TOWN OF BLIND RIVER
ASSET MANAGEMENT PLAN
STORM WATER SYSTEM

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Document Control		Asset Management Plan			
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1.0	December 2024	Initial Plan	C. Zagar	K. Scott/S. Dent	Council

1.0 EXECUTIVE SUMMARY

1.1 The Purpose of the Plan

This Asset Management Plan (AM Plan) details information about infrastructure assets with actions required to provide an agreed level of service in the most cost-effective manner while outlining associated risks. The plan defines the services to be provided, how the services are provided and what funds are required to provide over the 10 year planning period. In the future, the AM Plan will link to a Long-Term Financial Plan which typically considers a 10 year planning period.

1.2 Asset Description

The Town is responsible for owning and maintaining a stormwater network of 6km storm sewer mains, catch basins, and other supporting infrastructure.

Table 1.2 Stormwater Assets

Asset Segment	Asset Count	Unit of Measure	2024 Replacement Cost ($)
Catch Basin Leads	564	length (m)	123,900.00
Catch Basins	164	each	4,927,438.00
Culverts	274	each	2,117,700.00
Manholes	82	each	6,062,132.00
Storm Sewer Lines - Unknown	4	length (m)	21,641,390.00
Storm Sewer Lines 200-300mm	4,789	length (m)	34,522,770.00
Storm Sewer Lines 301-400mm	355	length (m)	2,514,720.00
Storm Sewer Lines 401-500mm	613	length (m)	1,767,750.00
Storm Sewer Lines 501mm and over	318	length (m)	1,869,750.00

The above infrastructure assets have replacement value estimated at $ **17,522,825.**

1.3 Levels of Service

The allocation of funding in the planned budget is will dictate the performance of these assets and whether they continue providing existing services at current levels for the planning period.

The main service consequences of an insufficient Planned Budget are:

- Increased maintenance and repairs costs of stormwater assets.
- Increased replacement costs.
- Disruption to stormwater service.

1.4 Future Demand

The factors influencing future demand and the impacts they have on service delivery are created by:

- Population growth and future housing development. These demands will be approached using a combination of managing existing assets, upgrading existing assets and providing new assets to meet demand.
- Demand management practices may also include a combination of non-asset solutions, insuring against risks and managing failures.
- Regulatory changes which will result in a required increased level of service for stormwater assets.

- Climate change and extreme precipitation events may require the storm water system capacity to be upgraded to accommodate these events.

These demands will be approached using a combination of managing existing assets, upgrading existing assets and providing new assets to meet demand. Demand management practices may also include a combination of non-asset solutions, insuring against risks and managing failures.

- Replacements of stormwater assets are completed in conjunction with the replacements of roads, and other underground services.
- Stormwater assets due for replacement will undergo a needs analysis to determine the if the replacement can be completed in conjunction with the replacement of other assets to minimize the cost.

1.5 Lifecycle Management Plan

1.5.1 What does it Cost?

The forecast lifecycle costs necessary to provide the services covered by this AM Plan includes operation, maintenance, renewal, acquisition, and disposal of assets. Although the AM Plan may be prepared for a range of time periods, it typically informs a Long-Term Financial Planning period of 10 years. Therefore, a summary output from the AM Plan is the forecast over the 10 years planning period, which for Stormwater Assets is estimated as **$ 14,446,720** or $**1,444,672** on average per year.

The following factors are reviewed prior to asset replacements:

- Condition and Usability determined through routine inspections and preventative maintenance by public works staff.
- Annual operating and repair costs taken from budget and in the future Citywide Maintenance Manager
- Age/Year of asset vs expected lifecycle

1.6 Financial Summary

1.6.1 What we will do

The infrastructure reality is that only what is funded in the long-term financial plan can be provided. The Informed decision making depends on the AM Plan emphasising the consequences of Planned Budgets on the service levels provided and risks. The total forecasted costs of the lifecycle of stormwater assets at current service levels is summarized in Figure 1.6.

