance programs are determined through a combination of items listed on the defect register and the physical reports provided during external contracted condition assessment.

Due to the relatively long useful life of some asset types within the Road infrastructure asset class and the relative recency of asset management databases, the "construction date" date held within the GoAsset register appears incorrect for many of the Shire's older assets. This can be problematic when attempting to use the estimated remaining useful life to predict an asset renewal/replacement timeframe. As Council continues to undertake regular and ongoing inspection regimes of its assets, forward works programs will be

increasingly more accurate to predict, as current asset condition, combined with usage and criticality, will dictate need for renewal/replacement.

TABLE 3.1. CONDITION GRADING & % LIFE REMAINING

Rating	Rating Value	% Life Remaining	Description of Condition
Excellent/Very Good	1	100%	Only planned maintenance required
Good	2	80%	Minor maintenance required plus planned maintenance
Fair	3	60%	Significant maintenance required
Poor	4	40%	Significant renewal/rehabilitation required
Very Poor/Fail	5	20%	Physically unsound and/or beyond rehabilitation

3.2. Vehicular Bridges & Road Culverts

There is currently a reactive approach to the inspection and maintenance of cross drainage structures within the Shire, hence the data presented in **Figure 3.2.1** (following) is considered to be of low reliability as there is currently no system in place to forecast expenditure requirements.

Council currently allocates **$20,000** per annum for maintenance activities relating to bridges and culverts. With a Gross Replacement Cost of almost **$8m**, this represents 0.25% being spent on inspection and upkeep.

Given the potential economic, legal and reputational consequences of failure of one or more of these structures, there is an urgent need to develop, document and maintain upkeep of an appropriate inspection schedule to minimise potential risk to Council (refer **Table 6.1**).

It should be noted that there is currently no system in place to accurately forecast the expenditure requirements or detailed works programs for bridges and road culverts (refer **Section 6**).

An external asset management company undertook a review of the data contained in the GoAsset database relating to Bridges/Road Culverts in 2021. The following recommendations were made:

- Increased componentisation of vehicular bridges/culvert structures may assist with the allocation of funds for specific scheduled maintenance and renewal activities; and
- Based on out-dated data held in the database, Council should develop and document more stringent practices around condition and structural inspections, bring the management practices of bridges more into line with RMS or other road authority standards. This will reduce the risk of consequences of failure of these structures.

Noting the lack of current data for Bridges and Road Culverts, the external consultant was engaged to undertake condition and structural assessments of a selection of multi-cell culvert structures across the Shire, namely:

- Brooklyn Road, Brooklyn;

- Casuarina Drive, Cherrybrook;
- Salisbury Road, Asquith; and
- Wylds Road, Glenorie.

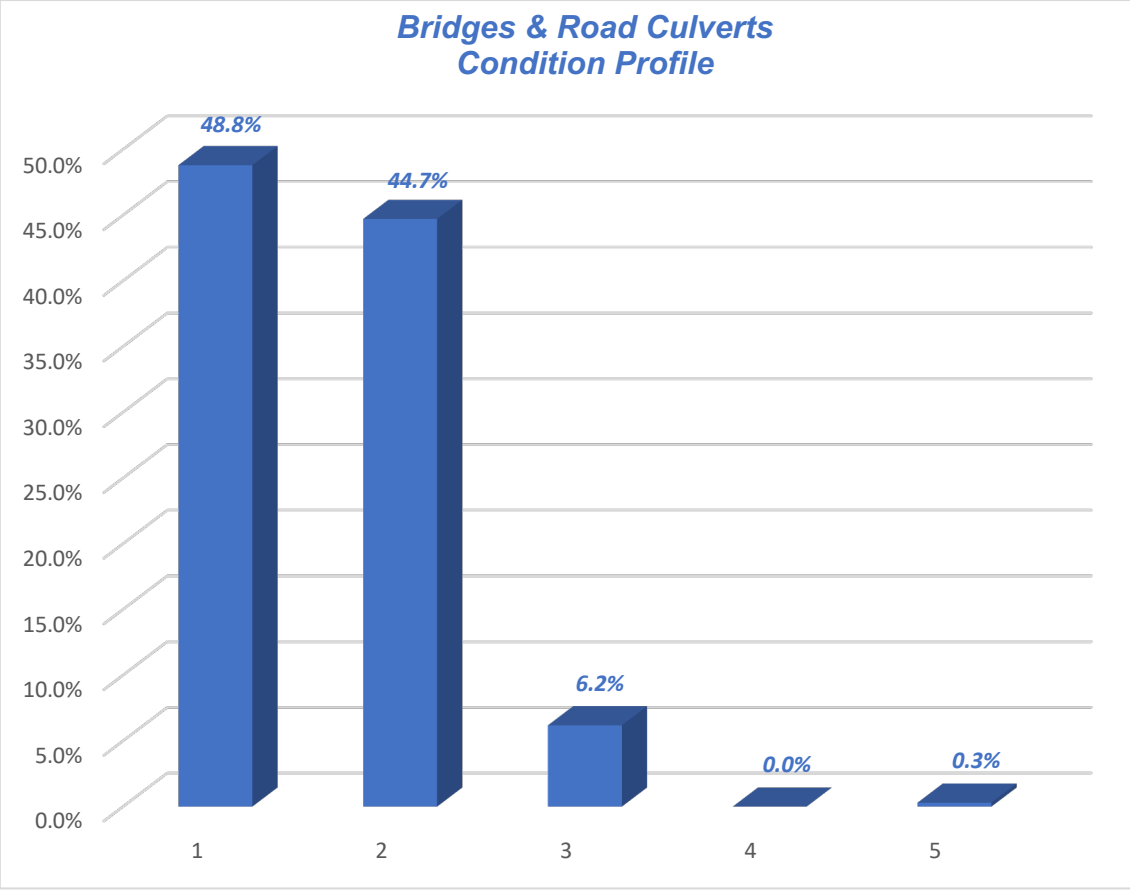
The subsequent report noted the following:

- All four of the sampled road culverts exhibited maintenance issues that directly impede their function, such as vegetation blockage, debris collection and/or scouring at entry/exits; and
- All four of the sampled road culverts exhibited age and use-related issues such as spalling of concrete, exposed and corroded reinforcement and cracking of link slabs and/or headwalls;

For these reasons the recommendation to develop, document and maintain upkeep of an appropriate inspection schedule (refer **Table 6.1**) has been given a high priority.

The report also recommends the implementation of a number of procedures to increase Council's understanding of its maintenance and renewal requirements for bridges and road culverts. These procedures will not only more accurately assist with the planning of future works but minimise any risk from potential failure of these assets through inadequate knowledge and monitoring.

FIGURE 3.2.1: BRIDGES & ROAD CULVERT CONDITION PROFILE



3.3. Car Parks

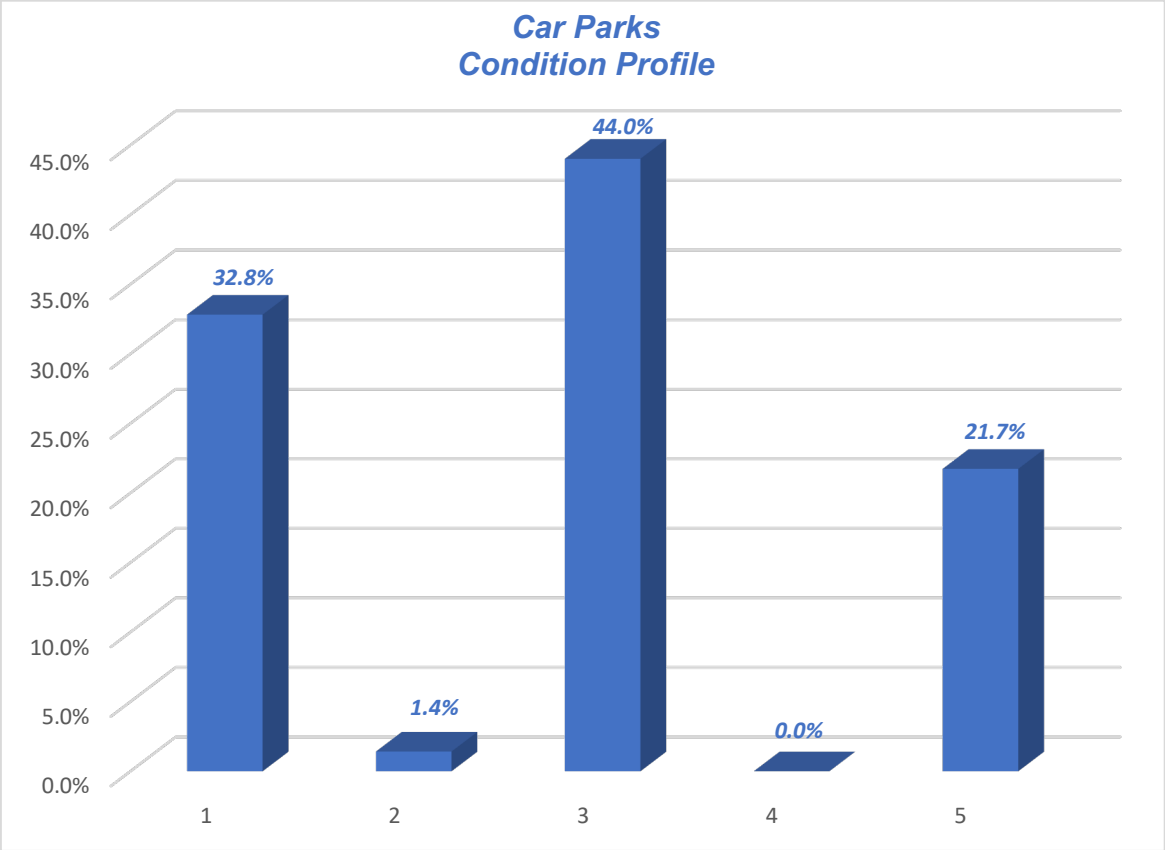
There is currently limited data relating to formed carparks within the GoAsset database. Those currently assets nominated as “carparks” within the database refer to designated on-road car parking areas (specifically line marked areas as an extension of the road pavement). This is primarily due to formed off-road car parks being previously associated with the adjacent facility (i.e.: park or community centre).

The Asset Management Roles & Responsibilities Determination moved the responsibility for these formed assets to the same Asset Custodian as for paved roads due to the similarity of material and usage.

Therefore, the database in GoAsset, and hence the condition profile in **Figure 3.3.1**, below, does not represent a complete picture of carparks across the Shire.

A field audit/reconciliation, in consultation with Building Maintenance Services and Community & Environment staff is required to identify all assets that have been allocated to the Road infrastructure asset class. This has been scheduled to be undertaken in the current financial year.

FIGURE 3.3.1: CAR PARKS CONDITION PROFILE



3.4. Cycleways, Footpaths & Shared Paths

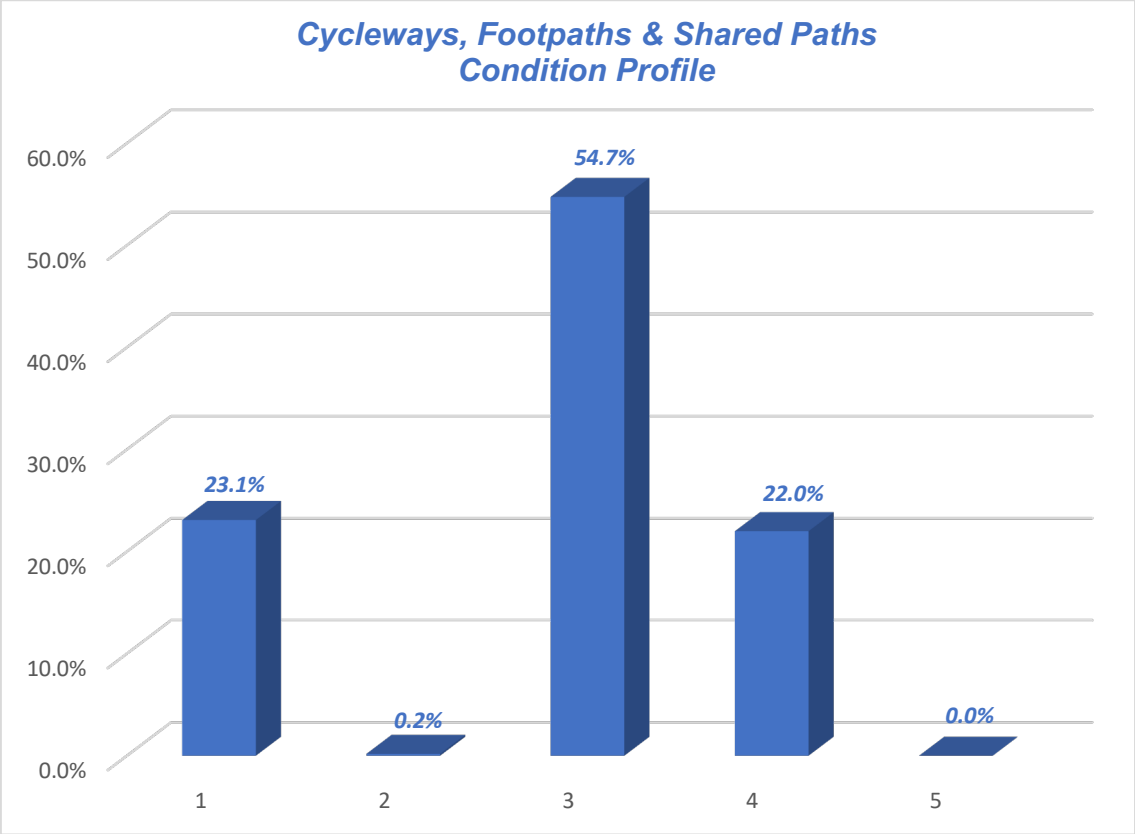
In recent years Council has embarked on significant improvement to the flow of pedestrian and cycle traffic around the Shire through an expanded shared path/cycleway construction program. It should be noted that the construction of cycleways and shared paths has historically been heavily reliant on external Grant

funding however significant funding has been allocated with the Special Initiatives component of the successful SRV application to IPART (refer **Table 2.1**).

