

2025

State of SASKATOON POTABLE WATER INFRASTRUCTURE

CONTENTS

INTRODUCTION	1
INFRASTRUCTURE SERVICE STATEMENT	2
THE STEWARDS	3
CURRENT INVENTORY AND VALUE	4
ASSET PERFORMANCE AND DATA CONFIDENCE	6
Data Sources and Considerations	6
Asset Condition and Performance	7
THE SERVICE LEVELS	10
Customer Levels of Service	11
Technical Levels of Service	11
ASSET CRITICALITY & RISK	12
Key Risks.....	12
Mitigation Strategies	13
Climate Change-Related Risk	14
Anticipated Funding and Path to Net Zero.....	14
INVESTMENT STRATEGIES AND NEEDS	14
Lifecycle Programs and Analysis	14
Funding Requirements and Investment Strategies	15
Long-Term Financial Plan.....	16
LIST OF RECOMMENDATIONS AND ACTION PLANS	18
FORECASTED STATE OF INFRASTRUCTURE	18
APPENDICES	19

The State of Report is a standardized Corporate Asset Management tool designed to give City Council and Executive Leadership a strategic overview of each infrastructure portfolio. It outlines the current condition, performance, risk levels, service level achievement and asset management capacity, promoting transparent, evidence-based decision-making across the organization. A Corporate Asset Management Consolidated Report consolidates findings from all asset portfolio State of Reports into one overall executive summary report.

INTRODUCTION

The City of Saskatoon's (City's) 2025 State of Saskatoon Potable Water Infrastructure Report summarizes the Water Utility's Asset Management Plan (AMP). It provides an overview of the infrastructure required to deliver potable water to ratepayers within Saskatoon and sell bulk water to water utilities in surrounding communities to support the region. This plan supports long-term service reliability by identifying strategies and investments needed to maintain and optimize a complex asset base of water treatment and water distribution systems.

The Water Utility asset inventory encompasses over 1,150 kilometers of water mains and 6,647 assets within the Water Treatment Plant (WTP), along with other supporting facilities and operational sites. For the water distribution asset network, more than 95% of these assets are currently rated in good to very good condition, and all have sufficient capacity to meet existing and near-term service demands. The WTP utilized a capacity demand-based condition rating in terms of meeting current and future capacity requirements for each sub-process area. Overall, for the assets at the WTP, the demand condition rating is good to fair.

The most recent Long Term Capital Development Plan update outlined a preferred approach to sustaining a reliable long-term supply of safe drinking water. It identified the requirement to significantly increase water treatment capacity from the existing 250 million litres per day (MLD) to 450 MLD. The plan aimed to meet projected demands for the next 50 years. To achieve these long-term capital development goals, the Waterworks Program was initiated. It is a capital improvement program focused on regulatory and reliability upgrades at the existing WTP and construction of a second WTP near the existing Raw Water Intake.

This plan aligns with the City's commitment to financial sustainability and environmental stewardship. Notably, WTP energy consumption has trended downward over the past two years, reflecting ongoing operational improvements and efficiency efforts.

Key Insights

- The existing WTP replacement and distribution system capital budget exceeds \$47 million in 2025, with an additional \$396 million planned for 2026-2033, supporting critical maintenance, renewal, and growth.
- The Waterworks Program capital budget for 2025 is approximately \$8 million with an additional \$436 million of capital budget scheduled between 2026-2033. The funding for the new WTP of approximately \$363 million is approved to be funded through rates and borrowing and paid back overtime through utility charges.
- While asset conditions are generally positive, proactive lifecycle management is essential to sustain service levels and mitigate risks posed by aging infrastructure and evolving regulatory requirements.

- Climate resilience, risk management, and continuous improvement remain central to long-term planning.

This AMP outlines comprehensive lifecycle management strategies that balance maintenance, renewal, and replacement to preserve asset value and optimize costs. Funding plans are designed to close gaps and ensure infrastructure investments are aligned with service targets and risk tolerance.

Short-term next steps for continuous improvement of the Water Utility AMP include:

- WTP Operations and Maintenance staff will be assigned to continue improving asset condition ratings and to develop targeted operating strategies for equipment identified as critical. Additionally, the team will determine an inventory sparing approach for those critical assets to reduce downtime risks.
- Update WTP replacement values based on current market conditions.
- Focus on the Enterprise Asset Management (EAM) software in SAP utilization and implementation in the near future is a priority to have a more organized and effective AMP.

INFRASTRUCTURE SERVICE STATEMENT

Scope

This AMP encompasses the assets within the Water Utility, which include linear systems, non-linear facilities, and operational infrastructure critical to delivering sustainable (safe and reliable) water services. The Water Utility asset inventory includes distribution systems, such as pipes, water mains, and other linear infrastructure supporting the distribution of potable water. Non-linear assets, such as the treatment plant and reservoirs are also included, ensuring a comprehensive approach to asset management.

The scope of the AMP is designed to provide clarity on the boundaries and focus of asset management activities. Geographically, this AMP includes all Water Utility assets within the City's jurisdiction, providing city-wide coverage for both distribution systems and facilities that support service delivery.

Through this clearly defined scope, the AMP aims to provide a focused and transparent understanding of the Water Utility's assets and their role in achieving long-term sustainability.

THE STEWARDS

Stakeholders

The AMP for the Water Utility incorporates a diverse group of stakeholders who play important roles in its success. These stakeholders include internal departments directly involved in asset management; senior management and City Council providing governance; service users (industrial, institutional, commercial, and residential) relying on potable water systems; community groups advocating for sustainable practices; investors and funding bodies supporting infrastructure development; and regulatory agencies ensuring compliance with standards.