Figure 1.6 Forecast Replacement Costs

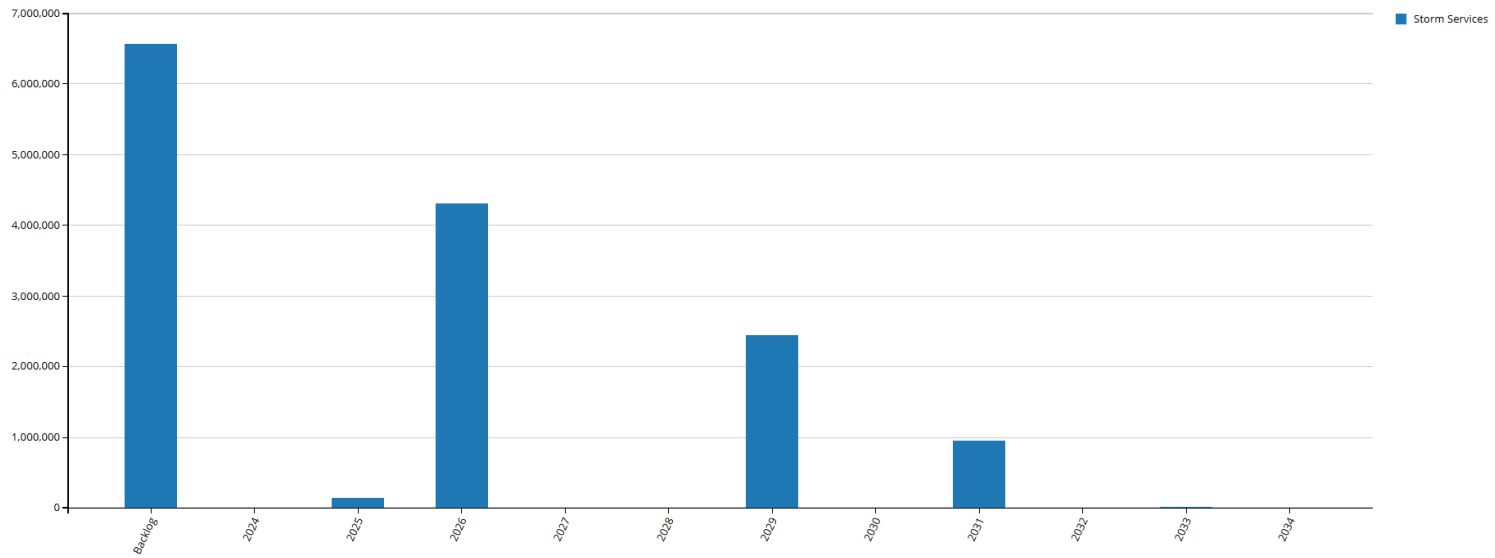


Figure Values are in current dollars.

We plan to provide stormwater asset services for the Town of Blind River

- Maintenance and operation of stormwater assets to ensure clean and safe collection and conveyance of storm water is supplied to residents.
- Replacement of assets before their end of usable life to prevent failure and disruption to the storm water system service
- **The total annual cost of this service is $ $17,911,825 including operation, maintenance and forecast replacements within the 10 year planning period.**

1.6.2 What we cannot do

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

- Replacement of backlogged stormwater assets which have exceeded their usable life
- Forecasted replacement of assets which will reach the end of their usable life during the planning period.

1.6.3 Managing the Risks

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

The main risk consequences are:

- Flooding and damage to public and private property
- Excessive storm flows entering the sanitary system and overwhelming the capacity of the Wastewater treatment facility.

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

- Completing the Pure Huron project to switch to Lake Huron as our primary wastewater source.
- Rehabilitation of ditches as necessary to provide sufficient capacity.
- Prioritization of the replacement of storm sewer lines to minimize potential disruption of service to residents.

1.7 Asset Management Planning Practices

Key assumptions made in this AM Plan are:

- Service levels during the planning period will remain consistent with current levels.
- Future budgets will remain close to current funding levels.

Assets requiring renewal are identified from either the asset register or an alternative method.

- The timing of capital renewals based on the asset register is applied by adding the useful life to the year of acquisition or year of last renewal,
- Alternatively, an estimate of renewal lifecycle costs is projected from external condition modelling systems and may be supplemented with, or based on, expert knowledge.

The asset register and was used to forecast the renewal lifecycle costs for this AM Plan.

This AM Plan is based on a low to medium level of confidence information.

1.8 Monitoring and Improvement Program

The next steps resulting from this AM Plan to improve asset management practices are:

- Complete rebuild of the stormwater asset register to include material type and GIS information related to wastewater assets.
- Development of a condition assessment tool which will account for the condition of the road surface and other underground assets to prioritize full road reconstructions.
- Revise the estimated useable life of storms sewer assets to account for condition to further refine the age-based condition assessments.
- Incorporate field condition data in the condition assessment process.
- Incorporate storm sewer line material type into the asset register to further refine the estimated useful life based on material.

2.0 Introduction

2.1 Background

The Town is responsible for owning and maintaining a stormwater network of 6km storm sewer mains, catch basins, and other supporting infrastructure.

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

The AM Plan is to be read with the Town of Blind River planning documents. This should include the Asset Management Policy and Asset Management Strategy, along with other key planning documents:

- 2024 Planned Budget

Comment on the current status of Asset Management in the Organisation.

The infrastructure assets covered by this AM Plan includes all stormwater system assets utilized to provide storm water collection and disposal.

The infrastructure assets included in this plan have a total replacement value of **$17,522,825**

Key stakeholders in the preparation and implementation of this AM Plan are shown in Table 2.1.

Table 2.1: Key Stakeholders in the AM Plan

Key Stakeholder	Role in Asset Management Plan
Council	■ Represent needs of community/shareholders, ■ Allocate resources to meet planning objectives in providing services while managing risks, ■ Ensure service sustainable.
Clerk's Department	■ Provide leadership with imbedding asset management practices across the organization. ■ Evaluate that adequate resources are available for development and implementation of AM initiatives ■ Ensure consistency of asset management approaches across the Town's Services Areas ■ Approve future plan revisions ■ Suggest budgetary, property tax/rate and Infrastructure Levy to Council.
Management Team	■ Review department fleet replacements and acquisitions to ensure a collaborative approach to asset usage whenever possible. ■ Recommends project selection criteria and weightings to Council.
PUC Staff/Public Works Staff	■ Report asset deficiencies and condition through routine inspection and preventative maintenance. ■ Complete maintenance and repair on the system as required.