Constructed footpath/shared path/cycleway conditions are monitored across the entire network on a rotating four-year program corresponding to the collection of road pavement data. Currently the data is collected by external contractors using quadbikes with mounted video cameras for review. Detailed reporting is also provided to Council in addition to raw data for import into GoAsset and Council's GIS system. However, it should be noted that over the early years of the 2020's, partially due to the COVID19 pandemic and reduced use of condition assessment contractors, there has been limited current footpath condition data independently collected in recent years. It is recommended that this rolling program of collection be recommenced as soon as possible (refer **Table 6.1**).

It is important to note that **Figure 3.4.1** shows the condition profile based on assets contained with the GoAsset database. Similar to Car Park assets, Council's Asset Management Roles & Responsibilities Determination allocated all footpaths, including those contained within parks and community centres, under a single Asset Custodian. Hence a reconciliation between any data for footpaths contained with the Asset Futures (or other) databases is required. Additionally, a Shire-wide desktop survey is needed to be undertaken, in consultation with Building Maintenance Services and Community & Environment staff, to ensure the identification and documentation of all assets.

FIGURE 3.4.1: CYCLEWAYS, FOOTPATHS & SHARED PATHS CONDITION PROFILE



Council has recently embarked on a significant construction program of footpaths, shared paths and cycleways guided by the Walking and Cycling Strategy (2021). The development of works programs for these has highlighted that the three differing types of constructed pathway (footpaths, shared paths and

cycleways) have different usage characteristics, serving differing members of the community. Accordingly, the following is recommended for consideration:

- Footpaths, Shared paths and Cycleways be considered as three distinct Asset Types within the Road infrastructure asset class;
- Budgets accordingly be split between the three pathway types;
- A transparent policy and methodology be developed for the assessment of pathway need, prioritisation and works program preparation for communication to elected members and the wider community.

While forecast levels of funding indicate that the current levels of service can be maintained in the short term, the generation of new assets requiring additional maintenance expenditure show a reduced ability to create new assets without external funding.

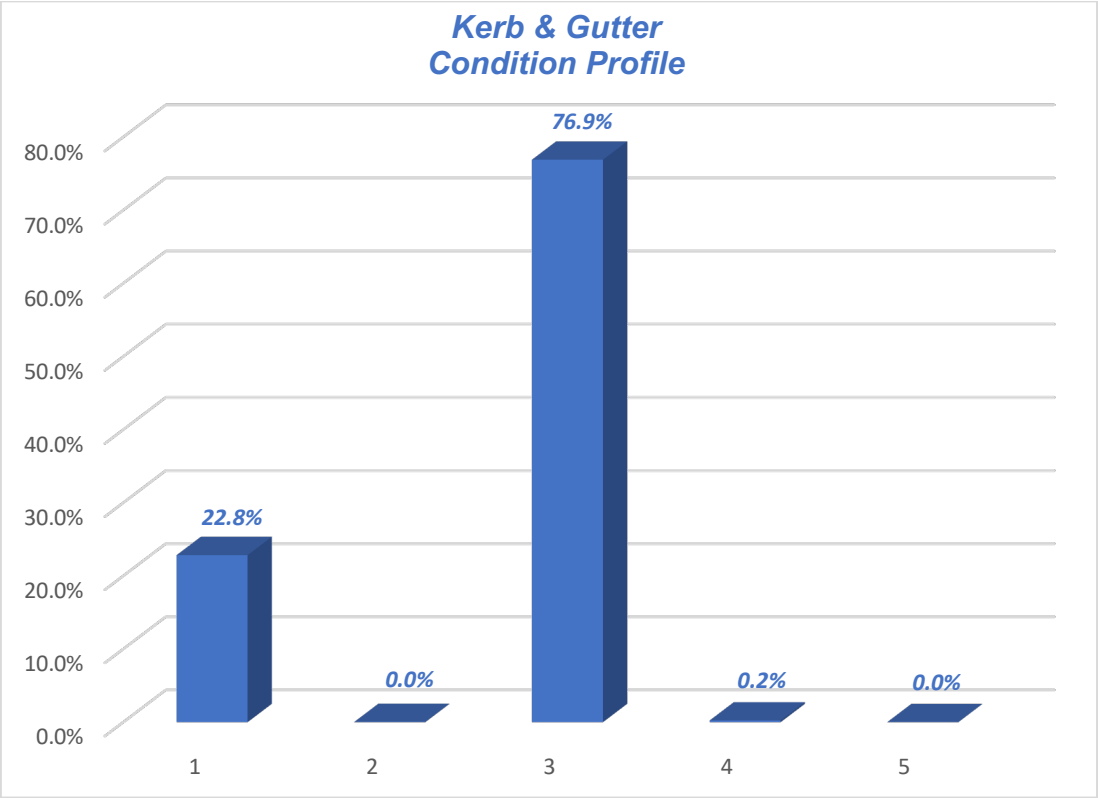
Footpaths and other forms of pathways remain one of the most important assets to the community and also one of the most reported to Council. With an aging population (refer **Appendix D**) and increased legislative requirements to improve levels of service to meet a diverse range of users, it is reasonable to expect that the maintenance and upkeep of Council's pathway network will continue to require an increase in funding over the long term. Footpaths are also subject to less predictable forms of damage, such as root uplift or damage from vehicles, that can have an immediate impact on path users and require immediate attention. Careful monitoring of complaint data, as well as proactive investigation/innovative construction methodologies may help to limit the Council's liability exposure.

3.5. Kerb & Gutter

Figure 3.5.1 shows the current condition of Council's Kerb & Gutter Assets. The effective maintenance of kerb & guttering, through replacement of damaged or up-lifted sections, plays an important role in protecting road pavements from damage through water ingress.

Whereas kerb and guttering can be operationally cleaned and reactively maintained, it can be difficult, or even unnecessary, to proactively maintain or renew. Hence currently the main capital improvement undertaken by Council on the kerb and gutter network relates to the construction new assets as part of Local Road Improvement upgrades. While these new sections of kerb and gutter add to the overall asset base, there is limited to no need for additional scheduled maintenance expenditure, due to the nature of the asset, however, reactive budgets should be increased accordingly.

FIGURE 3.5.1: KERB & GUTTER CONDITION PROFILE



While **Figure 1.3.1** shows that budgets are sufficient to maintain current levels of service for the existing as set base an increase in the asset base in the medium- to long- term results in increase in maintenance funding required.

3.6. Sealed Roads

The condition of sealed roads is determined within GoAsset via the production of a Pavement Condition Index (PCI) per segment of road. The PCI is calculated using physical parameters of the road surface as measured via independent contractors on a four-year rolling inspection program. As part of Council's submission to IPART in 2011 for the introduction of a Special Rate Variation, additional funds were requested to be allocated to the maintenance and renewal of sealed roads to raise the average PCI across the road network to **8.2**. Based on the most recent condition data held in the GoAsset system, the network average PCI is shown in **Table 3.2**, below:

TABLE 3.2: SEALED ROADS CONDITION – AVERAGE PCI

Road Classification	Length (km)	% of Network (by area)	Area-Weighted Average PCI	Area-Weighted Average Network PCI
Sub-arterial	39.83	8.1%	7.28	**8.22**
Collector	48.76	10.9%	8.06	
Principal Local	108.29	20.2%	8.00	
Local	380.16	60.8%	8.14	

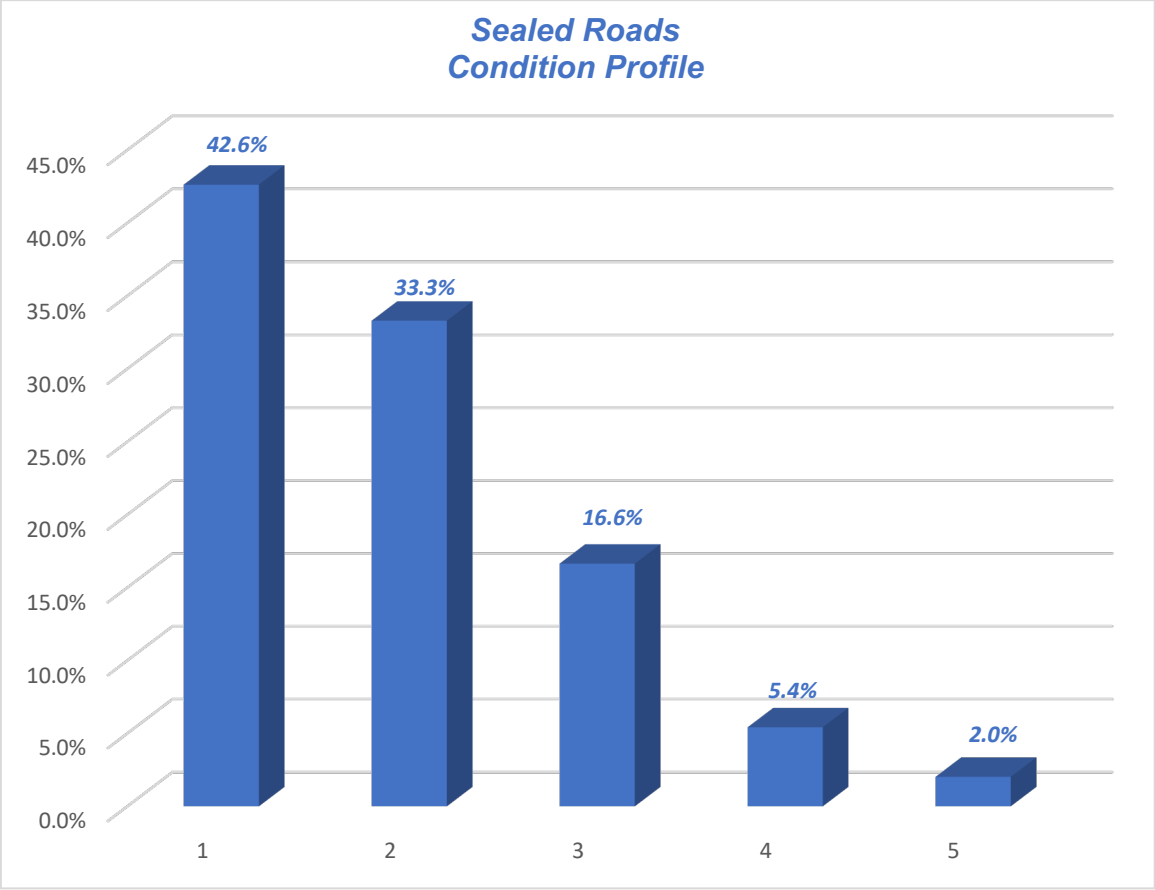
A significant portion of the sealed road network was affected by severe weather in the Hornsby LGA between 2021-2022. Accordingly, the State Government provided a grant during FY 2022/2023 and FY 2023/2024 totalling $6.5m within the Regional and Local Roads Repair Program (RLRRP) to undertake urgent maintenance. The condition data that forms the basis of **Table 3.2** and **Figure 3.6.1** was obtained in mid-2024 after the RLRRP program had been completed.

Anecdotally, across the Shire and the wider Sydney Metropolitan basin, the weather events had caused a significant damage, reducing the overall condition of the sealed pavement network. However, subsequent to the damaging rainfall events and the $6.5m RLRRP expenditure, the sealed pavement condition data received in August 2024 shows that the PCI for Council's Sealed Road Network returned to the desired target value of **8.2**. For reporting in the 2023/2024 Financial Statements, and as shown in **Figure 3.6.1**, PCI values are translated to a condition value according to the following scale:

TABLE 3.3: PCI CONDITION SCALE

PCI Range	Descriptor	Condition Value
PCI >= 9.0	***Very Good***	1
7.5 < PCI < 9.0	***Good***	2
5.3 < PCI < 7.5	***Fair***	3
2.8 < PCI < 5.3	***Poor***	4
PCI <= 2.8	***Failed***	5

FIGURE 3.6.1: SEALED ROADS CONDITION PROFILE



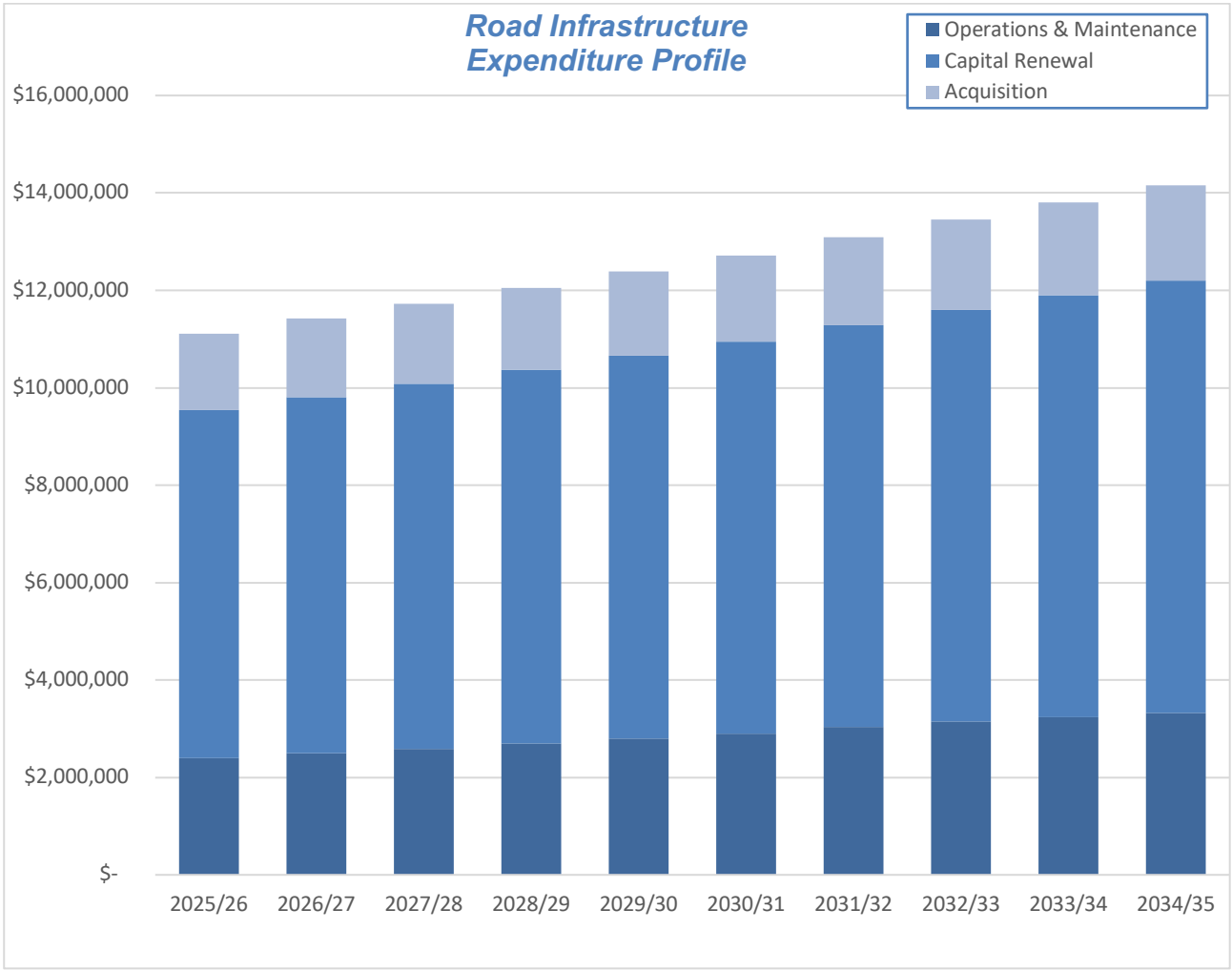
3.7. Unsealed Roads

The sealing of unsealed roads can significantly reduce the maintenance requirements for roads, as water ingress and erosion combined with vehicular movements can cause significant damage to the unformed pavement.