Each stakeholder group contributes to the asset management process in unique ways. Internal departments focus on operational support and maintenance, while local government oversees decision-making and policy development. Service users offer valuable feedback that helps identify areas for improvement. Investors and funding bodies ensure financial resources are available to address infrastructure needs, and regulatory agencies monitor compliance with environmental and safety standards.

Transparent communication and active engagement are essential throughout the AMP lifecycle. Regular updates are provided through public reports. Community engagement surveys are distributed to gather feedback and address concerns. Information about budgetary decisions and project timelines is shared with senior management and City Council.

The AMP acknowledges the significant impact of water asset management on both the community and the environment. Stakeholder input has shaped initiatives to improve water treatment processes, enhance equitable service delivery across Saskatoon's neighborhoods, and minimize the environmental footprint of infrastructure development. This collaborative approach demonstrates a commitment to balancing operational needs with the expectations of stakeholders. In addition to the customers, key stakeholders include, but are not limited to:

- Government of Saskatchewan – Ministry of Environment (Regulator)
- Government of Saskatchewan – Ministry of Health (Regulator)
- Government of Saskatchewan – Water Security Agency (Regulator)
- Government of Canada – Environment and Climate Change Canada
- Government of Canada – Department of Fisheries and Oceans
- NavCanada
- University of Saskatchewan (Special Interest Group)
- Meewasin Valley Authority (Special Interest Group)
- Government of Saskatchewan (Special Interest Group)
- Government of Canada (Special Interest Group)

- North Partnership for Growth (P4G, Special Interest Group)

CURRENT INVENTORY AND VALUE

Water Treatment – Non-Linear

The estimated value of the assets is based on Current Replacement Value (CRV), representing the cost to replace all assets at today’s market rates. CRV figures were developed using historical capital project costs and cost estimates prepared by a consultant as part of the 2020 Long Term Capital Plan.

Although historical costs may be available through Tangible Capital Asset reporting, these values do not reflect current replacement costs and are best used for comparison purposes only. CRV offers a more accurate indication of the financial requirements to sustain and renew infrastructure over time. No instances of deferred maintenance have been identified as maintenance activities have not been delayed due to budget constraints.

The charts below show the estimated CRV for assets owned by the WTP within the Water Utility in 2024. Values are further broken down by major process areas at the main treatment plant and by each individual remote site, providing a clear view of how infrastructure value is distributed across the system. This helps inform long-term planning, budgeting, and risk assessment efforts.

Chart 1: Asset Replacement Value Summary

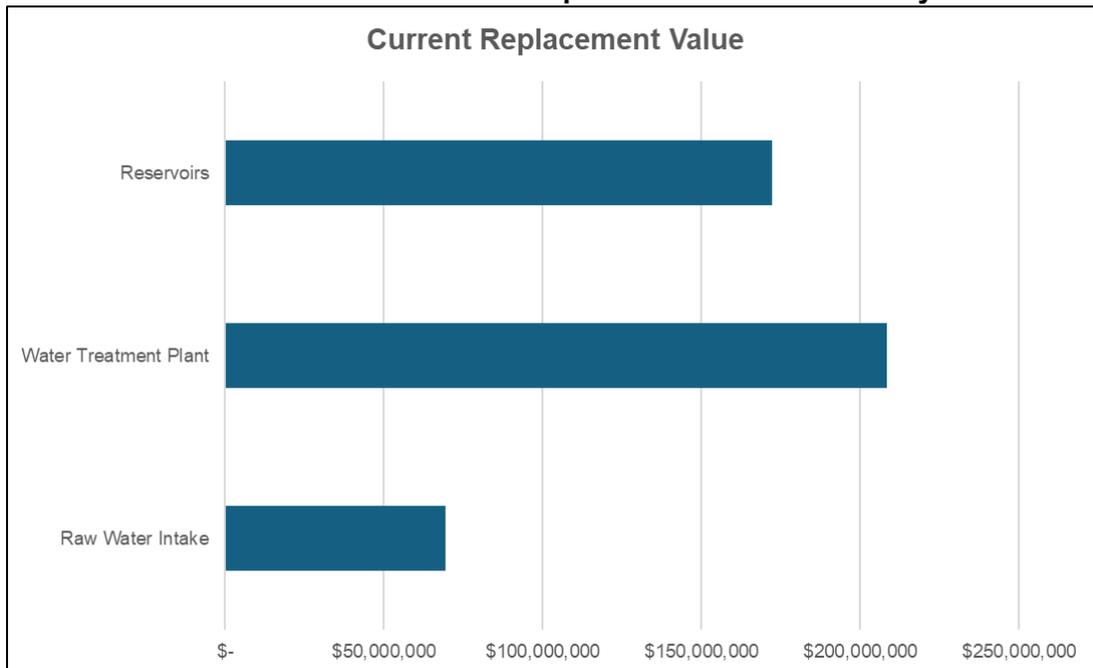
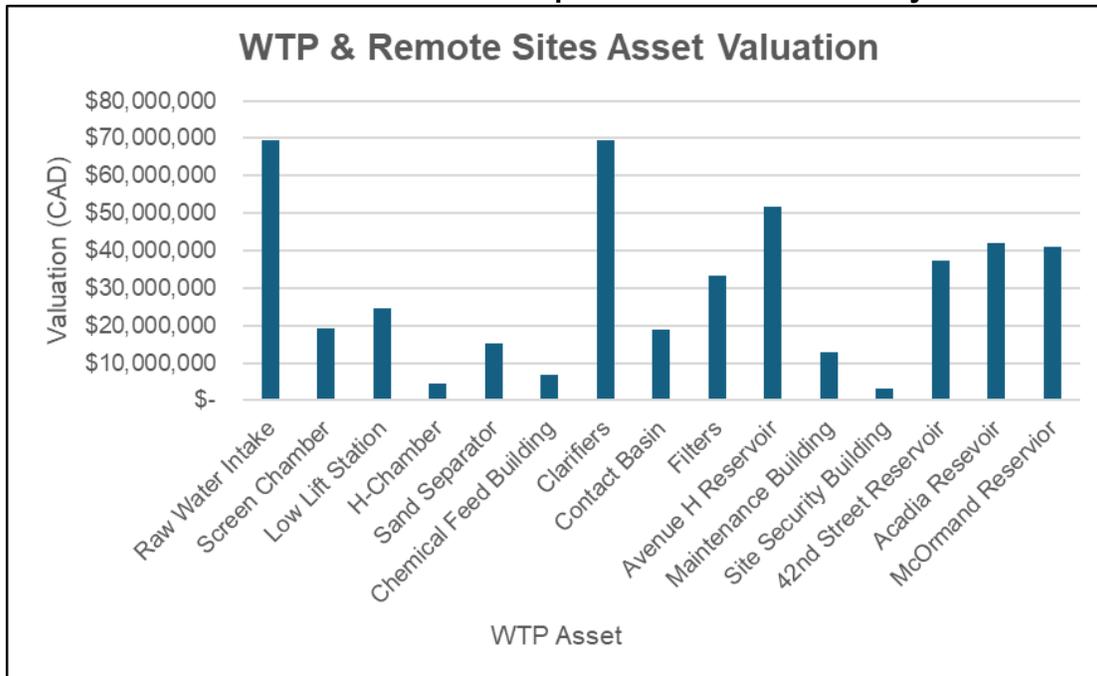


