City of Saskatoon

Water and Wastewater Utilities

2024 Annual Report

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MESSAGE FROM THE DIRECTORS

The Water and Wastewater Utilities fund a complex urban water system that starts at the Water Treatment Plant Raw Water Intake on the South Saskatchewan River and ends at the Wastewater Treatment Plant outfall, where treated effluent is discharged into the river. Responsibility for the planning and design, treatment, operations, maintenance, certified laboratory services, quality assurance, asset preservation, programming, and construction engineering falls within the following three departments:

- Saskatoon Water
- Water and Waste Operations – Water and Sewer Section
- Technical Services – Asset Preservation Section

Management and staff from these departments are committed to providing exceptional quality water and wastewater services in the most reliable and cost-efficient way for utility customers and citizens of Saskatoon. We are pleased to present our results in the Water and Wastewater Utilities 2024 Annual Report on behalf of our departments.

We take great pride in receiving one of the highest citizen satisfaction ratings of City of Saskatoon (City) service for the quality of our water. Several initiatives have been completed, and more are underway to further enhance service to customers, increase efficiencies, reduce costs, and strengthen our environmental leadership. The departments have been focused on addressing growing demands, regulatory improvements, and aging infrastructure for water-related services.

Our financial statements show responsible stewardship of the resources that Saskatoon citizens and regional partners have entrusted to us. We continue to provide excellent value to our customers as we undertake capital and Continuous Improvement projects that ensure asset and financial sustainability. Our utility rates are designed to fund the needed capital and operating costs for current and future water and wastewater services.

We are proud to work with a dedicated group of professionals who demonstrate an ongoing commitment to not only making quality of life great in Saskatoon, but to continue to ensure the water and wastewater infrastructure is sustainable. Their work is greatly appreciated.

Russ Munro – Director of Saskatoon Water
Brendan Lemke – Director of Water and Waste Operations
Dan Willems – Director of Technical Services

EXECUTIVE SUMMARY

The Water and Wastewater Utilities (Utilities) fund essential services that contribute to our customers' quality of life by providing safe, reliable, high-quality drinking water; and wastewater collection and treatment that meet health and environmental regulatory standards. The Utilities provide water services to approximately 79,000 residential and commercial water meters (in-service meters). The Water Treatment Plant (WTP) supplies water to approximately 346,600 Saskatchewan residents, including about 308,600 in Saskatoon and approximately 38,000 customers outside of Saskatoon through SaskWater. Wastewater is collected and treated for customers within the city. The approximately 4,576 commercial customers account for 52% of the Utilities' revenues.

Water services are performed by the Saskatoon Water Department, the Water and Sewer Section of the Water and Waste Operations Department, and some staff in the Technical Services Department. Between 334 and 360 staff, depending on the season, were employed through these three departments to:

- Operate and maintain the WTP, three reservoirs and pump stations, the Wastewater Treatment Plant, 29 lift stations, the Meter Shop, and underground water and wastewater infrastructure.
- Provide professional water and environmental laboratory services.
- Provide engineering, planning, and project management services.
- Provide asset management and preservation services for the Utilities.

In 2024, treated water volumes were lower than 2022 and 2023, and approximately 5% less than the previous ten-year annual average. During 2024, there was lower than average temperatures and higher than average rainfall. Customers are increasingly switching to low-flow appliances and reducing irrigation due to the water block pricing structure and conservation awareness. Some of these factors also influence the fact that wastewater treatment volumes are at much lower levels in the past five years compared to the years before 2017. Wastewater volumes in 2024 were slightly higher than volumes in 2023.

Average monthly residential water-related utility bills of $159.41 in 2024 remain below average when compared to other major prairie cities. In 2024, the Water and Wastewater Utilities collected $197.58 million in revenues and incurred $187.67 million in expenses, resulting in a $9.90 million surplus. Compared to 2023, total revenues in 2024 increased by 2.7% due to higher than forecast metered revenues. Expenses increased by 1.9% due to increased contributions to Grants-in-Lieu of Taxes and Return on Investment, as well as capital investment; materials and supplies; security costs, which were partially offset by decreased maintenance work; and savings in overtime, utilities, and special services expenses. The Utilities contributed $26.8 million to the City for Return on Investment and Grants-in-Lieu of Taxes.