Unsealed Roads are currently not monitored for ongoing condition as they are part of an ongoing program to upgrade the trafficable surface to sealed pavements. There remains approximately **13km** of unsealed road surfaces within the Shire, primarily in the suburbs of Wisemans Ferry and Canoelands.

3.8. ALL ROAD INFRASTRUCTURE ASSETS

FIGURE 3.8.1: ALL ROAD INFRASTRUCTURE ASSETS EXPENDITURE PROFILE



With the current levels of knowledge of Council's Road infrastructure asset base, the predicted medium term inflationary environment and the awarding by IPART of the Special Rate Variation (SRV) in 2023, the above required expenditure is **fully funded** within Council's Long Term Financial Plan (LTFP) (i.e.: no estimated shortfall in Road infrastructure asset maintenance and renewal).

Note that there has been a minor reduction in projected budget and expenditure across the Road infrastructure asset class when compared with the submitted SRV application. This is due to the removal of budgeted additional maintenance expenditure required from FY 2025/26 on new infrastructure created as part of the paused Westleigh Park project (total $1.4m additional maintenance across all asset classes).

TABLE 3.3: ALL ROAD INFRASTRUCTURE ASSETS – TOTAL FUNDING BY YEAR

Year	25/26	26/27	27/28	28/29	29/30	30/31	31/32	32/33	33/34	34/35
Budget ('000)	$11,113	$11,422	$11,727	$12,052	$12,386	$12,716	$13,094	$13,456	$13,801	$14,154
Expenditure ('000)	$11,113	$11,422	$11,727	$12,052	$12,386	$12,716	$13,094	$13,456	$13,801	$14,154
Shortfall ('000)	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**

4. CURRENT STATE OF STORMWATER INFRASTRUCTURE

The following Sections detail the condition profiles of individual asset types within the Stormwater infrastructure asset class and how current levels of funding and expenditure compare with predicted expenditure to meet the agreed levels of service of these assets over the 10-year AMP/LTFP projection.

4.1. BACKGROUND DATA & GENERAL INFORMATION

The approximate type and quantity of assets covered by this AMP and their financial value are shown in **Section 1.2.2** and **Table 1.2** respectively.

Currently data relating to the physical assets is held within the following systems, which are reconciled to the fixed asset register cyclically:

- A comprehensive spreadsheet of physical data from resurveyed catchments is maintained by Council's Asset Operations & Maintenance Branch;
- The historic PipePak database holds physical condition and general asset data for assets within those catchments yet to be resurveyed;
- Council's Corporate System (TechnologyOne) contains financial data for the calculation of ongoing depreciation; and
- Council's GIS system contains geographic information with limited physical asset data.

Physical data held in the maintained resurveyed spreadsheet and the historic PipePak database for Stormwater infrastructure assets generally includes the following:

- Asset ID and description (location, material type);
- Construction date (if known);
- Last date of inspection (survey) and by whom; and
- Condition rating (refer **Table 4.1**).

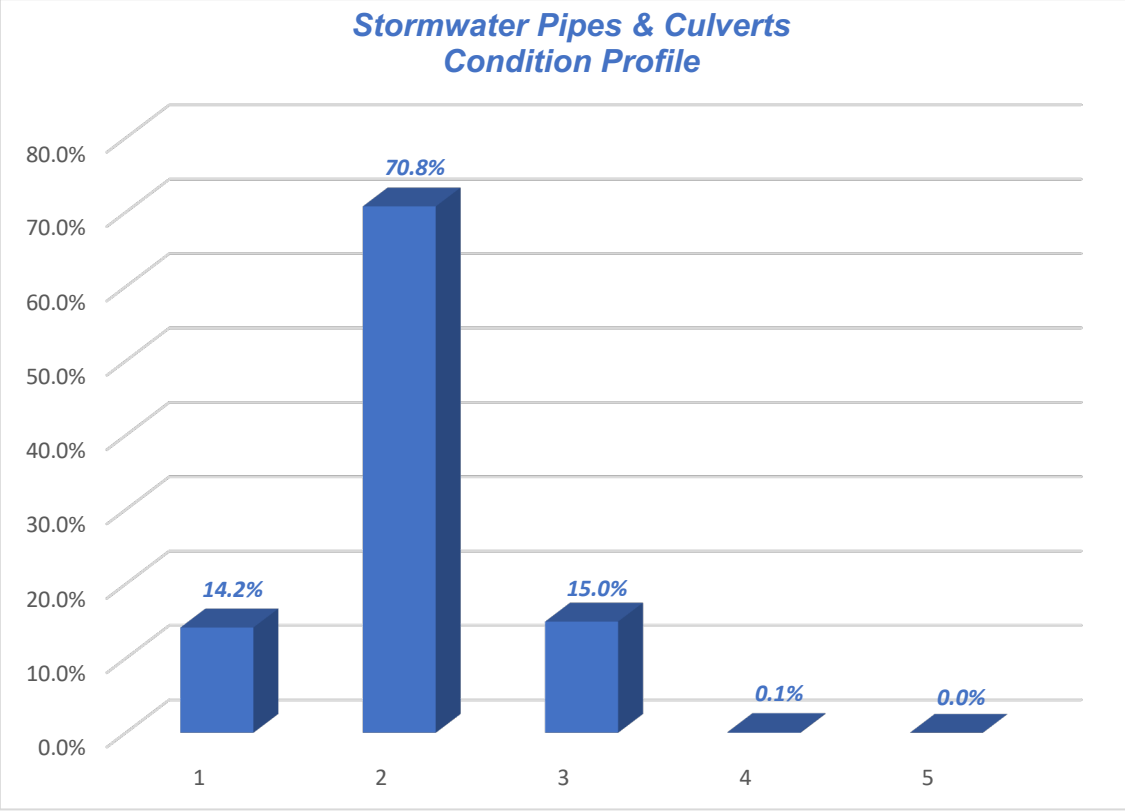
4.2. Stormwater Pipes & Culverts

Based on the inspection methodology described in **Section 1.5**, the condition data in the resurveyed asset spreadsheet and PipePak database for pipes and culverts is considered to be of low reliability. Funds from the successful SRV application in 2023 have been allocated to the implementation of a rolling stormwater infrastructure network inspection program. This inspection program commenced in FY 2023/24. Hence while **Figure 4.2.1** indicates that almost all pipes and culverts are of condition 3 or better, results from the recently implemented rolling CCTV inspection program are required to incrementally improve the reliability of the overall dataset.

TABLE 4.1. COMPARISON OF CONDITION RATINGS & % LIFE REMAINING

Rating	Rating Value			Approx. % Life Remaining	Description of Condition
	PipePak (Non-resurveyed catchments)	Assets Spreadsheet (Resurveyed catchments)	This Report & Financial Reporting (AASB)		
Excellent/ Very Good	8, 9 or 10	5	1	100%	As new condition. No repairs or maintenance required.
Good	5, 6 or 7	4	2	80%	Good condition – minor deterioration. Maintenance only.
Fair	3 or 4	3	3	60%	Fair condition – medium deterioration. Some repairs required.
Poor	2	2	4	40%	Poor condition – major deterioration. Significant repairs required.
Very Poor/ Fail	0 or 1	0 or 1	5	20%- 0%	Failed/unserviceable. Replacement required.

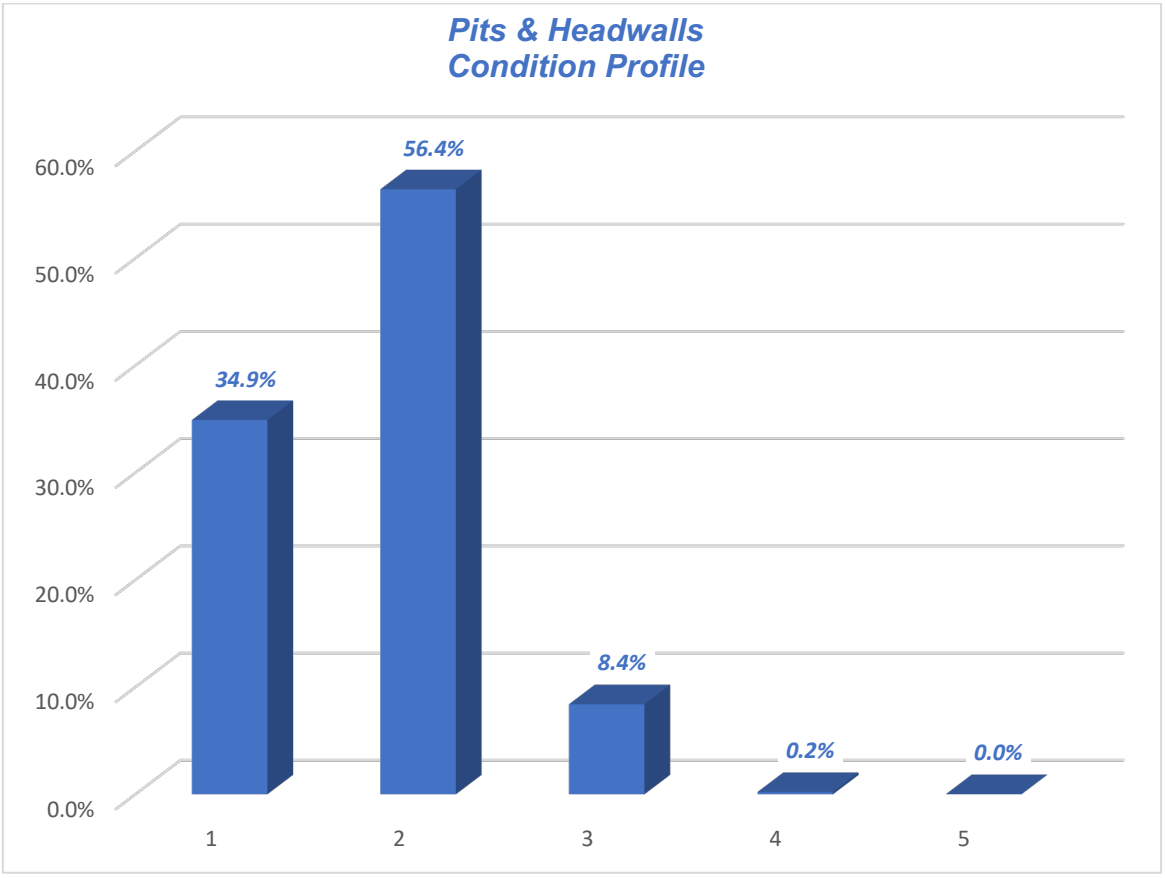
FIGURE 4.2.1: STORMWATER PIPES & CULVERTS CONDITION PROFILE



4.3. Stormwater Pits & Headwalls

Due to being generally more accessible condition data for pits and outlet structures held within the resurveyed infrastructure spreadsheet and PipePak data base is considered to be more accurate. However, as **Figure 1.5.1** shows, not all catchments have been resurveyed and up to 20 years has passed since the first resurvey was undertaken. Added to this, the resurveys are generally contained to the road reserve, and hence and structures within private property have generally not been resurveyed. Based on assessment of the data in the registers, approximately **40%** of all pits across the Shire have not been resurveyed. Therefore, like the condition data for pipes and culverts, the condition data for pits as a whole is considered to be of lower quality. Again, this will improve as the data set is updated within the rolling CCTV and drainage infrastructure resurvey program.