Chart 2: Detailed Asset Replacement Value Summary



Water Distribution – Linear

The method used to value assets is to calculate the replacement value. This is an estimated cost of:

- Replacing an asset by physical excavation
- Replacing with new approved materials
- Restoring the surface area disturbed by the work

Past replacement contracts and new development contracts were analyzed to determine an average estimated value of replacement in 2024 dollars. Water main replacement value is based on a standard trench width (three meters), and average construction cost based on the diameter and depth of the pipe. Valves, chambers, hydrants, and service connections use a single unit replacement value with 10% contingency.

Table 1: Replacement Value Summary

Asset	Type	Inventory		Replacement Value (\$M)	% of Total Valuation
Water Mains	Distribution	1,032	km	3,055	62
	Primary	118	km	491	10
Valves	Distribution	14,165	ea.	250	5
	Primary	332	ea.	28	1
Valve Chambers		208	ea.	81	2
Hydrants		7,114	ea.	174	4
Service Connections		74,046	ea.	843	17
Total		-		4,922	100

ASSET PERFORMANCE AND DATA CONFIDENCE

Data Sources and Considerations

The data contained in this report was compiled or derived from a variety of sources, namely the professional judgments of Water Utility staff, a collection of formal asset assessments, and long-term capital development plans with supporting documentation. These sources may have a wide range of accuracy from auditable to estimated, as specified in the tables below.

Table 2: Accuracy Range

Measure	Description	High	Moderate	Low
Reliability	Can be trusted to be accurate or to provide a correct result	Based on sound records, procedures, or analyses that have been acceptably documented, and are recognized as the best method of assessment	Based upon known reasonable procedures, or analyses that have been acceptably documented	Based upon expert verbal opinion or cursory inspections/ observations
Accuracy	Probable difference between a recorded parameter and its true value	+/- 1%	+/- 25%	+/- 50%

Table 3: Replacement Range

Data Type	Data Source	Reliability	Accuracy
Replacement Valuations	Long-term Capital Development Plans	Moderate	Moderate
	Estimation based on Condition Assessments, previous AMP, and Capital Project Documentation	Moderate	Moderate
	Distribution system past replacement and development contracts analyzed; unit values based on diameter, depth, and trench width with 10% contingency	High	Moderate
Asset Condition Ratings	Plant Engineer and Maintenance Manager Review	Low	Moderate
	Distribution system inspection by personnel	Moderate	Moderate

The EAM software included in SAP has been in use since 2021, with data entry inconsistent to the intended processes. Improving the SAP EAM data quality and workflow at the WTP is an ongoing process that will result in more organized and effective use of inspection and maintenance data. This data will be useful in the future to better evaluate the present reliability and condition of WTP assets.

Asset Condition and Performance

This section reviews the current condition of the assets. Asset condition in this AMP is reported in terms of physical, functional, and demand condition.

- **Physical Condition** – the physical state of the infrastructure that allows it to meet the intended service level based on its original function and demand criteria.
- **Demand Condition** – the ability for the capacity of the physical infrastructure to meet the service level required.
- **Functional Condition** – the state of the physical infrastructure's design to meet the intended service level, as compared to current functional design criteria.

Physical, functional, and demand condition grades can be viewed in conjunction with each other to provide a more comprehensive picture of overall asset performance.

Water Treatment – Non-Linear

The WTP is utilizing demand-based condition assessment, assessing if an asset has the capacity to meet current and future demand.

Table 4: Demand Condition Rating

Rating	Summary	Definition
Very Good Rating of 1.0	Fit for future	The infrastructure in the system or network is generally in very good condition. The infrastructure has the ability to meet current and future demand.
Good Rating of 2.0	Adequate for now	The infrastructure in the system or network is generally in good condition. The infrastructure has the ability to meet current demand. Analysis of future demand is required or needs review.
Fair Rating of 3.0	Requires attention	The system or network's infrastructure is in fair condition; and will likely require replacement or maintenance in the short-term to maintain demand requirements.
Poor Rating of 4.0	At risk	The infrastructure cannot meet current demand requirements

It is important to note that asset condition ratings are reflective of the asset's status at the time of assessment and may not capture short-term or operationally accepted fluctuations.