Key Stakeholder	Role in Asset Management Plan
	■ Provide replacement recommendations based on condition.

2.2 Goals and Objectives of Asset Ownership

Our goal for managing infrastructure assets is to meet the defined level of service (as amended from time to time) in the most cost-effective manner for present and future consumers. The key elements of infrastructure asset management are:

- Providing a defined level of service and monitoring performance,
- Managing the impact of growth through demand management and infrastructure investment,
- Taking a lifecycle approach to developing cost-effective management strategies for the long-term that meet the defined level of service,
- Identifying, assessing and appropriately controlling risks, and
- Linking to a future Long-Term Financial Plan which identifies required, affordable forecast costs and how it will be allocated. This is planned to be developed in 2025.

Key elements of the planning framework are

- State of Local Infrastructure – current condition at the Town and replacement value of fleet assets
- Levels of Service and continuous improvement– specifies the services and levels of service to be provided
- Asset Management Strategies like risk, disposal, lifecycle, and future demand and how this will impact on future service delivery and managing existing and future assets at defined levels of service
- Continuous Improvement and Monitoring – how the plan can be continuously improved and then monitored to ensure objectives are met. This also includes increasing the asset management maturity, identifying emerging technologies in fleet like greening of fleet by including electric and hybrid fleet, charging stations and related infrastructure.

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

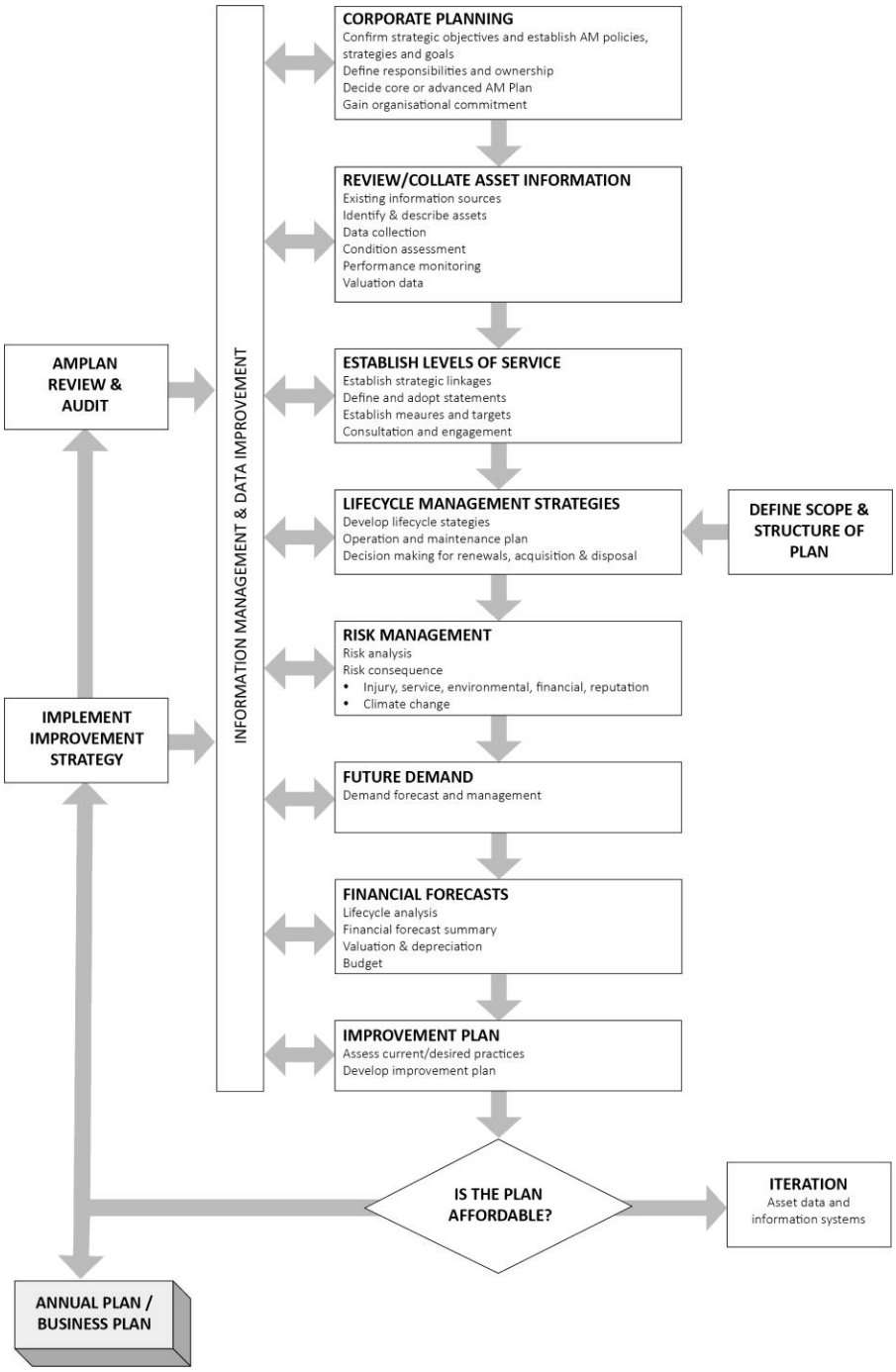
- ISO 55000[1]