FIGURE 4.3.1: STORMWATER PITS & HEADWALLS CONDITION PROFILE

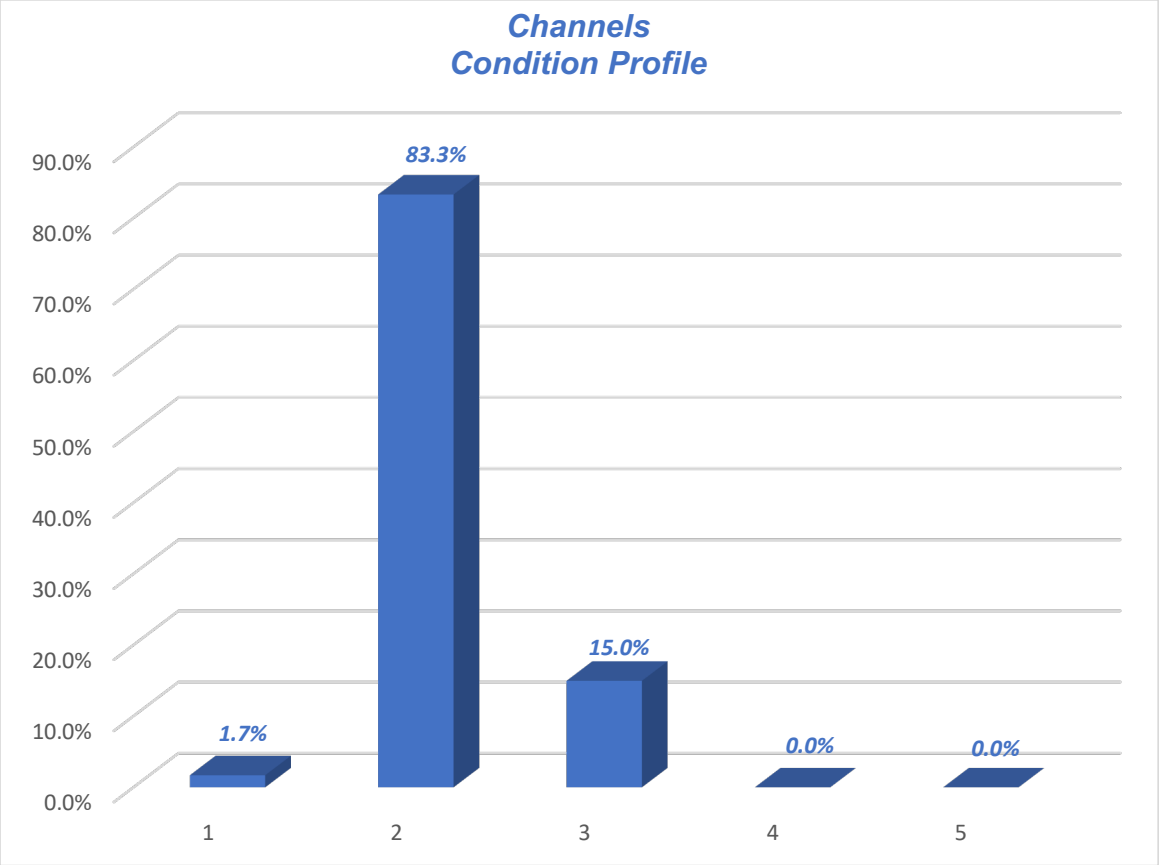


4.4. Channels

The current data base, including the GIS system, currently hold limited physical data relating to channels, particularly considering their variable nature across their length. Added to this, Council does not have a formally adopted policy relating to the management of channels and natural watercourses. There is currently no documented inspection regime for channels, and only minimal geographic location data in Council's GIS system. While reactive maintenance and operational issues are addressed following rainfall events, the lack

of regular, standardised inspections results in the data contained in Council's technical register to be considered of low reliability.

FIGURE 4.4.1: CHANNELS CONDITION PROFILE



4.5. All Stormwater Infrastructure Assets

As a result of funding included in Council's recent successful application to IPART for a Special Rate Variation the proposed budget services **100%** of the forecast expenditure on Stormwater infrastructure assets over the 10-year projection period.

FIGURE 4.5.1: ALL STORMWATER INFRASTRUCTURE ASSETS EXPENDITURE PROFILE

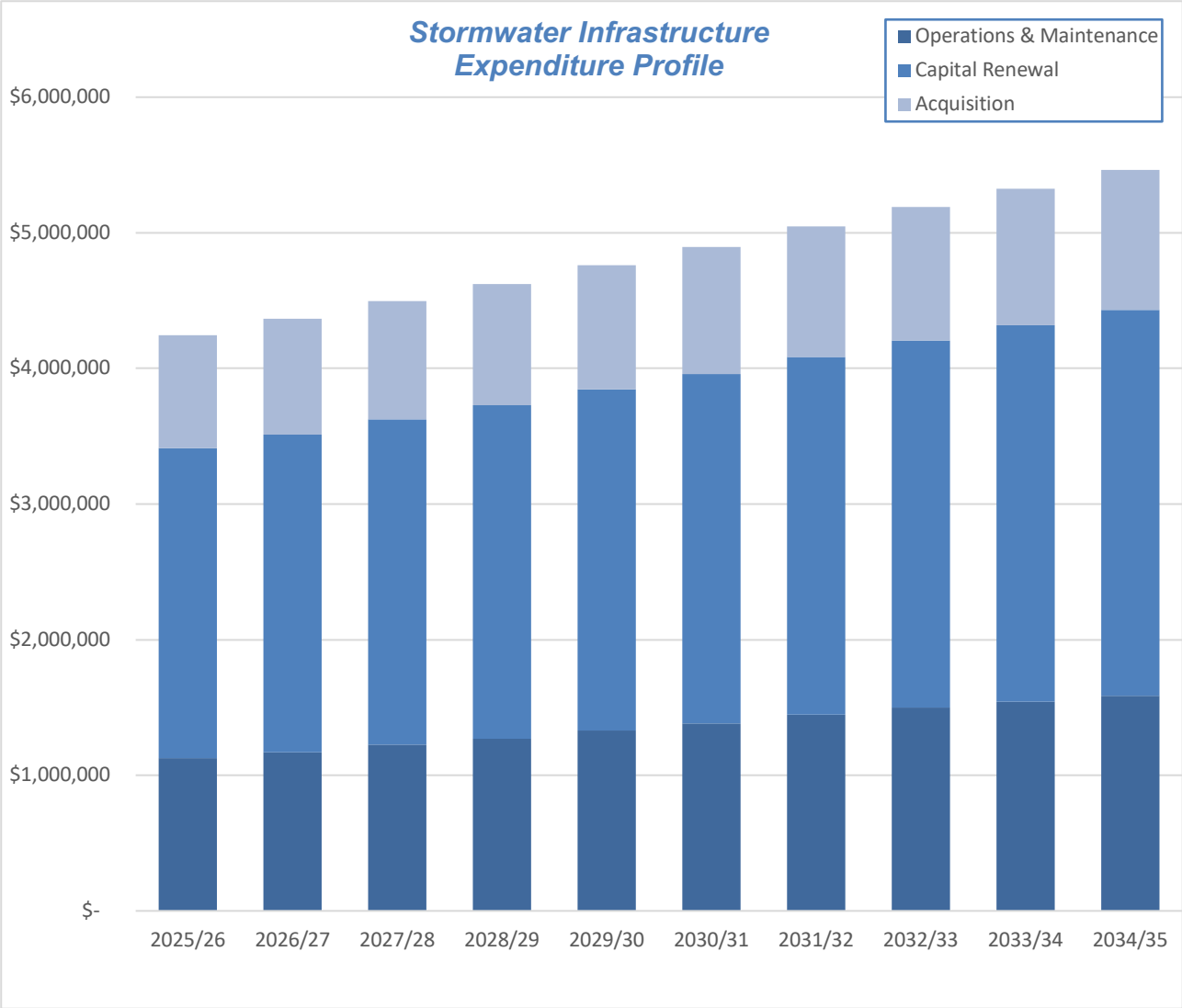


TABLE 4.2: ALL STORMWATER INFRASTRUCTURE ASSETS – TOTAL FUNDING BY YEAR

Year	25/26	26/27	27/28	28/29	29/30	30/31	31/32	32/33	33/34	34/35
Budget ('000)	$4,246	$4,364	$4,497	$4,622	$4,762	$4,893	$5,046	$5,190	$5,325	$5,464
Expenditure ('000)	$4,246	$4,364	$4,497	$4,622	$4,762	$4,893	$5,046	$5,190	$5,325	$5,464
Shortfall ('000)	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**

Note that there has been a minor reduction in projected budget and expenditure across the Stormwater infrastructure asset class when compared with the submitted SRV application. This is due to the removal of budgeted additional maintenance expenditure required from FY 2025/26 on new infrastructure created as part of the paused Westleigh Park project (total $1.4m additional maintenance across all asset classes).

5. FINANCIAL SUMMARY

5.1. SUSTAINABILITY OF SERVICE DELIVERY

Two key indicators for service delivery sustainability that have been considered in the analysis of the services provided by this asset category, these being the:

- Asset renewal funding ratio, and
- Medium-term budgeted expenditures/projected expenditure (over 10 years of the planning period).

The Asset Renewal Funding Ratio is the most important indicator and indicates that over the next 10 years of the forecasting that we expect to have approximately **100%** of the funds required for the renewal and replacement of assets, based on current levels of service.

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

The projected annual average operations, maintenance and capital renewal expenditure required over the 10-year planning period for both Road and Stormwater infrastructure is:

Road Infrastructure Assets: **$125,921,000** or **$12,592,100** on average per year;

Stormwater Infrastructure Assets: **$48,409,000** or **$4,840,900** on average per year;

Road & Stormwater Infrastructure Assets combined: **$174,330,000** or **$17,433,000** on average per year.

The above budgeted average total annual funding represents the following proportions of each asset class gross replacement cost:

Road Infrastructure Assets: **1.8%** on average per year;

Stormwater Infrastructure Assets: **0.7%** on average per year;

The above values include those budgets attributable directly to stormwater infrastructure, such as explicit SRV funding, as well as a proportion of those budgets that may be spent partially on stormwater infrastructure (i.e.: “Local Road Improvements” or “Roads & Drainage Maintenance”) and partially on Road infrastructure.

Note that for stormwater infrastructure the level of operational, maintenance and renewal funding compared to gross replacement cost is, in part, due to the long life (~100-150 years) of drainage infrastructure and the lack of documented knowledge as to the actual replacement regime required in differing environments.

Providing services from infrastructure in a sustainable manner requires the matching and managing of service levels, risks, projected expenditures and financing to achieve a financial indicator of approximately 1.0 over the 10-year life of the LTFP. With the awarding of the SRV, the projected level of funding for these asset classes should achieve the levels of service.

5.2. FUNDING STRATEGY

Funding for assets is provided from the budget and LTFP. The financial strategy determines how funding will be provided, whereas the AMP communicates how and when this will be spent, along with the service and risk consequences of differing options. Note however that it is the intent of this, and other AMP's for Council's Asset Classes, that the need for variable and flexible budgeting be considered based on asset need rather than historical budget allocations. Additionally, as stated in **Section 1.6**, it is recommended that:

- SRV funds are allocated based on the instrument of approval assigned by IPART, with funds for stormwater drainage to be pooled over several years for large scale projects.
- Certain funds be specifically allocated for the purpose of improving Council's knowledge of the condition of its asset base (CCTV) and to enable the rolling resurveying of stormwater infrastructure across all sub-catchments.

5.3. VALUATION FORECASTS

Aggregate asset values are forecast to increase as additional assets are added into service. However, it should be noted that generally a large portion of Capital works undertaken per year represent renewals of assets and not just the creation of new assets.

Additional assets will generally add to the operations and maintenance needs in the longer term, as well as the need for future renewal. Additional assets will also add to future depreciation forecasts. Currently the LTFP allows for a general increase of **2%** to the maintenance budget for assets when allowing for asset additions.

5.4. KEY ASSUMPTIONS MADE IN FINANCIAL FORECASTS

This section details the key assumptions made in presenting the information contained in this AMP. 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 AMP are:

- Budgeted amounts have been analysed at a Financial Project level. Where a Financial Project contains a budget for activities undertaken across multiple Asset Classes/Types, an estimate based on similar projects has been undertaken to determine relative value of the assets constructed/ renewed/maintained;
- Where Financial Projects contain a budget that can be spent on a range of activities (operations, reactive maintenance, scheduled maintenance, renewal, asset creation), an estimate of the relative split has been made with assistance from the Budget Manager and/or Asset Custodian;
- Section 7.11, Section 7.12 projects and other major projects have been assessed as adding to the maintenance budget from the financial year *after* they are scheduled to have completed construction;

- Increased levels of funding over the past decade have allowed Council to address a number of stormwater infrastructure projects that would otherwise require large one-off allocations from reserves or remain not improved and hence increase overall corporate risk. Council's Assets & Operations Branch have undertaken a comprehensive study of overland flow across the Shire culminating in the Hornsby Shire Council FPRMSP. This Plan contains a list of areas to be considered for flood mitigation measures (including network renewals and upgrades). This list forms the basis of the Works Program presented in **Appendix A.2**.

5.5. FORECAST RELIABILITY AND CONFIDENCE

The values presented in this AMP are based on best available data. Currency and accuracy of data is critical to effective asset and financial management. Data confidence is classified on a 5-level scale[1] in accordance with **Table 5.1**.

TABLE 5.1: DATA CONFIDENCE GRADING SYSTEM

Confidence Grade	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, for example some of the data is old, some documentation is missing and/or reliance is placed on unconfirmed reports or some extrapolation. Dataset is complete and estimated to be accurate ± 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 held.

The estimated confidence level for and reliability of data used in this AMP differs for the different Asset Types within the Stormwater infrastructure asset class, as shown in **Table 5.2.**

TABLE 5.2: DATA CONFIDENCE BY ASSET TYPE

Asset Type	Data Confidence		Reason(s)
Road Infrastructure			
Bridges & Road Culverts	C	Uncertain	Lack of documented regular inspection regime. Dataset not geographically located.
Car Parks	D	Very Uncertain	Incomplete dataset due to change in Roles & Responsibilities. Lack of documented regular inspection regime.
Cycleways	C	Uncertain	Potentially incomplete dataset. Lack of definition of asset type.

[1] IPWEA, 2020, IIMM

Asset Type	Data Confidence		Reason(s)
Road Infrastructure			
Footpaths	C	Uncertain	Regular and standardised inspection regime. Incomplete dataset due to change in Roles & Responsibilities.
Kerb & Gutter	B	Reliable	Regular and standardised inspection regime.
Sealed Roads	A	Highly Reliable	Regular and standardised inspection regime (recent complete data collection). Rates and treatment types contained in GoAsset PMS.
Unsealed Roads	C	Uncertain	Lack of documented regular inspection regime.
Stormwater Infrastructure			
Pipes & Culverts	C	Uncertain	Lack of recent data collection outside of road reserve. Lack of inspection/unknown condition *between* pits.
Pits & Headwalls	C	Uncertain	Lack of recent data collection outside of road reserve. Current gaps in inspection regime.
Channels	D	Very Uncertain	Potentially incomplete dataset. Lack of documented regular inspection regime. Lack of definition as to what constitutes a channel under Council's care and control.