The majority of assets have a demand condition rating of Fair or better, with the outlier being the chlorine contact basin classified as Poor. Future work at the WTP will include incorporating the physical and function condition into the scoring and assessment with the demand condition.

Table 5: WTP Asset Centre Demand Condition Rating

Asset Centre	Demand Condition Rating
Source Collection	2 (Good)
Sand Separation	3 (Fair)
Clarification	3 (Fair)
Chlorine Contact Basin	4 (Poor)
Filtration	3 (Fair)
Transfer Pumping	2 (Good)
Ultraviolet Disinfection	1 (Very Good)
Plant Distribution	1 (Very Good)

The Waterworks Program is underway with upgrades planned to Low Lift (Source Collection) by 2028 and improvements to the chlorine contact basin and chemical feed building by 2035. These scheduled improvements align with the construction of the new WTP, which will provide the treatment capacity needed to enable critical processes to be shutdown at the existing WTP for required construction to occur.

Wastewater Distribution – Linear Assets

Distribution Water Mains

Distribution water mains are defined as mains that are less than 400 mm in diameter and compose 90% of the linear water distribution system. The physical condition of distribution mains is assessed by the number of breaks that have occurred on a main.

Table 6: Distribution Main Physical Condition Rating Classification

Physical Condition	Grade	Number of Breaks
Very Good	A	0
Good	B	1-2
Fair	C	3-5
Poor	D	6-8
Very Poor	F	9+

Table 7: Distribution Main Physical Condition Rating

Condition	Length (km)	% by Length	Replacement Value (\$M)
A	851	82	2,524
B	125	12	364
C	44	4	126
D	10	1	30
F	3	0	10
Total	1,032	100	3,054

Primary Water Mains

Primary water mains are defined as mains that are 400 mm in diameter or larger and comprise 10% of the water distribution system. The physical condition of these assets is assessed through electro-magnetic inspections, with acoustic inspections utilized for leak detection.

Establishing an accurate physical condition model of the distribution system requires collecting and maintaining a database of up-to-date inspection data by:

- Inspecting aging water mains.
- Updating the condition assessment of the network.
- Identifying and prioritizing preservation activities.

The Asset Preservation section has developed a condition rating system that uses this defect score to assign an overall condition to each inspected water main:

- A – pipe segment has no defects and does not require replacement.
- F – pipe segment has defects and requires repair or replacement.

Table 8: Primary Mains Known Conditions Ratings – Length (km)

Material	Total Inventory (km)	Length Inspected (km)	% Inspected	A (km)	F (km)
Asbestos Cement	6	0	0	-	-
Metallic	47	8	16	8	0.1
Metallic Lined	0.3	0	0	-	-
Plastic	32	0	0	-	-
Concrete	32	12	37	12	0
Other	1	0	0	-	-
Total	118	20	17	20	0.1

The inspection program focuses on concrete and metallic pipe due to their higher probability of failure. Currently, one urgent repair is outstanding for a metallic primary water main. None of the asbestos cement mains are considered critical. There are no short or medium-term plans to inspect plastic or lined mains due to their low historical failure rates.

Other Assets

- Distribution valves are not assigned condition grades and have no dedicated preservation program. These assets are replaced through capital programs when the associated main is replaced. It is estimated the overall condition is Fair.
- Primary valves are not assigned condition grades and have no dedicated preservation program. These assets are replaced through capital programs when the associated main is replaced or when they fail. It is estimated the overall condition is Fair.
- Hydrants are not assigned condition grades. These assets are replaced through capital programs when the associated main is replaced. An annual hydrant inspection program is also undertaken by WWO to determine if replacement should be scheduled. It is estimated the overall condition is Good.

THE SERVICE LEVELS

Service levels are categorized into customer levels of service and technical levels of service, with municipal performance measures supplementing both. The customer and technical levels of services are governed by the following criteria:

- **Quality** – refers to the condition and reliability of water assets, ensuring safe and efficient service delivery.
- **Function** – assesses whether the service meets the intended requirements, ensuring proper water distribution, treatment, and environmental sustainability.

- **Capacity and Use** – evaluates whether water infrastructure meets demand, assessing usage trends and future needs to determine necessary expansions or optimizations.

Customer Levels of Service

Customer levels of service define and measure how the customer receives the service and whether value to the customer is provided. Furthermore, it is how residents experience and benefit from water infrastructure, measuring whether services meet expectations in quality, function, and capacity.

The customer levels of service for the water utility includes the following:

- Provide safe and reliable potable water for consumption.
- Provide sufficient water supply and pressure for use and fire suppression.
- Provide water services through sustainable practices protecting the environment.
- Provide water services ensuring fiscal responsibility.

Technical Levels of Service

Supporting customer service levels are operational or technical measures of performance. These technical measures relate to the allocation of resources to service activities to best achieve the desired customer outcomes and demonstrate effective performance.

Technical services measures to ensure quality, function, and capacity are linked to activities and annual budgets covering:

- **Planning** – forecasting which assets are needed to continue to deliver services.
- **Operations** – the regular activities to provide services.
- **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.
- **Renewal** – the activities that return the service capability of an asset up to that which it had originally.
- **Upgrade/New** – the activities to provide a higher level of service.

The following summarizes key technical services levels that support and ensure adherence to customer levels of service:

- **Planning** – the distribution system provides consistent service and pressure, and the treatment system is capable of meeting current and future demands.