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

[1] ISO 55000 Overview, principles and terminology

Road Map for preparing an Asset Management Plan

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



3.0 STATE OF THE INFRASTRUCTURE

3.1.1 Asset Inventory & Replacement Cost

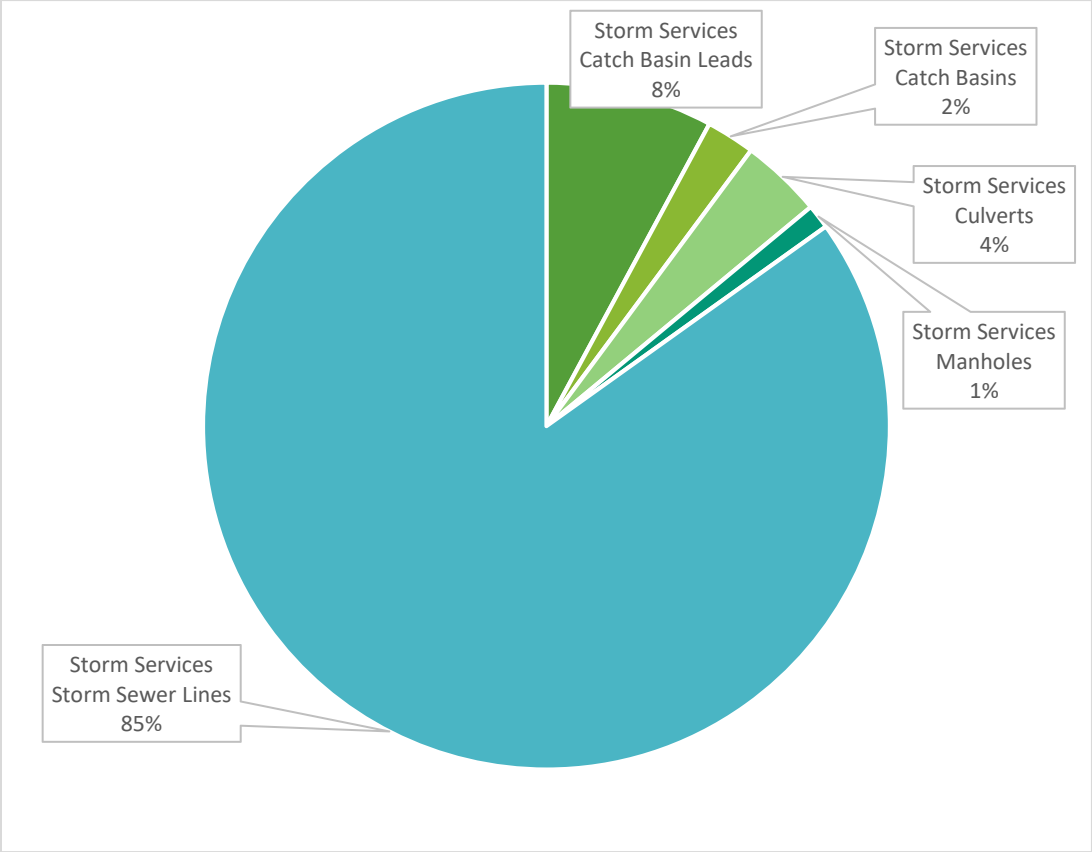
The table below includes the quantity, replacement cost method and total replacement cost of each asset segment in the Town's Stormwater Network inventory, which includes 6km of sewer lines.

The Town is responsible for owning and maintaining a stormwater network of 6km storm sewer mains, catch basins, and other supporting infrastructure.

Table 3.2 Stormwater Asset Overview

Asset Segment	Quantity	Total Replacement Cost
Catch Basin Leads	564 m	$ 941,048
Catch Basins	164 ea	$ 770,800
Culverts	274 ea	$ 728,610
Manholes	82 ea	$ 1,154,321
Storm Sewer Lines - Unknown	4 ea	$ 1,773,246
Storm Sewer Lines 200-300mm	4,789 m	$ 9,579,400
Storm Sewer Lines 301-400mm	355 m	$ 711,600
Storm Sewer Lines 401-500mm	613 m	$ 1,227,600
Storm Sewer Lines 501mm and over	318 m	$ 636,200
	Total	$ 17,522,825