6. PLAN IMPROVEMENT & MONITORING

6.1. STATUS OF ASSET MANAGEMENT PRACTICES[2]

6.1.1. ACCOUNTING & FINANCIAL DATA SOURCES

Financial data sources used in the preparation of this AMP include;

- Current financial data from Council's last published financial reports (FY 2023/24);
- Historical and current budget information across the Infrastructure & Major Projects Division encompassing operations, maintenance, renewal and new construction (TechnologyOne);
- Current revaluation data and/or quotes provided by contractors (indexed by ABS indices where appropriate); and
- Treatment, renewal and replacement rate details as contained within Council's PMS (GoAsset).

6.1.2. ASSET-SPECIFIC DATA SOURCES

The GoAsset PMS database served as the primary source of data for this AMP. GoAsset contains physical data for:

- Sealed Roads;
- Unsealed Roads;
- Footpaths/Cycleways;
- Kerb & Gutter; and
- Bridges & Culverts.

PipePak was used to manage the technical asset data following the large-scale stormwater infrastructure data collection project in the 1990's. This data was eventually migrated to Council's GIS system and the GIS data now forms the primary technical register. The original PipePak databases are kept for reference for catchments/assets that have not been resurveyed since the original data collection project.

The PipePak/GIS databases contains physical and condition data for:

- Stormwater pipes and culverts; and
- Stormwater pits & headwalls;

[2] ISO 55000 Refers to these as the Asset Management System

Channels can be highly variable in geometry, material and/or quality (i.e.: blockages, erosion, etc…). It is noted that the current fields within both the GIS and PipePak databases to not appear to have the ability to capture highly variable data. Hence, as noted in **Table 5.2**, there is limited confidence in the data set for channels.

The process for reconciliation of Council's technical and financial registers occurs in line with the revaluation of stormwater infrastructure assets in accordance with NSW Office of Local Government's Integrated Planning & Reporting (IP&R) Framework.

6.2. ASSET MANGEMENT PLAN & PROCESS IMPROVEMENTS

Recommendations for improvements to Stormwater infrastructure asset management processes and documentation are shown in **Table 6.1** following. These improvements may involve a change to systems and/or resourcing, requiring significant time for investigation and implementation. Each recommendation has been given a priority ranking of either high, medium or low based on the expected benefit to Council and the community of implementing the improvement. This ranking assists Council in the comparison and prioritisation of improvement recommendations across all asset management plans.

The below improvement points are discussed quarterly as part of an internal Asset Management working group. As at the date of this document asset custodians have made no progress towards the completion of these improvement points. The importance of these improvement points is highlighted in Councils long term financial plan and have been escalated to Councils Executive Leadership Team.

TABLE 6.1: HIGH PRIOIRTY AMP IMPROVEMENT PLAN

Observation	Implication	Recommendation (s)	Priority
Lack of documented periodic inspection procedure.	Increased physical and financial risk from deteriorating assets.	Develop and implement inspection methodologies for all bridge and culvert assets.	High
Potentially unidentified assets.	Incomplete physical and financial asset base leading to poor decision making.	Collect physical data for all car parks and footpaths including those in parks.	High
Detailed Capital and Maintenance works programs produced by GoAsset are not used to full effect.	Difficulty in achieving the community and technical services levels for assets coupled with risk of financial shock for asset upgrades.	Undertake comprehensive review of the "GoAsset" pavement management system to ensure that work schedules produced are accurate and can be followed.	High

Observation	Implication	Recommendation (s)	Priority
Council has an established practice of condition assessing the road network over a four-year rolling program. However, data was not collected over some recent years.	Road condition data may become out of date, which could lead to inaccurate expenditure forecasts and work schedules.	Re-commence rolling condition inspection methodology for all sealed road assets over a four-year period (e.g.: 25% p.a.)	High
Lack of recent asset condition data.	Incomplete or out-of-date physical and financial asset base leading to poor decision making.	Develop and implement a rolling program of drainage infrastructure condition inspections (CCTV or similar).	High

TABLE 6.2: LOWER PRIOIRTY AMP IMPROVEMENT PLAN

Observation	Implication	Recommendation (s)	Priority
No clear and transparent models of work prioritisation documented.	Difficulty in communicating to the community and elected members the rationale behind determined works programs.	Develop a prioritisation model for stormwater drainage upgrades, noting that SRV AMP funds are provided for this purpose.	**COMPLETE**
Responsibility of minor parts of the asset base have changed in line with the Roles and Responsibilities Determination.	Workflows may not be assigned to the responsible Officer in the first instance.	Assess system workflows to ensure CRM's flow to the correct team as requested by the ELT.	Medium
Bridges (usually) lumped as singular component in asset registers.	Potential for poor management of individual bridge components (e.g.: abutments, deck/link slab, walls, etc…).	Increase componentisation of bridge and multi-cell culvert structures to better manage risks associated with individual elements.	Low
No transparent prioritisation model for footpath projects in Appendix 1 of Walking and Cycling Strategy.	Lack of clarity and communicability of Footpath project selection in DPOP.	Apply prioritisation model (or similar) as used for Shared Paths to Footpaths projects.	Medium

Observation	Implication	Recommendation (s)	Priority
No clear policy on what or how Council intends to provide kerb and gutter assets for the community.	Difficulty in clearly expressing a determined works schedule priority to the community.	Develop a prioritisation model for Local Road Improvement Projects.	Low
Lag between changes to Council's FAR/physical registers and the GIS system.	Possibly incorrect representation of data to staff	Develop a procedure for the Asset Operations team to inform Finance and GIS as work is completed, to ensure alignment between all systems.	Medium
Lag between changes to Council's FAR/physical registers and the GIS system.	Possibly incorrect representation of data to staff, elected members and the community.	Reconcile GIS to PipePak to ensure completeness of the two data sets and develop a singular technical register/system for managing drainage assets.	Medium
Lag between changes to Council's FAR/physical registers and the GIS system.	Possibly incorrect representation of data to staff	Develop a procedure for the Asset Operations team to inform Finance and GIS as work is completed, to ensure alignment between all systems.	Medium
Potential lack of data at piped system outlets.	Incomplete physical and financial asset base leading to poor decision making.	Expand survey of outlets to include aprons and/or energy dissipation structures.	Low
No regular inspection regime for open channels.	Increased potential for damage to public or private property from erosion or blockage.	Develop a routine documented inspection regime for Council-owned and managed channel.	Medium

6.3. AMP MONITORING & REVIEW PROCEDURES

This AMP will be reviewed during annual budget planning processes and amended to show any material changes in service levels and/or resources available to provide those services as a result of budget decisions.

The AMP has a maximum life of 4 years (local government election cycle) and is due for complete revision and updating within two years of each Council election.

6.4. PERFORMANCE MEASURES

The effectiveness of the AMP can be measured in the following ways:

- The degree to which the required projected expenditures identified in this AMP are incorporated into the LTFP;
- The degree to which 1-4 year detailed works programs, budgets, business plans and corporate structures account for 'global' works program trends provided in this, and other, AMP's/Council planning documents;
- The degree to which the existing and projected service levels and service consequences, risks and residual risks are incorporated into the Strategic Plan and associated plans; and
- The Asset Renewal Funding Ratio as displayed in the annual financial statements achieving the target of 100% (see note below).

The overall effectiveness of the recommendations and forward works plans presented in the AMP are highly dependent on the quality and completeness of the datasets used in its development. As these two key characteristics of knowledge of Council's asset base and overall data management improve over time, so too will this AMP's achievement of the above performance measure(s).

7. REFERENCES

- IPWEA, 2020 (Ver. 6.0), 'International Infrastructure Management Manual', Institute of Public Works Engineering Australasia, Sydney, www.ipwea.org/IIMM
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- Hornsby Shire Council Financial Statements (30 June 2024)
- Delivery Program (2024-2027 – including the Operational Plan 2023/24), Hornsby Shire Council (adopted June 2024)
- Hornsby Shire Council Enterprise Risk Management Determination (January 2024)
- Community Satisfaction Survey 2024, Taverner Research Group (January 2025)
- Community Satisfaction Survey 2023, Taverner Research Group (March 2023)
- Community Satisfaction Survey 2021, Jetty Research (July 2021)
- Asset Management Community Insights Report, URBIS for Hornsby Shire Council (November 2020)
- Roads Asset Management Plan 2023/24-2032/33, Hornsby Shire Council (DRAFT January 2023)
- Roads Asset Management Plan Supplement 2005-2025, Hornsby Shire Council (April 2017) (superseded)
- Asset Management Framework 2016-2026, Hornsby Shire Council (January 2016) (superseded)
- Long Term Financial Plan 24/25-33/34, Hornsby Shire Council (August 2024)
- Hornsby Floodplain Risk Management Study and Plan, Hornsby Shire Council (February 2022)
- "Your Vision, Your Future", Hornsby Shire Community Strategic Plan 2022-2032, Hornsby Shire Council (June 2022)
- "Your Vision, Your Future", Hornsby Shire Council Walking and Cycling Strategy, Hornsby Shire Council (2021)
- Biodiversity Conversation Strategy 2020, Hornsby Shire Council (2020)

APPENDIX A – WORKS PROGRAMS

A.1 ROAD INFRASTRUCTURE DELIVERY – FY 2025/26 & FY 2026/27

Asset/Program	***Project***
Footpaths, Shared Paths & Cycleways ***Walking and Cycling Strategy***	Kwyong Road – Yallambee Road to Redwood Avenue, Berowra
	Yallambee Road – Yallambee Road to Kwyong Road, Berowra
	Willowtree Road –– Calga Avenue to Pine Place, Normanhurst
	Bellamy Street – Stevens Street to end (north), Pennant Hills
	Purchase Road – Beechwood Parade to Kentia Parade, Cherrybrook
	Ida Sreet – Sutton Street to School (east side), Hornsby
	Wyanna Street – Easton Road to Barnetts Road, Berowra Heights
	Rosemead Road – Valley Road to Hornsby Park, Hornsby
	Corang Road – Quarter Sessions Road to Eucalyptus Drive, Westleigh
	Vale Road – Wareemba Avenue to Norman Road, Thornleigh
	Woolcott Avenue – School to Driveaway 2A, Wahroonga
	Robert Road – Oliver Way to John Road, Cherrybrook – SHARED PATH
	Neutral Road – Clarke Road to Hall Road, Hornsby – SHARED PATH
	Clarke Road – Malsbury to Homewood Ave, Hornsby – SHARED PATH
Roads ***Local Roads Improvement (LRI) Projects***	Redgum Avenue – Laurence Street to end, Pennant Hills
	Chandler Avenue – Fraser Road to Alberta Avenue (Stage 2), Cowan
	Grevillea Crescent – Evans Road to Galston Road, Hornsby Heights
	Galston Road, Galston/Dural
	Denman Parade, Normanhurst (extent TBA)
	Anembo Road – Yallambee to Waratah Road, Berowra
Stormwater ***Drainage Improvements***	Design/Deliver Thornleigh, Wareemba Avenue – stormwater upgrade
	Plan and Design Stormwater infrastructure priority pipeline
	Plan and Design Galston stormwater solutions
	Design Thornleigh, Alinta Avenue – stormwater upgrade

A.2 STORMWATER INFRASTRUCTURE – PRIORITISED WORKS

NOTE: The following list is based on works identified in Council's FPRMSP and represents and initial works prioritisation. Each potential project is subject to further feasibility studies and more in-depth investigation of potential amelioration.

Project ID	***Project Location***	***Concept Project Description***	***Project Status (as at FY 2024/25)***	***Final Score***
107-3	HORNSBY	Drainage improvement works - additional pits and pipes in various locations.	Construction ready	**71.5**

Project ID	*Project Location*	*Concept Project Description*	*Project Status (as at FY 2024/25)*	*Final Score*
102-A	GALSTON	Two detention basins, one located at Galston Road and the other basin at the rear of the properties on Arcadia Road New 900 diameter pipe combined with improvements to the overland flow path from The Glade to Glen Street Flood walls/bunds to rear of the properties of Nancey Place to obstruct the flows and divert flows into the small basin at Arcadia Road.	Concept design completed	**62.5**
107-B	THORNLEIGH	Kooringal Avenue Flowpath - Proposed flood wall at the rear of the properties along Kooringal Avenue. Additional 450 mm pipe at Wareemba Avenue.	Construction in progress	**62.5**
107-B	THORNLEIGH	Gilgandra Avenue Flowpath 1 - Additional 600 mm diameter pipes and inlet pits.	Detailed design in progress	**62.5**
107-B	THORNLEIGH	Gilgandra Avenue Flowpath 2 - Additional 600 mm diameter pipes and inlet pits.	Detailed design in progress	**62.5**
103-3	BEROWRA	Drainage improvement works -additional pits and pipes in various locations.	Construction ready	**62.5**
212-B	BEECROFT	Proposed bund/flood wall at Fearnley Park (upstream of Hannah Street) to attenuate creek flows. Additional 1200 mm/2400mm diameter pipes along flowpaths.	Initial investigation carried out and further investigation of options required	**60**
108-C	CHERRYBROOK	Enlarge existing inlet pits at Darlington Drive and Chiswick Place. Proposed 750 mm and 1200 mm pipe connecting to the existing system at Chiswick Place.	Initial investigation carried out and further investigation of options required	**60**
107-3	HORNSBY	Drainage improvement works -additional pits and pipes in various locations.	Feasibility completed	**60**
107-A	THORNLEIGH	Proposed flood wall and an additional 900 mm pipe from Lockerbie Road to the open channel downstream along Sefton Road.	Initial investigation carried out and further investigation of options required	**56**
210-A	THORNLEIGH	Additional 1500 mm pipe at Alinta Close.	Initial investigation carried out and further investigation of options required	**55**
103-A	BEROWRA HEIGHTS	Proposed 900 mm diameter pipe connecting to the existing system at rear of the properties at Woodcourt Road, extending down the road and connecting to a surcharge pit.	Feasibility completed	**54**
107-E	NORMANHURST	Proposed 1500mm Diameter Pipe and increase pit inlet capacities along the Denman Parade / Woodbine Avenue flowpath.	Initial investigation carried out and further investigation of options required	**54**