- Water utility rates are modelled to align with required asset management forecasts.
 - Funding is in place to deliver required capital renewal and expansion projects.
 - Spending is within annual budgets.
 - Assets are inspected at least every five years.
- **Operations** – treated and distributed potable water is safe, clear, and odourless.
 - Meet or exceed provincial and federal water quality standards.
 - Meet requirements of the Permit to Operate a Waterworks issued by the Water Security Agency.
 - Normal water operating pressure is maintained throughout the distribution network.
 - Energy consumption is monitored, and reduction practices are implemented.
- **Maintenance** – the distribution system provides consistent service and pressure, and the treatment system is capable of meeting current and future demands.
 - The number of distribution mains in “Poor” condition is decreasing over time.
 - Proactive and scheduled maintenance is 80% of overall maintenance at the WTP.
- **Renewal** – the distribution system provides consistent service and pressure, and the treatment system is capable of meeting current and future demands
 - All lead lines are replaced by the end of 2028 through a replacement program of at least 300 locations per year.
- **Upgrade/New** – the distribution system provides consistent service and pressure, and the treatment system is capable of meeting current and future demands.
 - Execution of capital development plans and the Waterworks Program.

The comprehensive list of technical levels of service for the distribution system is provided in Appendix A.

ASSET CRITICALITY & RISK

Key Risks

Critical assets are defined as those with a high consequence of failure, causing significant loss or reduction of service. Similarly, critical failure modes have the highest consequences. Critical assets have been identified using the criticality matrix (Appendix B) developed by Saskatoon Water, which is a risk assessment tool used to evaluate and prioritize potential incidents based on their severity (consequence) and likelihood of occurrence. It categorizes consequences across six key areas:

- Service Delivery
- Regulatory Compliance
- Environmental
- Health & Safety
- Financial
- Reputational damage

In the risk assessment process, consequences are assigned one of four severity levels—negligible, moderate, major, or critical. Likelihood is rated from rare to frequent, based on expected frequency of occurrence. The next step for the Water Utility is to assess potential failure modes for each asset within the inventory. The critical risks identified to date are provided in Appendix C.

Future work for the water distribution system is to classify water mains based on pipe classes based on criticality. The criticality ranking would consider type, number and type of customers serviced, roadway service, and critical surrounding infrastructure.

Mitigation Strategies

As part of the asset management framework, a risk-based Criticality Assessment Matrix was adopted to systematically evaluate and prioritize Water Utility assets. This tool helps make informed decisions about maintenance strategies, spare parts planning, and asset renewal by identifying which equipment is most critical to the reliable and compliant operation of the facility.

Assets that fall into higher criticality categories require a more proactive approach, such as increased preventive maintenance, condition monitoring, or strategic redundancy. Conversely, lower-criticality assets can be managed with more reactive strategies. The following mitigation strategies are being implemented by the Water Utility:

- Maintenance Practices are planned: daily, weekly, and annual inspections are scheduled and documented.
- The critical process of the Low-Lift Pump Station is planned for replacement by 2029.
- A new WTP is planned to be operational by 2033 to allow for comprehensive inspection and maintenance to be undertaken at the current WTP (Waterworks Program).
- Automation is being introduced where possible for scheduled maintenance to improve reliability.
- Asset replacement capital funding percentage of the Water Utility budget meets requirements.

To further mitigate this risk, the financial strategy includes:

- Annual review of construction cost indices and adjustment of funding targets accordingly.
- Regular condition assessments to refine asset needs and adjust investment priorities.
- Continued use of cost-efficient rehabilitation methods when feasible.
- Long-range forecasting of capital and operating needs based on asset performance trends.
- Long-range population and water demand forecasts to avoid rate shock.

Climate Change-Related Risk

Saskatoon Water is committed to supporting the City's broader climate objectives, including the updated target from the 2021 Climate Action Plan to achieve net zero emissions by 2050. The Water Utility plays a key role in meeting these goals by integrating energy management directly into its asset management and operational planning.

To meet its commitments, Saskatoon Water has adopted an Energy Management Policy, which is reviewed and updated every three years. This policy outlines how the Water Utility will pursue energy efficiency, cost control, and emissions reduction. The Water Utility is also currently undertaking a project to be aligned with the ISO 50001 Energy Management System. This requires identifying and implementing energy improvements and maintaining energy efficiency assets.

Anticipated Funding and Path to Net Zero

The Water Utility recognizes that reaching net zero will require sustained investment and careful project selection. Current funding sources used to support energy initiatives include several internal capital projects and external grant opportunities. While a fixed date for reaching net zero for the Water Utility has not yet been set, the WTP is pursuing a multi-year strategy that is updated with each budget cycle. The approach ensures that targets are realistic, do not compromise treatment performance, and remain financially feasible. Funding decisions will be guided by marginal abatement cost principles outlined in the Low Emissions Community Plan.

INVESTMENT STRATEGIES AND NEEDS

Lifecycle Programs and Analysis

The lifecycle cost approach includes comprehensive consideration of all stages: business planning, acquisition, operation and maintenance, asset renewal, and end-of-life disposal.

- **Business Planning** – Costs related to asset management planning and budgeting are incorporated within administrative budgets.
- **Acquisition** – Capital expenditures for new assets and system expansions are identified and included in the capital improvement plan.
- **Operation & Maintenance (O&M)** – Water rates are established to fully fund ongoing O&M expenses, ensuring reliable daily operation of the distribution system, reservoirs, and treatment plant.
- **Renewal & Replacement** – Renewal and asset replacement projects are identified through condition assessments and integrated into the capital budget, ensuring assets are replaced prior to failure.
- **Disposal** – End-of-life asset disposal or decommissioning costs are planned on an as-needed basis and funded through capital reserves or specific project budgets.

The water distribution system requires ongoing investment throughout its lifecycle to maintain service levels, address asset deterioration, and mitigate the risk of failures. Lifecycle costs include preventive maintenance, condition assessments, repairs, rehabilitation, and eventual replacement. A key strategy in managing lifecycle costs is prioritizing rehabilitation techniques that extend asset life at a lower cost than full replacement. This approach reduces disruption, minimizes excavation, and preserves infrastructure value efficiently.