3.2 Stormwater Replacement Cost Distribution Overview

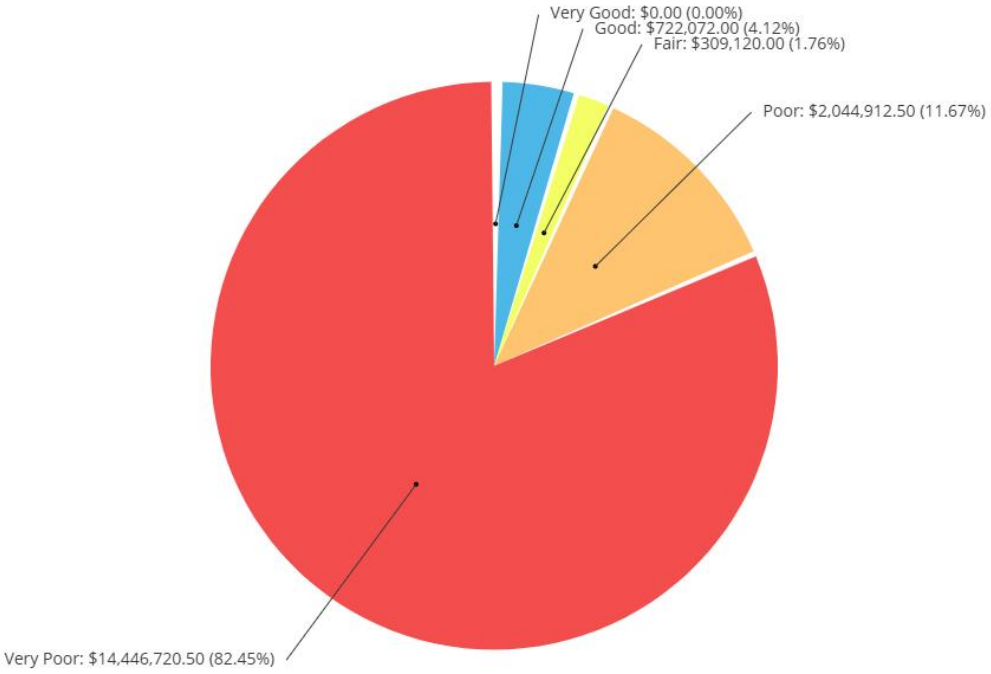


3.1.2 Asset Condition

The figure below summarizes the replacement cost-weighted condition of the Town's storm network and associated capital assets. Based primarily on age, the vast majority of the Town's storm infrastructure is aging and in poor or worse condition. These assets may be candidates for replacement in the short term; similarly, assets in fair condition may require rehabilitation or replacement in the medium term and should be monitored for further degradation in condition.

The figure below provides further detail on the storm network, by asset type. Most assets are in poor or worse condition, based on age.

Table 3.2 Stormwater Asset Overview



To ensure that the Town's Stormwater Network continues to provide an acceptable level of service, the Town should monitor the average condition of all assets. If the average condition declines, staff should re-evaluate their lifecycle management strategy to determine what combination of maintenance, rehabilitation and replacement activities is required to increase the overall condition of the Stormwater Network.

4.0 Current Approach to Condition Assessment

Accurate and reliable condition data allows staff to more confidently determine the remaining service life of assets and identify the most cost-effective approach to managing assets. The following describes the municipality's current approach:

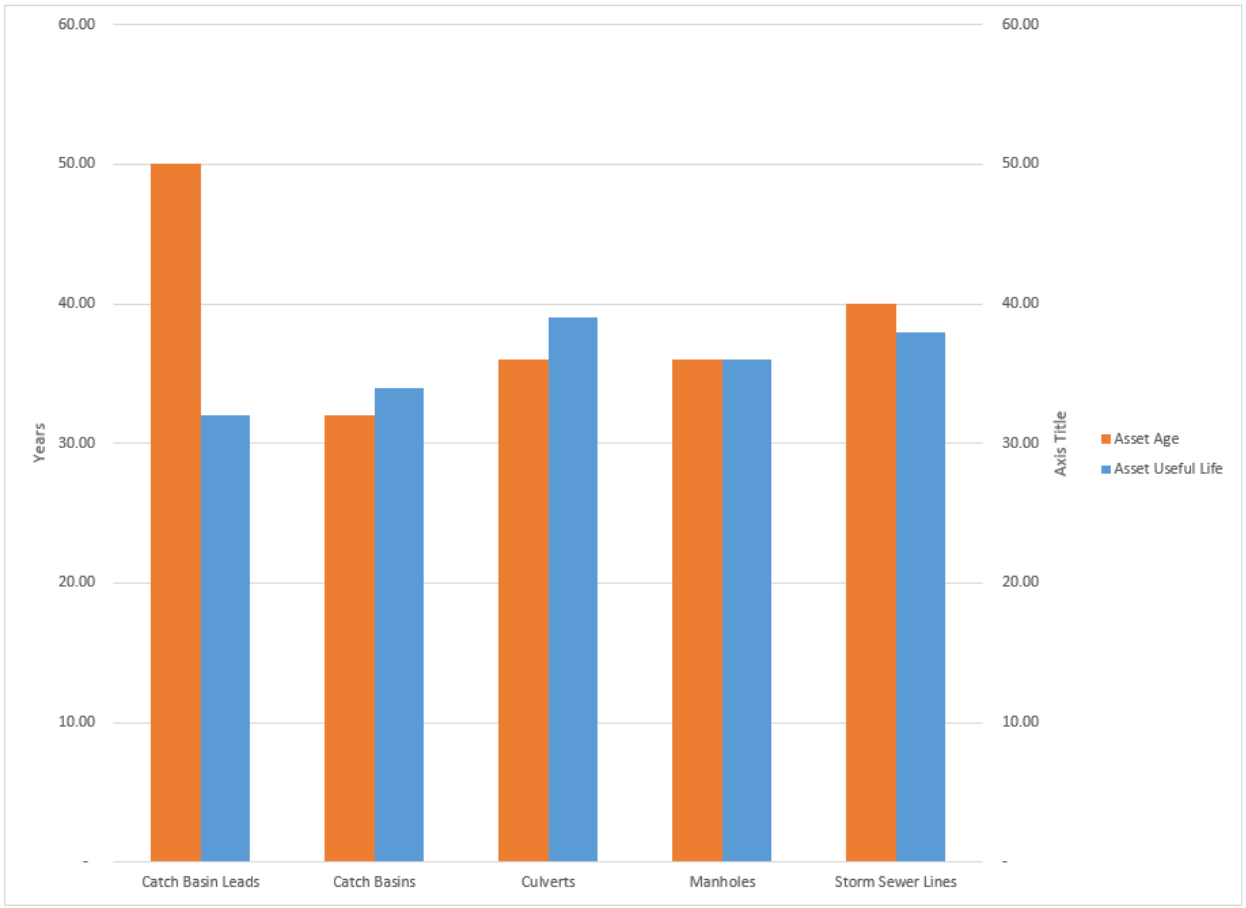
- Staff are working on developing an annual inspection program for all catch basins.
- Some condition assessments are conducted on an annual basis.