Project ID	*Project Location*	*Concept Project Description*	*Project Status (as at FY 2024/25)*	*Final Score*
107-C	THORNLEIGH	Wareemba Avenue Flowpath - Proposed flood wall at the rear of the properties along Kooringal Avenue and an additional 600 mm pipe along the flowpath. Yaralla Crescent Flowpath - Proposed bund rear of the properties of Nattai Close and also a basin to detain flood waters. Additional 900 mm pipe from the basin outlet.	Further feasibility and option investigation required.	**51**
104-C	MOUNT COLAH	Additional 900 mm diameter pipe to reduce flood depth at Gloria Close.	Further investigation of options and site constraints required	**49**
104-E	BEROWRA HEIGHTS	New inlet pits along the overland flowpaths and proposed 450 mm pipe at Clinton Close.	Further investigation of options and site constraints required	**49**
109-A	CHERRYBROOK	Proposed detention basins and additional pit and pipe network along the flowpaths.	Further feasibility and option investigation required	**48.5**
109-G	CHERRYBROOK	Additional 900 mm pipe from Gumnut Road to Tallowwood Avenue. A proposed 1200 mm pipe network from Sheoak Close to Kenburn Avenue.	Further feasibility and option investigation required	**48.5**
109-C	WEST PENNANT HILLS	Proposing bund/flood wall upstream of Boyd Avenue, detention basins upstream of Campbell Park Additional 750 mm/1200 mm diameter pipes and inlet pits along the flow paths.	Further feasibility and option investigation required	**48.5**
106-2	ASQUITH	Drainage improvement works -additional pits and pipes in various locations.	Further feasibility and option investigation required	**48**
212-A	BEECROFT	Flood walls at Ludovic Blackwood Mem. Sanctuary (upstream of Spring Street) to attenuate creek flows, local flood wall along Hull Road Additional 900 mm/1500 mm/1800 mm diameter pipes along the flowpaths.	Further feasibility and option investigation required	**44**
109-D	PENNANT HILLS	Additional pit and pipe network along the flowpaths in Stevens Street and Bellamy Street.	Further feasibility and option investigation required	**44**
106-A	WAITARA	Park Avenue Drainage Works - Proposing new 900 mm diameter pipe network from existing system at Balmoral Street to Park Avenue and to the proposed Waitara Park detention system Wentworth Avenue Drainage Works - Proposed 900 mm diameter pipe from Balmoral Street, connecting to proposed 1050mm diameter pipe along existing overland flow path at rear of properties on Wentworth Avenue.	Further feasibility and option investigation required	**44**

Project ID	*Project Location*	*Concept Project Description*	*Project Status (as at FY 2024/25)*	*Final Score*
106-B	ASQUITH	Jersey Street Drainage Works - New 600 mm pipe from Citrus Avenue (rear of the properties) to the proposed detention basin. A 375 mm pipe from the basin outlet connecting to the existing pipe network. Also a flood wall to protect the properties along Citrus Avenue and divert flows into the basin Sherbrook Road Drainage Works - Proposing detention basins upstream and downstream of Northcote Road (near Sherbrook Road). Additional 900 mm pipe from the storage basin (corner of Northcote Road and Sherbrook Road) along Sherbrook Road to the downstream of Kings Road. Also proposing a bund/flood wall near Northcote Road to protect the adjacent properties.	Further feasibility and option investigation required	**44**
107-D	NORMANHURST	Proposed expansion of existing detention basin at St. Leo's College adjacent to Unwin Road, proposed additional pipe network along Edwards Road and Karinya Place to existing railway culvert.	Further feasibility and option investigation required	**44**
109-H	WESTLEIGH	Proposed detention basin between Quarter Sessions Road and Eucalyptus Drive to benefit downstream properties at Elouera Road. Additional inlet pit and 600 mm pipe at Elouera Road.	Further feasibility and option investigation required	**44**
102-B	GLENORIE	Potential for detention basins upstream of Cairnes Road on each branch, given availability of open space Proposed 900 mm pipe to divert flows from affected properties on Tecoma Drive.	Further feasibility and option investigation required	**44**
108-B	CHERRYBROOK	Two detention basins, one located upstream of Robert Road and the other small basin at Roslyn Place. Proposed 1200 mm pipe from Roslyn Place to Dantic Place.	Further feasibility and option investigation required	**44**
101-A	MOUNT COLAH	Additional pipe network from Colah Road/Gray Street intersection to Myalla Road.	Further feasibility and option investigation required	**42**
106-C	HORNSBY	Proposed 600 mm pipe connecting to the existing system at Arthur Street and runs along Denison Street to Sherbrook Road. Flood walls located along the flowpath to provide protection to properties Proposed 1200 mm/1500 mm pipe along flow path from Heath Street to Salisbury Road.	Further feasibility and option investigation required	**42**
108-A	CASTLE HILL	Proposed detention basin along overland flow path east of Old Northern Road. New 600 mm diameter pipe from De la Salle Place to downstream of David Road.	Further feasibility and option investigation required	**42**

Project ID	***Project Location***	***Concept Project Description***	***Project Status (as at FY 2024/25)***	***Final Score***
104-D	BEROWRA	Proposed 1200 mm diameter pipe from Geneva Street to downstream of Bambil Road.	Further feasibility and option investigation required	**42**
108-D	CHERRYBROOK	Additional 600 mm/900 mm/1050mm diameter pipe network at New Line Road and Rowena Place.	Further feasibility and option investigation required	**42**
109-E	THORNLEIGH	Proposed 1500 mm diameter pipe beneath railway. Additional inlet pits along existing network along the flowpath.	Further feasibility and option investigation required	**40**
104-A	ASQUITH	Drainage works along flowpath. Amor Street flowpath, Old Berowra Road.	Further feasibility and option investigation required	**40**
104-B	ASQUITH	Proposed drainage works along flowpath. Amor Street flowpath, Bouvardia Street.	Further feasibility and option investigation required	**40**

APPENDIX B - ASSET MANAGEMENT - GENERAL

B.1 BACKGROUND

This AMP communicates the actions required for the responsive and responsible management of the Road and Stormwater infrastructure asset classes, compliance with regulatory requirements, and funding to provide the required levels of service over a 10-year planning period.

This AMP is to be read with all key Hornsby Shire Council planning and delivery documents, including the following:

- HSC Asset Management Policy;
- HSC Asset Management Strategy;
- HSC Asset Management Roles & Responsibilities Determination;
- HSC Enterprise Risk Management Determination;
- Hornsby Shire Council Delivery Program (2024-2027);
- Hornsby Shire Council Long Term Financial Plan 24/25-33/34 (August 2024);
- "Your Vision, Your Future" Hornsby Shire Community Strategic Plan 2022-2032 (June 2022);

B.2 GOALS AND OBJECTIVES OF ASSET OWNERSHIP

The goal of asset management is to meet the defined level of service in the most cost-effective manner for present and future consumers. The key elements of infrastructure asset management are:

- Providing a defined level of service and monitoring performance,
- Managing the impact of growth through demand management and infrastructure investment,
- Taking a lifecycle approach to developing cost-effective management strategies for the long-term that meet the defined level of service,
- Identifying, assessing and appropriately controlling risks, and
- Linking to a LTFP which identifies required, affordable expenditure and how it will be allocated.

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

- International Infrastructure Management Manual 2020; and
- ISO 55000[3]

[3] ISO 55000 Overview, principles and terminology

B.3 CORE AND ADVANCED ASSET MANAGEMENT

This AMP is prepared using 'advanced', rather than 'core' asset management methodology over a 10-year planning period in accordance with the International Infrastructure Management Manual[4].

Core asset management is a 'top down' approach where analysis is applied at the system or network level.

An 'advanced' asset management approach uses a 'bottom up' approach for gathering detailed asset information for individual assets.

This AMP is considered 'advanced' as it is based on a bottom-up approach using individual asset data, however, areas for improvement in data collection, data utilisation and maintenance have been identified. (refer **Section 6**).

B.4 ASSET MANAGEMENT PRACTICES

Council's systems to manage Road infrastructure assets include:

- TechnologyOne;
- GoAsset Pavement Management System (PMS) – as used to determined works programs for sealed roads;
- GoAsset PMS – as used to contain physical asset registers for:
    - Unsealed Roads;
    - Footpaths/Cycleways;
    - Kerb & Gutter; and
    - Bridges & Culverts (cross drainage).
- Several defect, risk & liability and/or other registers maintained by individuals.

Disaggregated data relating to the physical condition of Road infrastructure assets held in the GoAsset database, and the GoAsset PMS rates/algorithms, were used for the determination of renewal and maintenance requirements for sealed pavement assets.

Condition data as collected by external contractors for individual sections of footpath and kerb and gutter was used to assess the current condition of the overall network.

This may be considered a "bottom-up" approach whereby the aggregate of individual asset data is used for planning purposes as opposed to a broader network or averaged valuation approach.

With respect to Stormwater infrastructure assets, Council's systems to manage data includes:

- TechnologyOne;

[4] IPWEA, 2020, IIMM.

- Councils GIS system (IntraMaps Ver. 9.7) combined with Microsoft Excel spreadsheets for resurveyed data within certain catchments; and
- PipePak database for data from non-resurveyed catchments and infrastructure not resurveyed within resurveyed catchments.

This AMP was developed from data relating to the physical condition of assets held in the PipePak and Excel spreadsheet database. This may be considered a “bottom-up” approach whereby the aggregate of individual asset data is assessed for planning purposes as opposed to a broader network or averaged valuation approach. With the awarding of the SRV and following a successful pilot, Council is commencing a rolling inspection program of drainage assets from FY 2024/25 using CCTV to improve the base knowledge of these assets.

B.5 MONITORING & IMPROVEMENT PROGRAM

Section 6 in the body of this Plan contains a detailed list of areas for improvement that are required for improving the overall confidence in both subsequent AMP’s and the works programs developed.

B.6 MANAGING THE RISKS

Council’s present funding levels are sufficient to continue to manage risks in the long term, with the ability to reserve unspent funds each financial year (if required) to cater for larger, expensive stormwater infrastructure renewal projects.

The main risk consequences of not providing sufficient maintenance and renewal funding for Road and Stormwater infrastructure assets are:

- Increase to infrastructure backlog;
- Increased litigation potential for Council and potential significant safety issues;
- Future financial shock (expensive and immediate) for renewal of sections of asset base; and
- Loss of reputation of/confidence in elected members and senior staff by the community due to increased dissatisfaction with the standard of asset provision.

Council will endeavour to continue to manage these risks within available funding by:

- Developing policies and procedures for the management of data and prioritisation of projects;
- Accurately convey to elected members the levels of funding required to successfully mitigate the above risks.

APPENDIX C – LEVELS OF SERVICE

C.1 COMMUNITY RESEARCH AND EXPECTATIONS

This AMP is prepared to facilitate consultation with elected members of Council and stakeholders in how to provide the required/desired Levels of Service (LoS) required, mitigate service risks and determine the community's ability and willingness to pay for the service.

Council regularly engages with the community in accordance with Council's Community Engagement Policy to determine community satisfaction and input relating to a wide range of services, including the quality and overall provision of certain infrastructure assets and facilities. Relevant recent studies/planning documents include:

- Community Satisfaction Survey 2024, Taverner Research Group (January 2025);
- Community Satisfaction Survey 2023, Taverner Research Group (March 2023);
- Community Satisfaction Survey 2021, Jetty Research (July 2021);
- Hornsby Shire Council – Asset Management Community Insights Report (URBIS November 2020);
- Hornsby Snapshot Findings and Future Planning for Hornsby Community Plan (engagement: June 2016);
- Active Living Hornsby Strategy (Issue I, Final Validated: February 2016);
- Social Inclusion Hornsby (Disability Inclusion Action Plan 2021-2025) (engagement: June 2017); and
- "Your Vision, Your Future" Hornsby Shire Community Strategic Plan 2022-2032 (June 2022).

The URBIS 2020 engagement was undertaken to assess community satisfaction specifically regarding qualitative and quantitative aspects of asset maintenance and delivery. The methodology of the interactions included both an initial individual phone consult followed by participation in a virtual town-hall meeting. **Table C.1** summarises the results of this engagement.

TABLE C.1: ASSET MANAGEMENT – COMMUNITY INSIGHTS (URBIS 2020)

Question	Response	%
Overall, how satisfied are you with the condition of Council's assets?	Very Satisfied	15%
	Somewhat Satisfied	83%
	Neither Satisfied or Dissatisfied	2%
	Slightly Dissatisfied	-%
	Very Dissatisfied	-%
What should be the greatest priority for Council's infrastructure and assets?	Maintain all assets as is	24%
	Make major upgrades (more than $100k)	8%
	Make minor updates (less than $100k)	41%
	Reduce the number of assets and improve the condition	16%
	Spend less money and reduce the quality	2%

Question	Response	%
	Spend money to build more assets	19%
What three factors do you consider the most important for providing assets to the community?	Assets meet the needs of the community	22%
	Assets are used regularly by the community	21%
	Assets are cost-effective for Council to maintain	12%
	Assets are environmentally friendly	11%
	Assets which serve the greatest number of community members should receive priority	9%
	Assets are high quality and modern	8%
	It is accessible for people with special needs	7%
	I'm aware that the asset is available for me to use	6%
	I can easily get there	4%

Council's assessment of general community satisfaction with service provision and interactions with the organisation are undertaken at a broader level via phone consult only (2021, Jetty Research and 2023/2024, Taverner Research Group). **Table C.2** summarises the changes in general satisfaction over time with respect to Road infrastructure assets.

TABLE C.2: COMMUNITY SATISFACTION SURVEYS – MEAN RESULT (2021, 2023 & 2024)

Service or Facility	2021	2023	2021 vs 2023	2024	2023 vs 2024
Condition of footpaths	3.14	3.21	***+0.07***	3.15	***-0.06***
Bike paths	2.80	2.80	*0.00*	2.93	***+0.13***
Condition of local roads	3.01	2.74	***-0.28***	3.03	***+0.29***

Average values on a scale of 1 to 5 where 1 = "Very Unsatisfied" and 5 = "Very Satisfied".

Note that the reduction in satisfaction with the condition of local roads between 2021 and 2023 may be driven by the deterioration of the road network as a result of multiple rainfall events through 2021 and 2022. As mentioned in **Section 3.6** of the main report, $6.5m in funding was provided by the State Government to remediate the resultant damage across the road network with the subsequent PCI value returning to Council's desired technical LoS of 8.2 (refer **Table C.4**, following). Similarly, the increase in resident satisfaction with the condition of local roads between 2023 and 2024 may then be a result of the significant work to remediate the 2021/22 damage with both State and general funds.