In 2024, 46.6% of total revenues, or $92.0 million, was allocated to capital to fund longer-term, water-related infrastructure projects. In 2024, the Utilities funded 73 active capital projects valued at $538.3 million. Significant 2024 capital project highlights include the following:

- McOrmond Drive Reservoir and Pump Station: Construction was completed and the station and reservoir were put into service with the grand opening event occurring in June 2024 to officially open the facility.
- New Spadina Wastewater Lift Station and Force Main: Construction was completed with the lift station grand opening event occurring in June 2024.
- Hampton Village Business Park Lift Station and Force Main: Construction was initiated for the new lift station and associated piping to support the growth and development of this neighborhood. Construction is expected to continue throughout 2025.
- 13.0 km of sanitary sewer main lined.
- 6.3 km of water main replacement.

In 2024, over 1,113 Advanced Metering Infrastructure (AMI) communication modules were installed to offer real-time, water-usage readings for customers, bringing the total to approximately 99% of all water meters updated since the program started in 2016. AMI module installations will continue in 2025.

The Utilities continue to leverage the SAP system launched in 2021. Ongoing areas of improvement included improved inventory and warehouse functions, increased planning and reliability engineering work, and financial optimization to meet budget directives.

The Long-term Capital Development Strategy for the WTP was completed in 2022, outlining a thirty-year capital expenditure schedule, aligning with expected capacity, redundancy, and regulatory treatment objectives. This plan will help ensure that the long-term planning for the Water Utility is well positioned to provide high-quality, reliable, and cost-effective water services in the future. Due to the magnitude, level of complexity, and strategic decisions evaluated in this iteration, a Decision Quality Review of the long-term strategy was undertaken, utilizing internal resources to determine the best approach to increase the City's water treatment capacity. A summary of the strategy and Decision Quality Review was brought forward to City Council outlining the findings and next steps for execution. This has now evolved into the creation of the Waterworks Program, which will focus on regulatory and reliability upgrades at the existing WTP and will result in the construction of a second WTP near the existing Raw Water Intake. The Waterworks Program has completed the planning stage (i.e., the Program Definition Phase) and will move into design in 2025 and project delivery in 2026 and beyond.

1. OVERVIEW

1.1. Introduction

The Water and Wastewater Utilities (Utilities) fund the Saskatoon Water Department, Water and Sewer section of the Water and Waste Operations (WWO) Department, and portions of the Technical Services Department, which are collectively responsible for the planning, design, operation, maintenance, and capital project delivery for all water and wastewater services for existing and future customers. The Utilities also fund a portion of Corporate Revenue for customer billing, meter reading, and collection services.

Abbreviations are listed in Appendix A and a Glossary of key definitions for the report can be found in Appendix B.

1.1.1. Saskatoon Water Department

Saskatoon Water consists of the following seven sub-departments or sections.

Figure 1.1 – Aerial Photo of the WTP

The Water Treatment Plant (WTP) supplies all consumers with safe and reliable, high-quality drinking water that meets provincial and federal regulatory standards. Core functions include operating, maintaining, and monitoring the South Saskatchewan River Raw Water Intake, the WTP, and four potable water storage reservoirs with a capacity of 157 million litres.

Figure 1.2 – Aerial Photo of the WWTP

The Wastewater Treatment Plant (WWTP) ensures that wastewater is treated to meet provincial and federal regulatory standards before being returned to the South Saskatchewan River. Core functions include operating, maintaining, and monitoring the WWTP, 29 lift stations, Marquis Liquid Waste Hauler Facility, Heavy Grit Facility, and Biosolids Facility where solids from the treatment process are handled and applied to agricultural

land. Sales of the plant's slow-release fertilizer from its nutrient recovery system create additional revenues.