Ongoing maintenance also plays a critical role in reducing total lifecycle costs by extending asset life and deferring more expensive capital interventions. Programs are targeted to minimize inflow and infiltration, ensure hydraulic capacity, and address structural deterioration before failures occur.

Funding Requirements and Investment Strategies

Funding is primarily rate-based with additional borrowing utilized to finance capital projects as needed. Debt incurred is repaid from the operating budget with rates set to cover the full cost of current O&M and planned capital projects, including renewals and necessary expansions to maintain levels of service.

- **Funding Sources:**
 - Water user rates serve as the principal funding source for O&M, capital, and debt repayment.
 - Borrowing is used for capital investments when required, with debt service costs integrated into the annual operating budget and funded by rates.
 - Occasional external grants may supplement funding for capital projects when available but are not relied upon for core funding.

- **Total Funding Gap/Investment Needs - Treatment:**
 - There is currently no funding gap for capital and maintenance projects. City Council approved the funding plan for the new WTP in May 2025. This investment requires approximately \$363 million of debt borrowing for the new plant and critical upgrades to the existing WTP. The debt will be repaid over time through utility charges.
 - Capital Growth Funding: Growth-related capital projects are planned and funded through development charges or rate adjustments as required.
 - Capital and O&M Funding: Current capital renewal and O&M expenses are fully funded through rates. Budgeting processes incorporate asset condition data to ensure funding aligns with infrastructure needs.

- **Total Funding Gap/Investment Needs – Distribution:**
 - At current funding levels, the City is able to maintain the network and make incremental progress in reducing the backlog of assets rated in “Poor” condition. The distribution network is encountering a funding gap in 2025 for distribution water main replacement, repairs or lining of approximately \$2.0 million. This funding gap is addressed in budget plans between 2026 and 2033, subject to City Council approval. However, continued investment will be required to prevent the growth of that backlog and avoid deterioration in overall network condition.

Long-Term Financial Plan

The Water Utility has been studying and planning for a second WTP since approximately 2005. External Long-Term Capital Plans were completed in 2009 and 2020. In 2023, the Water Utility formed the Waterworks Program with the purpose of creating a program to allow for projects and activities to be managed in a coordinated way to obtain benefits not available from managing them individually. The Waterworks Program consists of two key groups of projects:

- Renewal and replacement projects at the existing WTP to maintain a firm capacity of 250 MLD. The focus at the existing plant is regulatory compliance and reliability of existing infrastructure.
- Construction of a second WTP at a site near the Raw Water Intake with an initial capacity of 150 MLD and allowance for ultimate system expansion to 450 MLD. The purpose of this project is to increase the water treatment capacity for Saskatoon and region and to provide the redundancy needed to enable major renewal/repairs to occur at the existing WTP.

Construction of the renewal and replacement projects at the existing WTP is expected to start in 2026, with construction of the new WTP scheduled to start in 2028. The current cost estimate for the Waterworks Program is \$500 million. The budget requirements for

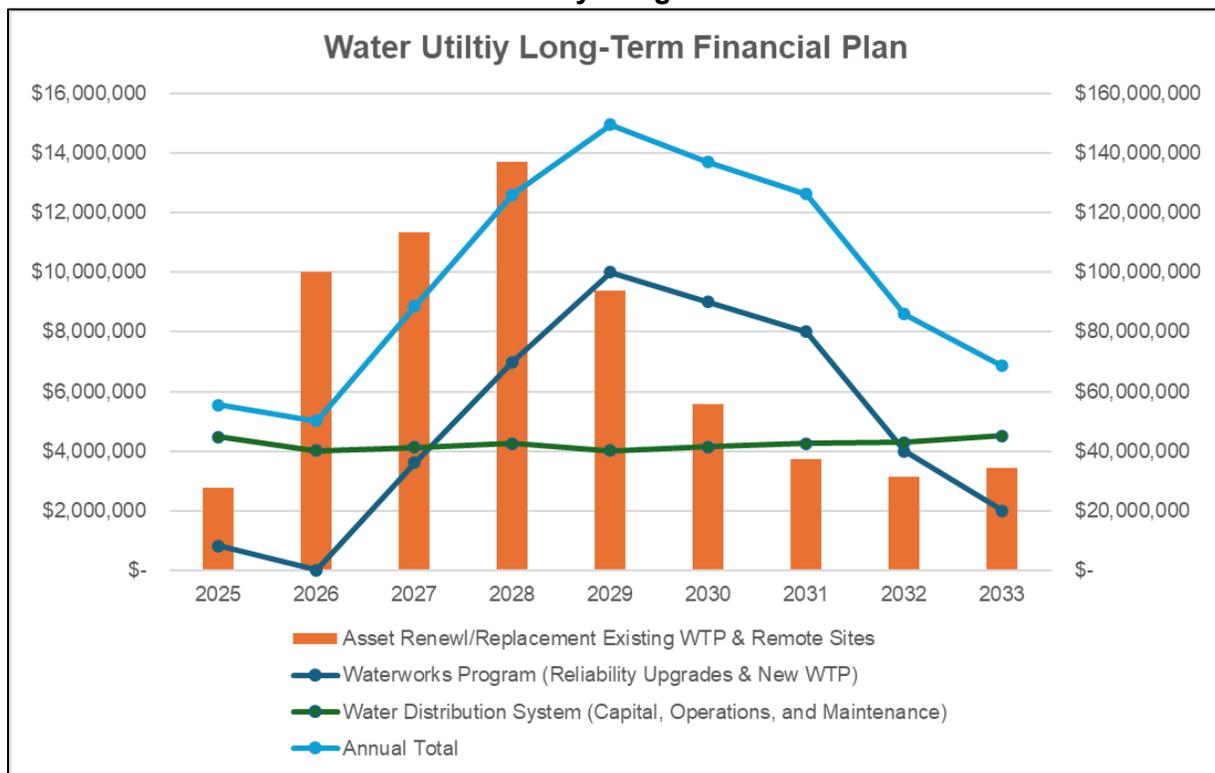
the Waterworks Program are approximately \$444 million between 2025 and 2033. The detailed funding and cost plan for the new WTP is provided in Appendix D.