C.2 STRATEGIC & CORPORATE GOALS

This AMP is prepared under the direction of Hornsby Shire Council's core set of values:

SERVICE - We provide a helpful and efficient service. We are local and know the neighbourhood.

TRUST - We are fair and reasonable. We are mindful of the best interests of all stakeholders in the decisions we make

RESPECT - We listen and encourage open and transparent communication. We are respectful of all views.

INNOVATION - We are resourceful and incorporate sustainable work practices. We seek to be innovative and to do things better across all facets of Council's operations.

Council's long-term vision for the Shire addresses the key themes of Liveability, Sustainability, Productivity and Collaboration. These key priorities as identified through community consultation are addressed in this AMP through:

TABLE C.2: GOALS AND HOW THESE ARE ADDRESSED IN THIS PLAN

Goal	Objective	How Goal and Objectives are addressed in AMP
Liveability	Continually assess the needs of a continually changing community.	Integrate the assessment and delivery of assets within the Road and Stormwater infrastructure asset classes, and all other infrastructure AMP's as well as Council's Strategic Plan, to ensure a cohesive approach, servicing the needs of residents, visitors, commuters, users of POI's and individuals of diverse abilities.
Sustainability	Fair and informed decision making.	Provide transparency and certainty around the development of asset renewal and creation works programs to ensure the long-term financial sustainability of Council.
Productivity	Continually improve resource management.	Ongoing review data management practices and asset plans/frameworks to achieve highest standard of service delivery within available budgets.
Collaboration	Continued community engagement.	Continue to engage and educate the community with regards to the need for Stormwater infrastructure asset inspection and renewal.

Hornsby Shire Council will exercise its duty of care to ensure public safety in accordance with the infrastructure risk management plan prepared in conjunction with this AMP. Management of infrastructure risks is covered in **Appendix E**.

C.3 LEGISLATIVE REQUIREMENTS

There are many legislative requirements relating to the management of assets. These include:

TABLE C.3: LEGISLATIVE REQUIREMENTS

Legislation	Requirement
NSW Local Government Act 1993 (Section 8)	Details *guiding principles* for Local Government to "carry out their functions in a way that facilitates local communities that are strong, healthy and prosperous". This includes *principles* for planning, decision-making and reporting to ensure guide effective service delivery that meets the needs of the community.
NSW Local Government Act 1993 (Section 59A)	As the defined owner of stormwater drainage assets (Clause 1), Council has the right "operate, repair, replace, maintain, remove, extend, expand, connect, disconnect, improve or do any other things" to ensure the functioning of the stormwater network (Clause 2).
NSW Local Government Act 1993 (Section 191A)	This section details the power of entry rights for Council employees, or authorised persons of Council, to enter any premises to undertake stormwater infrastructure maintenance and renewal.
NSW Local Government Act 1993 (Section 403)	Council's "Resourcing Strategy" must incorporate asset management planning (Clause 2).

Legislation	Requirement
NSW Roads Act 1993 (Section 71)	Council is permitted to carry out work (including pavement drainage systems) for which it is the Roads Authority.
NSW Roads Act 1993 (Section 94)	A Roads Authority may carry out work in or on any land in the vicinity of a public road for the purpose of protecting that road.
Civil Liability Act 2002 (note: Section 45)	General liability with relation to civil liability arising from negligence and omission. Note special provisions of Section 45 pertaining to Roads Authorities and the provision/standard of assets within the road reserve.

C.4 COMMUNITY & TECHNICAL LEVELS OF SERVICE

Service levels for asset management are detailed in two distinct forms – Customer Levels of Service and Technical Levels of Service. Organisational measures may also be employed to objectively assist in determining if these levels of services are being met.

Customer Levels of Service measure how the customer receives the service and whether value to the customer is provided. Customer levels of service measures used in the AMP are:

QUALITY How good is the service … *what is the condition or quality of the service?*

FUNCTION Is it suitable for its intended purpose …. *Is it the right service?*

CAPACITY/USE Is the service over or under used … *do we need more or less of these assets?*

Customer levels of service are subjective and can be qualitatively assessed through community engagement and/or through measurement of community contact with Council (i.e.: CRM's, emails, social media comments, etc…).

Organisational measures are measures of fact related to the service delivery outcome (e.g.: number of occasions when service is not available, objectively measured condition profiles). These organisational measures provide a balance in comparison to the customer perception that may be more subjective. ***Technical Levels of Service*** are considered organisational measures.

Technical Levels of Service are operational measures of performance that may be used to support the achievement of the customer service levels. These technical measures relate to the allocation of resources to service activities to best achieve the desired customer outcomes and demonstrate effective performance.

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

- ***Operations*** – the regular activities to provide services.
    - *Roads*: debris removal, footpath cleaning, kerb and gutter (street) sweeping;
    - *Stormwater*: inspections, cleansing/flushing, pit clearing);

- ***Maintenance*** – the activities necessary to retain an asset as near as practicable to an appropriate service condition. Maintenance activities enable an asset to provide service for its planned life.
    - *Roads*: pothole repair, footpath grinding, road shoulder grading/clearing

- *Stormwater*: pit and/or pipe connection patching, pipe crack/joint patching;

- ***Renewal*** – the activities that return the service capability of an asset up to that which it had originally been installed.
  - *Roads*: heavy patching, footpath section reconstruction
  - *Stormwater*: pipe relining, invert sealing, replacement of pits/pipes with "like for like";

- ***Upgrade/New ("Acquisition")*** – activities to provide a higher level of service or a new service that did not exist previously.
  - *Roads*: widening a road pavement/footpath, sealing an unsealed road, providing new kerb and gutter
  - *Stormwater*: replacing a pipeline with a larger size, increasing the number of pits, formalising/lining a channel, constructing a new section of pipeline.

Service Managers and Asset Custodians are required to plan, implement and control technical service levels to influence the customer service levels.[5] Since the adoption in 2020 of the Asset Management Roles & Responsibilities Determination there has been significant impact on responsibilities for the operation, maintenance and renewal of asset sub-types. As a result, Asset Custodians are required to collaborate with Service Managers to review the measurement and reporting of both Customer LoS and Technical LoS that are appropriate for differing asset sub-types. This forms part of the ongoing improvement program (refer **Section 6** of the main document).

For Road infrastructure assets, the current Technical LoS (also termed "Annual Measures") as published in the 2024- 2027 Delivery Program are shown in **Table C.4**, following:

TABLE C.4: ROAD INFRASTRUCTURE ASSETS - TECHNICAL LEVELS OF SERVICE

Annual Measures	Description	Result in FY 2020/21	Current Target Service Level
5A.M01	km of new paved footpaths constructed	5.46	>2km
5A.M02	km of new paved share paths constructed	1	Increase
5A.M03	Average Pavement Condition Index for roads (out of 10)	8.2	Maintain
5A.M04	Number of participants in road safety education programs	740	>700
5A.M05	Number of new dedicated car share spaces on public roads and in car parks	11	Increase
5A.M06	Number of road safety programs run	5	Maintain
5A.M07	Number of schools participating in School Zone Road Safety programs	10	Maintain

Technical LoS pertaining to Stormwater infrastructure assets can be notoriously difficult to set and achieve. This is not just because the asset itself is designed and constructed to service an unpredictable natural

[5] IPWEA, 2020, IIMM

event, but its correct functioning can also be heavily impacted by other environmental considerations. For example, a piped network designed to current standards may fail due to blocked of inlets with leaf litter or debris that occurs immediately prior to a storm event, or cars parked with wheels blocking grated road inlets.

Hence the best approach to manage the function of the overall drainage network is to instigate policies and procedures that seek to minimise, where possible, the system from functioning at a level below that designed, potentially causing physical and/or safety impacts and nuisance to the community.

Currently, Council undertakes the following operations aimed at maximising the functioning of the overall stormwater network:

- Regular street sweeping of kerb & gutter to collect debris, including identification of roads that have a higher load of leaf litter due to the presence of deciduous vegetation;
- Use of high-pressure water jets for clearing of sediment build-up and cutting of tree roots/root masses within pipes. Using this methodology of clearing blockages has been seen to significantly reduce ponding in problematic areas during storm events;
- Prompt response to complaints to Council relating to stormwater drainage system blockage or other issues either during storm events or immediately afterward (as severity of issue dictates); and
- Maintenance of records relating to historical stormwater drainage issues (TRIM, Excel-based registers) to compare with drainage network modelling for both calibration and verification purposes.

While the responses to issues as they arise is reactive in nature, the recording of incidents adds to the knowledge base to enable more proactive management and/or works planning in the future.

C.5 CONSEQUENCES

Council's present funding levels are sufficient to continue to provide growth in services at current levels of service over the long term. Current budgeting in the LTFP accounts for **100%** of forecast expenditure on average over the 10-year planning timeframe.

The main consequences of inadequate funding, should funds be directed elsewhere, are:

- Deteriorating quality of existing assets (e.g.: reduction in drainage network condition);
- Inability to renew ageing assets;
- Inability to adequately maintain newly constructed assets;
- Increased exposure of Council to litigation relating to deteriorating assets; and
- An inability to create new assets to meet community expectations.

APPENDIX D – FUTURE DEMAND

D.1 DEMAND DRIVERS

The main demands for new and/or improved services are created by:

- An increased population resulting in increased development of higher density;
- Changing population demographics;
- Changes in design standards; and
- Changes in levels of service due to climate change.

Drivers that also may affect demand for infrastructure service delivery and maintenance include things such as changes in regulations, seasonal factors, vehicle ownership rates, consumer preferences and expectations, technological changes, economic factors, agricultural practices, environmental awareness, etc.

For stormwater infrastructure assets, design standards for municipal piped stormwater drainage networks has changed over time. This has resulted in increased demand/expectation by those residing adjacent older stormwater infrastructure for those networks to be upgraded to current standards.

D.2 DEMAND FORECASTS & IMPACT ON ASSETS

The impact of demand drivers that may affect future service delivery and use of assets are shown in **Table D.1**.

TABLE D.1: DEMAND DRIVERS, PROJECTIONS & IMPACT ON SERVICES

Demand Driver	Present Position*	Projection**	Impact on Services
Population increase	LGA population in 2024: 158,331	10.45% increase between 2024 and 2036 (174,884)	Greater demand on existing services and need to provide additional assets in/around growth areas/town centres.
Demographic change: Aging population	In 2021: 23.5% older than 60 years 12.8% older than 70 years 5.2% older than 80 years	By 2036: 24.7% older than 60 years 14.1% older than 70 years 5.9% older than 80 years	Increased need for assets to be maintained to a standard cognisant of the vision/mobility impaired or other requirements of older generations.
Changes in design standards	Sections of piped network within the Shire designed and built to differing design standards.	Increased expectations for all sections of piped drainage network to be built to similar standards.	Increased demand for renewal of sections of piped network built to historically different standards.

Demand Driver	Present Position*	Projection**	Impact on Services
Climate change - Roads	Council undertakes reactive maintenance of sealed and unsealed pavements as required.	Changes in long and short-term weather patterns may increase the frequency and severity of rain events.	Changes to the intensity-duration relationship of storm events may be expected to increase the damage to sealed and unsealed pavements through water ingress into base layers.
Climate change - Stormwater	Council undertakes stormwater drainage analysis and design in accordance with current best practice.	Changes in long and short-term weather patterns are expected to increase the burden on stormwater infrastructure assets.	Changes to the intensity-duration relationship of storm events is expected to reduce the perceived level of service to the community of stormwater infrastructure assets over the long term.

D.3 DEMAND MANAGEMENT PLAN

Demand for new infrastructure-based services will be managed through a combination of:

- enhanced oversight and operational management of existing assets;
- upgrading of existing assets to meet service levels;
- the provision of new assets to meet demand;
- demand management/user expectation management through improved communication. Demand management practices may also include other non-asset-based solutions, insuring against risks;
- Planning provisions to increase utilisation of existing assets (densification); and
- AMP improvement and asset standards revision.

Opportunities identified to date for demand management are shown in **Table D.2**. Further opportunities will be developed in future revisions of this AMP.

TABLE D.2: DEMAND MANAGEMENT PLAN SUMMARY

Demand Driver	Impact on Services	Demand Management Plan
Population increase	Increased asset base	Recognised through Councils Community Strategic Plan and Local Strategic Planning Statement(s).
Changing demographics	Increased quality of service	Addressed in AMP's and plan improvement strategies (including revision of asset standards).

Demand Driver	Impact on Services	Demand Management Plan
Changes in design standards	Perceived reduction in level of service.	Communication with elected members and the community. Develop transparent and objective methodology to the renewal of those assets designed to provide an historically different level of service (if or as required). Implement planning controls to limit the impacts of demand-driven development in areas where historic issues have been identified and the amelioration of potential impacts are not physically or financially viable.
Climate change - Roads	Reduced level of service	Monitor and track changes in maintenance expenditure profiles in response to weather events across the road network. Communicate impacts regularly and openly with elected members, appropriate government (grant) agencies and the community.
Climate change - Stormwater	Reduced level of service (perceived or actual)	Monitor changes in actual rainfall patterns across the Shire and following external agency advice in the planning and management of stormwater infrastructure. Communicate impacts regularly and openly with elected members and the community.

D.4 ASSET PROGRAMS TO MEET DEMAND

New assets required to meet demand can be acquired, donated or constructed. Council current collects funds through developer contributions to expend through Section 7.11 and Section 7.12 Plan projects to meet increased asset demand due to population growth in the Shire.

As Council develops new assets to meet community and planning expectations in both the residential and rural areas of the Shire, additional funding is required to offset increased operation and maintenance requirements. Hence the provision of new assets may have to be staged/slowed to allow existing assets to be maintained at the determined level of service.

Within the Road infrastructure asset class, Council has recently embarked on an accelerated program to build more footpaths and shared paths in line with the Walking and Cycling Strategy through the allocation of general funds and grant programs (e.g.: Local Roads and Community Infrastructure Program). Increased

levels of expenditure are set to continue through the specific annual allocation of funds with the Special Initiatives of the SRV for additional shared paths through to FY32/33.