Figure 1.3 - Photo of the Meter Shop

The Meter Shop is responsible for the purchase, installation, testing, repair, and replacement of water meters; the activation and termination of water services; as well as the installation and commissioning of Advanced Metering Infrastructure (AMI). The Meter Shop also operates the Cross-Connection Control Program to ensure that proper backflow prevention devices on multi-unit residential, commercial, industrial, and institutional service connections protect the city's potable water.

Engineering and Planning is responsible for the planning and design of water and sewer servicing for new land development, as well as capacity analysis and improvement within existing neighbourhoods. A city-wide network of water, sewer, and rain gauge monitors are operated and maintained by the system monitoring and modeling group to assist with water-related planning and design activities. Engineering and Planning also manages the Storm Water Utility and provides storm water engineering expertise. This section monitors and mitigates damage to public property from riverbank settlement and instability because of high ground-water levels. The Storm Water Utility Annual Report provides more information on storm water operations.

Figure 1.4 - Aerial Photo of New Land Development

Engineering Services is a professional and diverse section that provides project management and technical advisory services to support Saskatoon Water and stakeholder departments for the development of capital programs and delivery of capital projects to maintain infrastructure life and capacity required to meet the demands of a growing city and region.

Figure 1.5 - Photo of Lift Station Infrastructure Construction

Quality Assurance and Training (QAT) was formed in 2021 from existing City staff. This team of employees exists to support the achievement of the Department's vision. They do so by bridging organizational boundaries, administering training, providing support for work planning and project execution, and delivering a growing portfolio in quality assurance. In 2024, the warehouse staff were moved under QAT, increasing the team size to eight people.

Regional Services was also formed in 2021 as part of a re-organization through an employee transfer from the Technical Services Department. This section exists to support the supply of potable water and removal of wastewater from Saskatoon's regional partners in an efficient, fair, and sustainable way.

1.1.2. Water and Waste Operations Department

Although WWO is composed of three distinct sections, only the Water and Sewer section provides water and wastewater utility services.

Water and Sewer is responsible for the operation, maintenance, and inspection of the water distribution, sanitary sewer collection, and storm water collection systems. The water distribution and sanitary sewer collection system has a replacement value in excess of $9.0 billion. Lined up end-to-end, the underground pipes (not including service connections) that make up Saskatoon's water distribution and sanitary sewer collection systems total over 2,280 kms.

Figure 1.6 - Photo of Sewer inspection Activities

Water and Sewer material handing sites are separated into three locations: The Nicholson Yards, West Saskatoon Yards, and Downtown Yards. Each location houses resources

for the Water and Sewer crews to maintain and repair the City infrastructure. The Nicholson Yards and West Saskatoon Yards both store backfill material, as well as incoming wet fill, which is processed so it can be repurposed and utilized. Having these two remote locations enables crews to provide faster service by accessing the nearest site to the work zone. The Downtown Yards is the reporting grounds for all employees to receive their daily assignments and tasks, as well as storing material, equipment, and parts.

The Clearance and Records workgroup provides communication to the public through the delivery of maintenance notices. The group sees that all records and data for work done to the underground infrastructure are managed and maintained, as well as providing infrastructure locates for internal and external contractors. Providing location to a work group enables crews to work safely and effectively, with the reassurance that when digging, there will be no obstructions or concerns for their safety of safety of those around.

1.1.3. Technical Services Department

Technical Services consist of three sections, with Asset Preservation responsible for managing asset preservation for underground water distribution and sewer collection systems. The condition of the distribution and collection assets is continually evaluated, and a long-term asset management plan is in place outlining levels of services and funding for annual maintenance and rehabilitation programs. The Construction and Design Department provides construction engineering services to deliver the required capital projects to upgrade the water and sewer assets.

Figure 1.7 - Photo of Work in an Excavated Trench

Municipal Engineering Services supports Water and Sewer through program design, contract management, and Continuous Improvement initiatives.