In addition to the Waterworks Program, the existing WTP has planned replacement and renewal capital maintenance work between 2025 and 2033. This funding includes work intended to overhaul, repair, or replace aging or underperforming assets. The total budget required to complete this work is approximately \$63 million (2025-2033).

The Water Utility distribution network is encountering a funding gap in 2025 for distribution water main replacement, repairs, or lining of approximately \$2.0 million. This funding gap is addressed in budget plans between 2026 and 2033. The budget plan total for the distribution system is approximately \$381 million for 2025-2033.

By aligning funding levels with lifecycle demands and long-term growth, the City can continue to deliver reliable water services while minimizing the financial burden on future ratepayers. The following figure summarizes the Water Utility’s long-term capital plan.

Chart 3: Water Utility Long-term Financial Plan



LIST OF RECOMMENDATIONS AND ACTION PLANS

Action Plan

Immediate Actions will focus on maintenance and renewals targeting assets identified in critical condition or at risk, addressing urgent needs to preserve service reliability and safety.

Mid-Term Priorities involve enhancing asset condition ratings by conducting more detailed assessments, affirming the adequacy of current asset budgets, and refining capital plans to better support sustainable asset management.

Long-Term Roadmap aims to improve data storage and asset monitoring capabilities while continuing to evolve and enhance the AMP. This will support improved decision-making and ensure the plan remains aligned with the City's strategic goals over time.

FORECASTED STATE OF INFRASTRUCTURE

Next steps for the Water Utility AMP are to work with all involved members of the Water Utility team to ensure full understanding and alignment and adequacy of resources. Each member of the team will have responsibilities associated with maintaining and improving upon current AMP practices. These activities will be incorporated into the Water Utility's business plan, which will serve as the framework to monitor and review progress regularly.

Stakeholder engagement will occur through ongoing coordination with the corporate asset management team and periodic departmental updates, ensuring transparency and alignment across all levels.

The City and the Water Utility team remains committed to continuous improvement of asset management practices by leveraging innovation, staff development, and strategic adjustments as needed.

APPENDICES

APPENDIX A: WATER DISTRIBUTION TECHNICAL LEVELS OF SERVICE

Asset	Program	Service Levels Target	Service Level KPI
Water Mains	Preservation	The number of water mains in “Poor” and “Very Poor” condition is decreasing over time	Replace or line 3.1 km of water main per year
Water Mains	Capacity	Hydrants in areas with lead line replacement programs have a minimum of 90 L/s available fire flow.	Replace or line 2.7 km of water main per year
Water Mains	Corridor Capacity	Upsize water mains in designated corridor growth areas as identified by Saskatoon Water.	TBD
Water Mains	Anode Retrofit	Install sacrificial anodes on water mains in lead line replacement areas or paving preservation areas.	No KPI
Water Mains	Primary Water Main Inspection	Inspect critical water mains based on risk assessment.	No KPI. Medium term plan in place.
Service Connections	Lead Line Replacement Program	Replace all remaining lead line inventory by the end of 2028.	Replace approximately 300 lead lines per year.
Distribution Valves	No dedicated program	Replace out of specification valves in conjunction with water main replacement programs.	As needed, no KPI
Primary Water Main Valves	Primary Water Main Valve Replacement Program	Replace or rehabilitate failed PWM valves based on WWO recommendations from annual inspections.	As needed, no KPI. Medium term plan in place.
Hydrants	No dedicated program	Replace out of specification hydrants in conjunction with water main replacement programs.	As needed, no KPI