4.1.1 Age Profile

An asset's age profile comprises two key values: estimated useful life (EUL), or design life; and the percentage of EUL consumed. The EUL is the recommended or industry-standard serviceable lifespan of an asset during which it can continue to fulfil its intended purpose and provide value to users, safely and efficiently.

As assets age, their performance diminishes, often more rapidly as they approach the end of their design life. EULs can vary significantly within an asset category, from several years to many decades. The graph below illustrates the average useful life of each major asset segment, and the average current age of assets within the segment. Both values are weighted by replacement cost to ensure comparability.

Table 4.1.1 Stormwater Age Vs. Useful Life



The average age of stormwater system assets is 36 years

The age profile shows that most storm asset have either exceeded their service life, or are in the latter stages of their lifecycle and may begin to show further signs of disrepair and degradation. However, the service life for sewer lines may be understated. Currently, no material data is available for storm lines with a replacement cost of nearly $13 million, making it difficult to assign estimated useful lives. Periodically, each asset's EUL should be reviewed to better align with actual, in-field performance.

5.0 Lifecycle Management Strategy

The condition or performance of most assets will deteriorate over time. To ensure that municipal assets are performing as expected and meeting the needs of customers, it is important to establish a lifecycle management strategy to proactively manage asset deterioration.

The following table outlines the Town's current lifecycle management strategy.

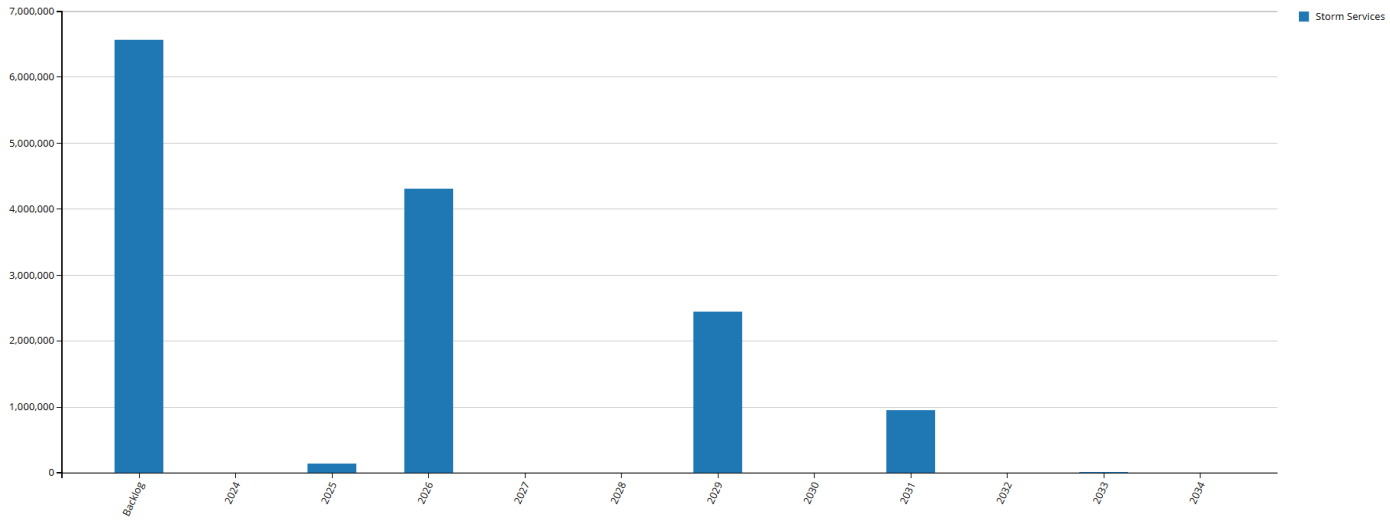
Activity Type	Description of Current Strategy
Maintenance	Maintenance activities, including flushing, catch basin cleaning, and cover adjustments are completed. These are implemented as required; however staff are working on developing an annual inspection program for catch basins that may extend their useful life by five years. The cost for flushing is estimated at $500 per metre.
Rehabilitation	Trenchless re-lining has the potential to reduce total lifecycle costs but would require a formal condition assessment program to determine viability. Currently, renewal and rehabilitation treatments are triggered by site-specific events, and can cost $1,000 per metre.
Replacement	Without the availability of up-to-date condition assessment information replacement activities are purely reactive in nature and driven by site-specific events.