1.2. Strategic Linkages

The City's 2018-2021 Strategic Plan provided direction that guided the activities of the Utilities. On January 31, 2022, the 2022-2025 Strategic Plan was approved by City Council. The following section outlines our Saskatoon Water Vision and Mission, the Corporate Purpose and Values, and our linkages to the Corporate Strategic Goals.

1.2.1. Our Vision

Saskatoon citizens have exceptionally high-quality water and dependable wastewater handling services that sustain people, property, and the environment.

1.2.2. Our Mission

The Utilities deliver safe, reliable, and cost-effective water and wastewater services that meet and exceed health and environmental regulatory standards.

1.2.3. Our Corporate Purpose

The Utilities are aligned with the City's Corporate Purpose statement, which describes the reasons we come to work every day.

1.2.4. Our Corporate Values

The Utilities adhere to the City's Corporate Values. They are part of who we are, what we stand for, and how we behave towards each other.

1.2.5. Our Strategic Goals

Quality of Life: Provide citizens with affordable, reliable, and high-quality water and wastewater treatment services.

Culture of Continuous Improvement: Increase workplace efficiencies and improve services through implementing innovative approaches that maximize value.

Asset and Financial Sustainability: Adopt and maintain Asset Management Plans which optimize the value of the services which the Utilities provide.

Environmental Leadership: Implement leading-edge innovations for environmentally responsible water-related infrastructure and services, and take action to mitigate the impacts of climate change on this infrastructure and these services.

Sustainable Growth: Work closely with other departments to provide efficient and resilient designs for water and wastewater infrastructure for new developments. Explore collaborative servicing strategies with regional partners, driven by business case development.

Moving Around: Collaborate with all stakeholders to minimize water-related transportation disruptions.

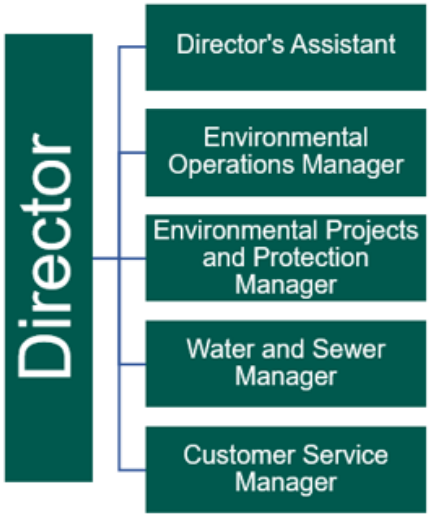
Economic Diversity and Prosperity: Provide competitively priced and reliable water-related services, and cost effective water and sewer designs for new developments.

2. OUR PEOPLE

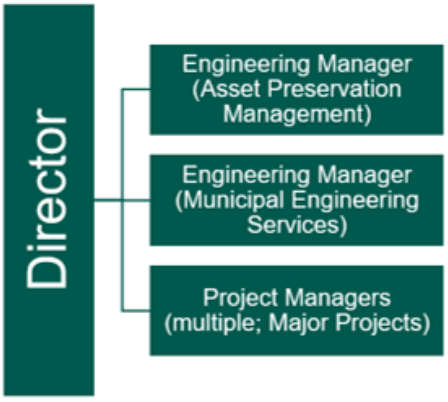
2.1. Organizational Charts

The following organizational charts provide an overview of how the management teams are structured within Saskatoon Water, WWO, and Technical Services.

Saskatoon Water Management



Water and Waste Operations Management



Technical Services Management

Figure 2.1 – Organizational Charts for Saskatoon Water, WWO, and Technical Services Management

2.2. Number of Employees

Saskatoon Water had 183 employees as of December 2024. The graph below shows the distribution withing each section. Director and support staff are included in Water Treatment.