APPENDIX B: SASKATOON WATER CRITICALITY MATRIX

		CONSEQUENCE				LIKELIHOOD				
						Rare:	Unlikely:	Possible:	Probable:	Frequent:
						5	4	3	2	1
		Impact on Safety	Impact on Environment/Regulatory	Operations Loss (OL) / Financial Impact (FI)	Impact on Reputation	Rare $\leq 10^{-1}$ per year (beyond 1 in 10 years)	Unlikely $\leq 10^{-2}$ per year (up to 1 in 10 years)	Possible $\leq 5^{-1}$ per year (up to 1 in 5 years)	Probable $> 2^{-1}$ per year (up to 1 in 2 years)	Frequent ≥ 1 per year (Annually)
Critical	1	<ul style="list-style-type: none"> Multiple lost time cases Single case of permanent disability Fatality 	<ul style="list-style-type: none"> Untreated spill or unauthorised discharge to soil, vegetation, air, water for more than 6 hours Reporting to regulating authorities is required Notice of violation resulting in limitation or temporary loss of license to operate (i.e. facility shut down order for undefined time, multiple regulatory investigations). Follow-up / clean-up effort cost above \$100k Effluent parameters above Permit to Operate limits. 	<ul style="list-style-type: none"> Major Impact (Multisystem / Partial or complete Plant Shutdown) Severe Equipment Damage (FI > \$100k) 	<ul style="list-style-type: none"> Trust/confidence/credibility broken Extensive, prolonged local and national media attention Unable to control/only able to react to the message 	(C) MEDIUM IMPACT	(B) HIGH IMPACT	(B) HIGH IMPACT	(A) EXTREME IMPACT	(A) EXTREME IMPACT
	2	<ul style="list-style-type: none"> Multiple medical aid cases Multiple restricted work cases Single case lost time incident 	<ul style="list-style-type: none"> Untreated spill or unauthorised discharge to soil, vegetation, air, water for less than 6 hours Reporting to regulating authorities is required Notice of violation not resulting in enforcement action (i.e. stop work order) Follow-up / clean-up effort cost between \$50k to \$100k Effluent parameters above monthly average for more than a day and No impact on Permit to Operate limits 	<ul style="list-style-type: none"> Major Impact (System/Unit Shutdown) Major Equipment Damage (\$100k \geq FI > \$50k) 	<ul style="list-style-type: none"> Trust/confidence/credibility damaged, longer time and more effort required to regain Extensive local media coverage; limited national media coverage Significant need to manage/get in front of message 	(D) LOW IMPACT	(C) MEDIUM IMPACT	(B) HIGH IMPACT	(B) HIGH IMPACT	(A) EXTREME IMPACT
Moderate	3	<ul style="list-style-type: none"> Single case of medical aid Single case of restricted work 	<ul style="list-style-type: none"> Localized spill or unauthorised discharge to soil, vegetation, air, water Reporting to regulating authorities is required Follow-up / clean-up effort cost between \$25k to \$50k Effluent parameters above monthly average for less than a day and No impact on Permit to Operate limits 	<ul style="list-style-type: none"> Moderate Impact (Equipment Shutdown - no Standby) Moderate Equipment Damage (\$50k \geq FI > \$25k) 	<ul style="list-style-type: none"> Overall level of trust/confidence/credibility bruised but recoverable in the short term Short-lived local media coverage; minimal national media attention Some need to manage message 	(D) LOW IMPACT	(D) LOW IMPACT	(C) MEDIUM IMPACT	(B) HIGH IMPACT	(B) HIGH IMPACT
	4	<ul style="list-style-type: none"> No treatment Just first aid 	<ul style="list-style-type: none"> Reporting to regulating authorities not required Minor incident with no regulatory notice Follow-up / clean-up effort of less than \$25k. No impact on Permit to Operate 	<ul style="list-style-type: none"> No Effect or Minor Impact (Equipment Shutdown - with Standby) No or Minor Equipment damage (FI \leq \$25k) 	<ul style="list-style-type: none"> Little/no impact on overall level of trust/confidence/credibility Attracts minimal local media interest Little/no need to manage message 	(D) LOW IMPACT	(D) LOW IMPACT	(D) LOW IMPACT	(C) MEDIUM IMPACT	(C) MEDIUM IMPACT

APPENDIX C: RISK INVENTORY

Critical Asset(s)	Failure Mode	Impact
Raw Water Transmission Main	Pipe failure	Reduced water capacity. Potential for water restrictions depending on length of outage and seasonal water demands.
Low Lift Pump Stations (11th St., Strathcona Ave.)	Pump failure	Reduced water capacity. Non-compliance with regulatory requirements.
Chlorine Contact Basin	Vessel failure	Potential non-compliance with regulatory requirements, service level agreements. Potential water restrictions depending on length of outage and seasonal water demands.
Clarifier	Drive or vessel fails	Potential water restrictions depending on length of outage and seasonal water demands.
1957 Filter Plant Controls	Control card or communication fails	Potential water restrictions depending on length of outage and seasonal water demands.
Filter plant back wash Pumps	Pump won't start	Potential water restrictions depending on length of outage and seasonal water demands
Primary Applied Line	Pipe Failure	Leading to non-compliance with regulatory requirements, service level agreements. Potential water restrictions depending on length of outage and seasonal water demands.
Chemical supply	Disruption of chemical supply chain.	Potential water restrictions depending on length of outage and seasonal water demands.
Residual handling facility	Solids aren't removed or chlorine isn't inactivated	Regulatory non-compliance fines and/or jail time, risk to source water, reputational damage.
Chlorine & Ammonia delivery	Leakage or accidental release of chlorine gas or Ammonia Hydroxide gas	Health and safety risk to workers, nearby residents and public, potential evacuation, regulatory action, reputational damage

APPENDIX D: 2025-2033 FINANCIAL PLAN

Waterworks Program Budget and Cost Summary

	Pre 2025	2025	2026	2027	2028	2029	2030	2031	2032	2033	Total
Project Cost											
Low Lift Pump Station and Filter Backwash		\$ 5,000,000	\$ 20,000,000	\$ 15,000,000							\$ 40,000,000
New Water Treatment Plant			\$ 10,000,000	\$ 50,000,000	\$ 70,000,000	\$ 100,000,000	\$ 90,000,000	\$ 70,000,000	\$ 20,000,000		\$ 410,000,000
Contact Basin and Chemical Building								\$ 10,000,000	\$ 20,000,000	\$ 20,000,000	\$ 50,000,000
Total Project Cost		\$ 5,000,000	\$ 30,000,000	\$ 65,000,000	\$ 70,000,000	\$ 100,000,000	\$ 90,000,000	\$ 80,000,000	\$ 40,000,000	\$ 20,000,000	\$ 500,000,000
Project Funding											
Approved Funding	\$ 55,900,000	\$ 8,100,000									\$ 64,000,000
Waterworks Capital Projects Reserve				\$ 32,200,000					\$ 21,200,000	\$ 20,000,000	\$ 73,400,000
Borrowing				\$ 3,800,000	\$ 70,000,000	\$ 100,000,000	\$ 90,000,000	\$ 80,000,000	\$ 18,800,000		\$ 362,600,000
Total Funding	\$ 55,900,000	\$ 8,100,000	\$ -	\$ 36,000,000	\$ 70,000,000	\$ 100,000,000	\$ 90,000,000	\$ 80,000,000	\$ 40,000,000	\$ 20,000,000	\$ 500,000,000

Note: All costs shown in 2025 dollars.