Contributed Road infrastructure assets generally consist of piecemeal sections of footpath and/or kerb & gutter along the frontage of a development in an already urban setting. Therefore, these minor additions to Council's asset base are identified through the regular 4-year Roads Inventory inspection program and it is considered unlikely that they will greatly affect the overall asset class value (and subsequent increase in maintenance and renewal costs) in the short- to medium-term.

For the Stormwater infrastructure asset class it should be noted that funds collected through developer contributions are not allocated specifically for stormwater infrastructure improvements in accordance with current legislation.

However, when development occurs within the Shire, developers are required to assess their proposal to ensure no detrimental impacts on adjacent properties, infrastructure or receiving waters. This can include the installation of on-site detention tanks and/or the upgrade of existing stormwater infrastructure within or adjacent to the boundary of development to meet current design standards. Note that contributed assets generally consist of piecemeal sections of pipe, culvert and/or pits along the frontages or boundaries of a development in an already urban setting. Often these contributions are replacing currently existing infrastructure or piping an open channel. Hence, it is considered unlikely that these additions or changes will greatly affect the overall asset class value (and subsequent increase in maintenance and renewal costs) in the short- to medium-term.

APPENDIX E – RISK MANAGEMENT

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

Risk Management is defined in ISO 31000:2018 as: "coordinated activities to direct and control with regard to risk"[6].

An assessment of risks[7] associated with service delivery from infrastructure assets has identified critical risks that will result in loss or reduction in service from infrastructure assets or a "financial shock". 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.

E.1 CRITICAL ASSETS – ROAD INFRASTRUCTURE

Critical assets are defined as those which have a high consequence of failure causing significant loss or reduction of service. Similarly, critical failure modes are those which have the highest consequences.

Critical types of assets within the Road infrastructure asset class have been identified along with their typical failure mode(s), leading to potential impacts to overall service delivery by Council as follows:

TABLE E.1 CRITICAL ASSETS - ROADS

Critical Asset(s)	Failure Mode	Impact
High-use sealed pavements (Sub-arterial / Collector roads)	Potholing, cracking/pumping, other failures of wearing course. Deterioration of base layers and overall structure due to water ingress and traffic loading.	Financial shock to Council for full pavement reconstruction(s). Declining community satisfaction with service provision. Increase in issues relating to safe movement of vehicles around the Shire.
Pathways (pedestrian) in and around major thoroughfares and town centres.	Damage due to tree roots or construction vehicular loading. inability to cater for increased demand/change in usage (shared paths/cycleways)	Increased litigation risk to Council (trips & falls). Reduced community satisfaction with Council service provision.
Vehicular bridges & multi-cell culvert structures.	Undermining and/or deterioration leading to collapse of structure/ supports.	Significant safety issue for Council/ increased litigation potential. Loss of service provision (road closure).

[6] ISO 31000:2018

[7] Hornsby Shire Council Enterprise Risk Management Determination

E.2 CRITICAL ASSETS – STORMWATER INFRASTRUCTURE

As all stormwater infrastructure assets managed by Council perform a service critical to the safe passage of stormwater flows through both public and private property, a summary of failure modes and the impact on service delivery is provided following:

TABLE E.2 CRITICAL ASSETS - STORMWATER

Critical Asset(s)	Failure Mode	Impact
Piped drainage network (inlet pits and pipes/culverts) servicing roads and/or passing through private property.	Blockage of pit inlets/pipe connections. Damage to pit inlets by vehicles. Damage to/collapse of pit walls. Blockage of pipes (tree roots/other materials) Dislocation of pipes. Cracking/crushing/damage to pipes. Unapproved alterations to structures by residents.	Safe passage of Council's Road network compromised. Financial shock to Council for damage to road and private asset(s). Declining community satisfaction with service provision. Increase in issues relating to safe movement of pedestrians and vehicles around the Shire.
Open drainage network (lined/ unlined channels)	Blockage of channel with debris/ sediment/vegetation. Erosion to channel walls. Erosion to channel invert. Erosion or damage to channel inlet/outlet structures (headwalls and aprons).	Financial shock to Council for damage to public and private property. Declining community satisfaction with service provision. Increase in issues relating to safety for residents and visitors to the Shire.

By identifying critical assets and failure modes, investigations, condition inspection programs, maintenance and capital expenditure plans can be targeted at the critical areas of Council's Asset portfolio. These "critical assets" are generally location specific and are highly dependent on factors such as:

- Size of upstream catchment (i.e.: size of flows generated);
- Type of development/land use downstream; and
- Estimated impact (likelihood and consequence) of uncontrolled flows downstream.

Council's FPRMSP is based on extensive computer modelling of overland flow paths coupled with identification of potential flooding issues that may lead to stormwater renewal and upgrade projects. The projects are then assessed in further detail for the possibility to progress through the design and consultation process. Prioritisation of the potential projects is cognisant of issues such as: the viability of possible solutions, the impacts to surrounding environment and community (both during and post construction), the overall magnitude of improvements and overall estimated cost of the project. Due to the complexity of these projects, there is a significant lead time in progressing from the issue identification to the potential construction stage.

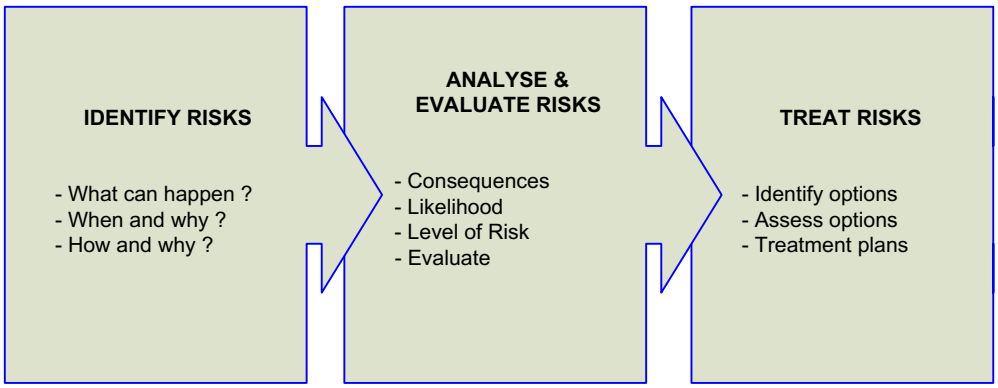
E.3 RISK ASSESSMENT

The risk management process used in this project is shown in **Figure E.1** below.

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

The process is based on the fundamentals of the ISO risk assessment standard ISO 31000:2009.

FIGURE E.1: RISK MANAGEMENT PROCESS – ABRIDGED



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.

An assessment of risks[8] associated with service delivery from infrastructure assets has identified the critical risks that will result in significant loss, "financial shock" or a reduction in service.

Critical risks are those assessed with 'Very High' (requiring immediate corrective action) and 'High' (requiring corrective action) risk ratings identified in the Infrastructure Risk Management Plan. The residual risk and treatment cost after the selected treatment plan is implemented is shown in **Table E.2**. These risks and costs are reported to management and the elected members of Council.

TABLE E.3: CRITICAL RISKS AND TREATMENT PLANS

Service or Asset at Risk	What can Happen	Risk Rating (VH, H)	Risk Treatment Plan(s) *(Example only)*	Residual Risk *
Sealed Road Network	Injury/death from poorly maintained wearing course / unrepaired reactionary maintenance.	VH	Review systems of pavement management to optimise budget usage. Review systems of managing reactionary complaints.	L
Unsealed Road Network	Injury/death from poorly maintained surface/verge	VH	Implement regular and event-based inspections (i.e.: after significant weather events).	L

[8] Hornsby Shire Council Enterprise Risk Management Determination

Service or Asset at Risk	What can Happen	Risk Rating (VH, H)	Risk Treatment Plan(s) *(Example only)*	Residual Risk *
Bridges & Culverts	Injury/death from failure of structure Loss of service to supported road network	VH	Review, document and implement regular and event-based inspections (i.e.: after significant weather events). Integrate data collected into all systems.	L
Footpath Network	Injury from unidentified hazard	H	Review systems of data collection and data management. Ensure integration of all data collected into all systems.	L
Piped Stormwater Network	Injury/death from blocked/damaged/ non-functioning piped network causing significant overflows.	VH	Review systems of works prioritisation to optimise budget usage. Improve overall knowledge of current network condition.	L
Open Stormwater Network	Injury/death from sudden erosion of channels and/or access by public to open water course.	VH	Implement regular and event-based inspections (e.g.: after significant weather events). Review of safety measures and procedures relating to open water courses.	L

** The residual risk is the risk remaining after the selected risk treatment plan is operational.*

For stormwater infrastructure assets, additional commentary relating to critical risks and proposed risk treatment plan(s) can be found in Council's FPRMSP.

E.4 INFRASTRUCTURE RESILIENCE APPROACH

The resilience of critical infrastructure is vital to Council's customers and the services we provide. To adapt to changing conditions and grow over time we need to understand Council's capacity to respond to possible disruptions and be positioned to absorb disturbance and act effectively in a crisis to ensure continuity of service.

Resilience is built on aspects such as response and recovery planning, financial capacity and crisis leadership.

Council's current measure of resilience is shown in **Table E.3** which includes the type of threats and hazards, resilience assessment and identified improvements and/or interventions.

TABLE E.3: RESILIENCE

Threat / Hazard	Resilience Low-Med-High	Improvements / Interventions
Exposure to litigation	Low-Medium	Develop/document policies and procedures for prioritisation of limited funds. Increased public awareness campaign of potential hazards.
Financial shock due to inadequate knowledge of current pipe conditions	Low-Medium	Convey funding requirements to Council to mitigate future financial shock from deteriorating asset base.
Financial shock due to inadequate maintenance and renewal budgets (Road infrastructure asset class)	Medium	Improve use of asset data and AM procedures to predict maintenance requirements. Convey funding requirements to Council to mitigate future financial shock from potentially deteriorating asset base
Financial shock due to inadequate renewal and upgrade budgets (Stormwater infrastructure asset class)	Medium	Convey funding requirements to Council and requirement to restrict unspent annual allocations to allow for significantly expensive projects to be undertaken.

E.5 SERVICE & RISK TRADE-OFFS

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

An ongoing review of the Stormwater infrastructure forward works program, as highlighted in the FPRMSP and subsequently prioritised (refer Appendix A.2), will continue to be undertaken in conjunction with each LTFP review, including review of project estimates and potential timeframes. This to identify where trade-offs exist between service levels and risk accounting for:

- Available funds;
- The expensive nature of Stormwater infrastructure upgrades and renewal;
- The long timeframes for stormwater infrastructure upgrades to be implemented;
- Changing design standards;
- Changes in real or perceived levels of service due to climate change; and
- Changing resident expectations.

Need Help

This document contains important information. If you do not understand it, please call the Translating and Interpreting Service on 131 450. Ask them to phone 9847 6666 on your behalf to contact Hornsby Shire Council. Council's business hours are Monday to Friday, 8.30am-5pm.

Chinese Simplified

需要帮助吗?

本文件包含了重要的信息。如果您有不理解之处，请致电 131 450 联系翻译与传译服务中心。请他们代您致电 9847 6666 联系 Hornsby 郡议会。郡议会工作时间为周一至周五， 早上 8：30 - 下午 5 点。

Chinese Traditional

需要幫助嗎?

本文件包含了重要的信息。如果您有不理解之處，請致電 131 450 聯繫翻譯與傳譯服務中心。請他們代您致電 9847 6666 聯繫 Hornsby 郡議會。郡議會工作時間爲周一至周五， 早上 8：30 - 下午 5 點。

Nepali

यस कागजातमा महत्त्वपूर्ण जानकारी छ।

यदि तपाईंले यसलाई बुझ्नुभएको छैन भने, कृपया अनुवाद र दोभाषे सेवालाई 131 450 मा फोन गर्नुहोस्। तपाईंको तर्फबाट हर्नस्बी शायर काउन्सिललाई 9847 6666 नम्बरमा फोन गरिदिन आग्रह गर्नुहोस्। काउन्सिलको कामकाजी समय सोमबारदेखि शुक्रबार बिहान 8:30 बजे देखि बेलुका 5 बजेसम्म हो।

Hindi

क्या आपको सहायता की आवश्यकता है?

इस दस्तावेज़ में महत्वपूर्ण जानकारी दी गई है। यदि आप इसे समझ न पाएँ, तो कृपया 131 450 पर अनुवाद और दुभाषिया सेवा को कॉल करें। उनसे हॉर्न्सबी शायर काउंसिल से संपर्क करने के लिए आपकी ओर से 9847 6666 पर फोन करने का निवेदन करें। काउंसिल के कार्यकाल का समय सोमवार से शुक्रवार, सुबह 8.30 बजे-शाम 5 बजे तक है।

Korean

도움이 필요하십니까?

본 문서에는 중요한 정보가 포함되어 있습니다. 이해가 되지 않는 내용이 있으시면, 통역번역서비스(Translating and Interpreting Service)로 전화하셔서(131 450번) 귀하를 대신하여 혼즈비 셔 카운슬에 전화(9847 6666번)를 걸어 달라고 요청하십시오. 카운슬의 업무시간은 월요일~금요일 오전 8시 30분~오후 5시입니다.

Tagalog

Kailangan ng tulong?

Itong dokumento ay naglalaman ng mahalagang impormasyon. Kung hindi ninyo naiintindihan, pakitawagan ang Serbisyo sa Pagsasalinwika at Pag-iinterprete (Translating and Interpreting Service) sa 131 450. Hilingin sa kanilang tawagan ang 9847 6666 para sa inyo upang kontakin ang Hornsby Shire Council. Ang oras ng opisina ng Council ay Lunes hanggang Biyernes, 8.30n.u.-5n.h.

Farsi

نیاز به کمک دارید؟

این سند حاوی اطلاعات مهم می باشد. چنانچه آن را درک نمی کنید، لطفاً با خدمات ترجمه کتبی و شفاهی به شماره 131 450 تماس بگیرید. از آنها بخواهید از جانب شما با شماره 9847 6666 با شورای شهر هورنزبی شایر تماس بگیرند. ساعات کاری شورای شهر دوشنبه تا جمعه، از 8:30 صبح تا 5 بعدازظهر است.

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Office hours: Please check the website for the latest opening hours for the Customer Service Centre and Duty Officer.

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