5.1.1 Forecasted Capital Requirements

The figure below illustrates the cyclical short-, medium- and long-term infrastructure replacement requirements for the Town's storm network assets. On average, $0.4 million is required each year to remain current with capital replacement needs.

Age-based replacement needs will peak in the next decade, totalling more than **$ 14,446,720**. This represents an annual budget requirement of $1,444,672. Given the long lifespan of sewer lines, capital replacements are expected to remain steady through 2060.

Table 3.1.5 Stormwater Asset Replacement Forecast

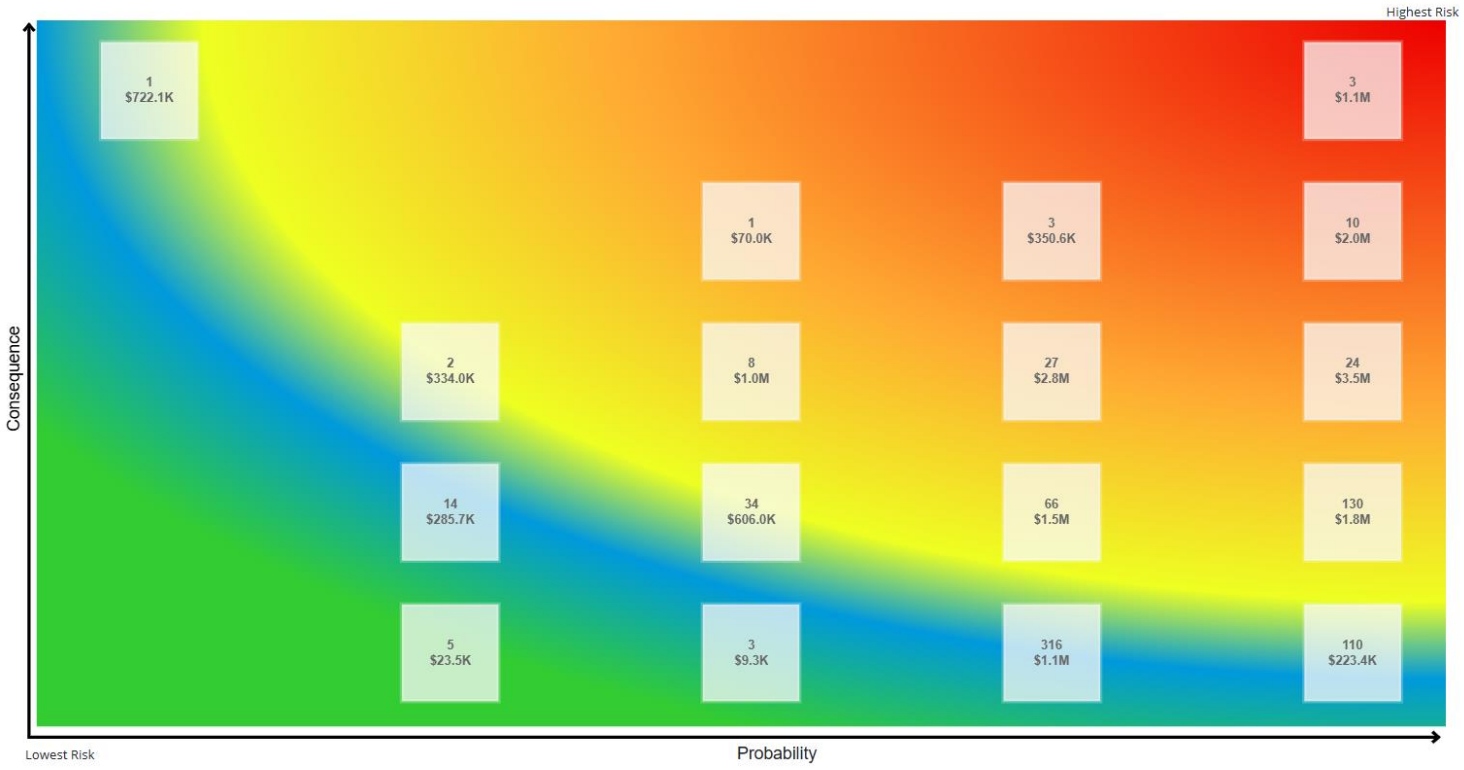


The chart also illustrates a replacement backlog of **$6.5 million**, comprising assets that have reached the end of their estimated useful life but remain in service. Condition data may indicate that these assets are still capable of delivering acceptable service standards, in a safe and efficient manner. However, both age and condition will be incorporated into future plans and used to forecast replacement needs and refine capital expenditure estimates.

5.1.2 Risk Matrix: Storm Network

The preliminary risk matrix below is generated using available asset data. It classifies assets based on their probability of failure and the consequence of failure. The Town is in the process of developing comprehensive risk frameworks for each of its asset classes and major segments. These frameworks will allow the Town to build more robust risk models to refine how risk ratings are established for different asset segments.

Table 3.1.6 Stormwater Asset Risk Matrix



In addition to asset level risk, the municipality may also face risk associated with not executing key lifecycle activities, including repairs, rehabilitation, and replacement of critical assets. These include:

- Missed opportunities for cost savings and increases in lifecycle costs
- Deferral of vital projects, or further lending and borrowing
- Accelerated asset deterioration and premature failure, which may lead to public health and safety hazards, and disruption of services to the Town's residential and commercial base.
- Failure of stormwater assets can be particularly detrimental, causing excessive flooding, erosion, backups, road and bridge closures, environmental damage, and substantial property damage. Water quality may also be jeopardized, further exacerbating public health and safety challenges. Increased frequency of extreme weather events has made some communities even more vulnerable to flooding. These events can also create legal liabilities for the municipality.
- A decline in public satisfaction with the Town's service standards and the resulting reputational damage

An asset's criticality rating, determined by the nature and magnitude of the consequences of its potential failure should be used to prioritize projects, particularly lifecycle management strategies. Using risk in conjunction with levels of service, and the recommended treatment options can assist in optimizing limited funds.

6.0 Levels of Service

The following tables identify the Town's current level of service for Stormwater Network. These metrics include the technical and community level of service metrics that are required as part of O. Reg. 588/17 as well as any additional performance measures that the Town has selected for this AMP.

6.1 Community Levels of Service

The following table outlines the qualitative descriptions that determine the community levels of service provided by Stormwater Network.

Service Attribute	Qualitative Description	Current LOS
Scope	Description, which may include map, of the user groups or areas of the municipality that are protected from flooding, including the extent of protection provided by the municipal stormwater system	TBD

6.2 Technical Levels of Service

The following table outlines the quantitative metrics that determine the technical level of service provided by the Stormwater Network.

Service Attribute	Technical Metric	Current LOS
Scope	% of properties in municipality resilient to a 100-year storm	75%
	% of the municipal stormwater management system resilient to a 5-year storm	95%

7.0 PLAN IMPROVEMENT AND MONITORING

7.1 Status of Asset Management Practices

7.1.1 Accounting and financial data sources

This AM Plan utilises accounting and financial data. The source of the data is planned budgets and historical expenditures.

7.1.2 Asset management data sources

This AM Plan also utilises asset management data. The source of the data is the 2024 fleet forecast as well as the asset register maintained in Citywide.

7.2 Improvement Plan

It is important that an entity recognise areas of their AM Plan and planning process that require future improvements to ensure effective asset management and informed decision making. The improvement plan generated from this AM Plan is shown in Table 9.2.

Table 9.2: Improvement Plan

Task	Task	Responsibility	Resources Required	Timeline
1	Integrate condition assessment data with the Town's asset management register to ensure alignment between systems and capital budget development.	Director of Public Services	Staff time	2 months
2	Identify material for storm mains to improve age profile analysis and capital replacement forecasts.	Director of Public Services	N/A	2 months
3	Implement risk-based decision-making as part of asset management planning and budgeting processes. This should include the regular review of high-risk assets to determine appropriate risk mitigation strategies.	Director of Public Services and Finance	Staff time	2 months
4	Review risk models on a regular basis and adjust according to an evolving understanding of the probability and consequences of asset failure.	Director of Public Services	Staff time	3 months
5	Document and review lifecycle management strategies for the stormwater network on a regular basis to achieve the lowest total cost of ownership while maintaining adequate service levels.	Director of Public Services	Staff time	3 months
6	Work towards identifying proposed levels of service as per O. Reg. 588/17 and identify the strategies that are required to close any gaps between current and proposed levels of service.	Director of Public Services	Staff time	3 months

7.3 Monitoring and Review Procedures

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

The AM Plan will be reviewed and updated annually to ensure it represents the current service level, asset values, forecast operations, maintenance, renewals, acquisition and asset disposal costs and planned budgets.

These forecast costs and proposed budget are incorporated into the Long-Term Financial Plan or will be incorporated into the Long-Term Financial Plan once completed.

The AM Plan has a maximum life of 4 years and is due for complete revision and updating within 1 year of each Town Council election.

7.4 Performance Measures

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

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

8.0 REFERENCES

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- Asset Management Strategic Plan 2019
- 2024 Planned Budget