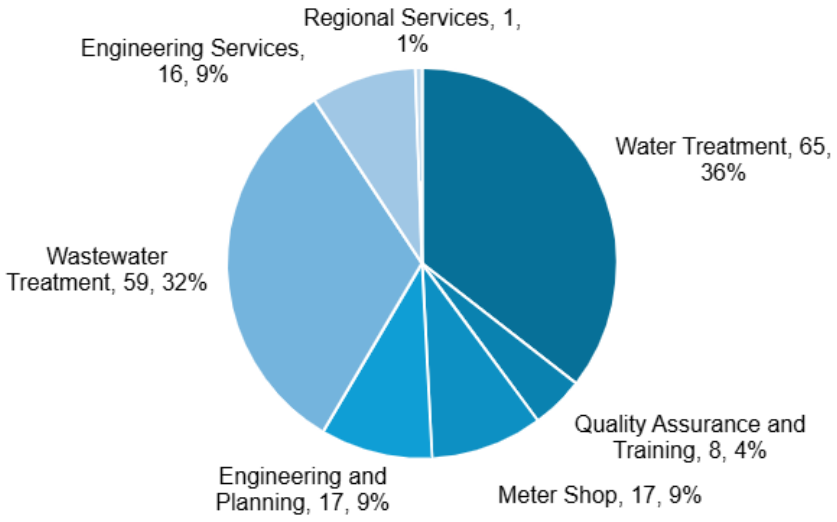


Figure 2.2 - Employee Distribution within Saskatoon Water

As its peak in the fall, Water and Sewer had 152 employees, and as of December 31, 2024, had 126. Technical Services had 43 employees throughout the department, with approximately 25 performing some utility-related activities.

2.3. Representative Workforce

The Utilities continue to participate in diversity, equity, and inclusion programs with Human Resources and other City departments to increase awareness among under-represented groups of career opportunities within the department.

Relative to 2024, recommended employment equity targets from the Saskatchewan Human Rights Commission (SHRC)[1], Saskatoon Water had a higher proportion of self-declared visible minority employees and lower proportions of employees who self-declared as Indigenous, female, or with a disability. WWO had a higher proportion of employees who self-declared as Indigenous and lower proportions of employees who self-declared as female, a visible minority, or with a disability.

Figure 2.3 - Photo of Employees Showing Support for International Women's Day

Table 2.1 – Percent Employees Self-Declared an Equity Group Member

Equity Group	Saskatoon Water	Water and Waste Operations	SHRC Target 2024
Self-Declared as Indigenous Ancestry	5.0%	17.5%	15.2%
Self-Declared as Visible Minority	18.0%	8.2%	16.8%
Self-Declared as Person with Disability	2.1%	2.7%	27.7%
Self-Declared as Female	18.0%	12.0%	47.5%

2.4. Employee Safety

Safety is a core value at the City and is integrated into the work performed by Utilities staff through a Health and Safety Management System (HSMS). The eight elements that make up the HSMS are:

- Leadership
- Hazard Identification, Assessment, and Control

[1] Employment Equity Targets, Saskatchewan Human Rights Commission, June 2024, https://saskatchewanhumanrights.ca/employment-equity-targets/

- Incident Investigation
- Inspection Program
- Education and Communication
- Emergency Response
- Health and Wellness
- Program Administration

Management and staff place a strong emphasis on safety in the workplace and strive to meet goals for leading and lagging indicators. The HSMS is continuously improved through the establishment and completion of annual projects and initiatives.

Within Saskatoon Water, several safety audits and inspections were conducted highlighting areas of improvement regarding the safety equipment, training, and revisions to safety documentation. This resulted in the commencement of:

- Fall Protection program
- Detailed in-house training specific to our processes and needs.
- Adjustments and maintenance to our safety equipment, use/operations, and locations.
- Update/review of Critical Task Inventories.
- Updated safety signage (i.e., chemical signage, decibel readings, first aid/eyewash locations).
- Creation of online training courses.

In 2024, Saskatoon Water experienced four lost-time incidents, which is more than the zero reported in 2023. The number of lost-time hours in 2024, due to injury, was approximately 1,403, up from 0 in 2023. In both 2024 and 2023, Water and Sewer experienced seven lost-time incidents. The number of lost-time hours was 1,440 in 2024, up from 894 in 2023. Technical Services had zero lost-time incidents in 2024.

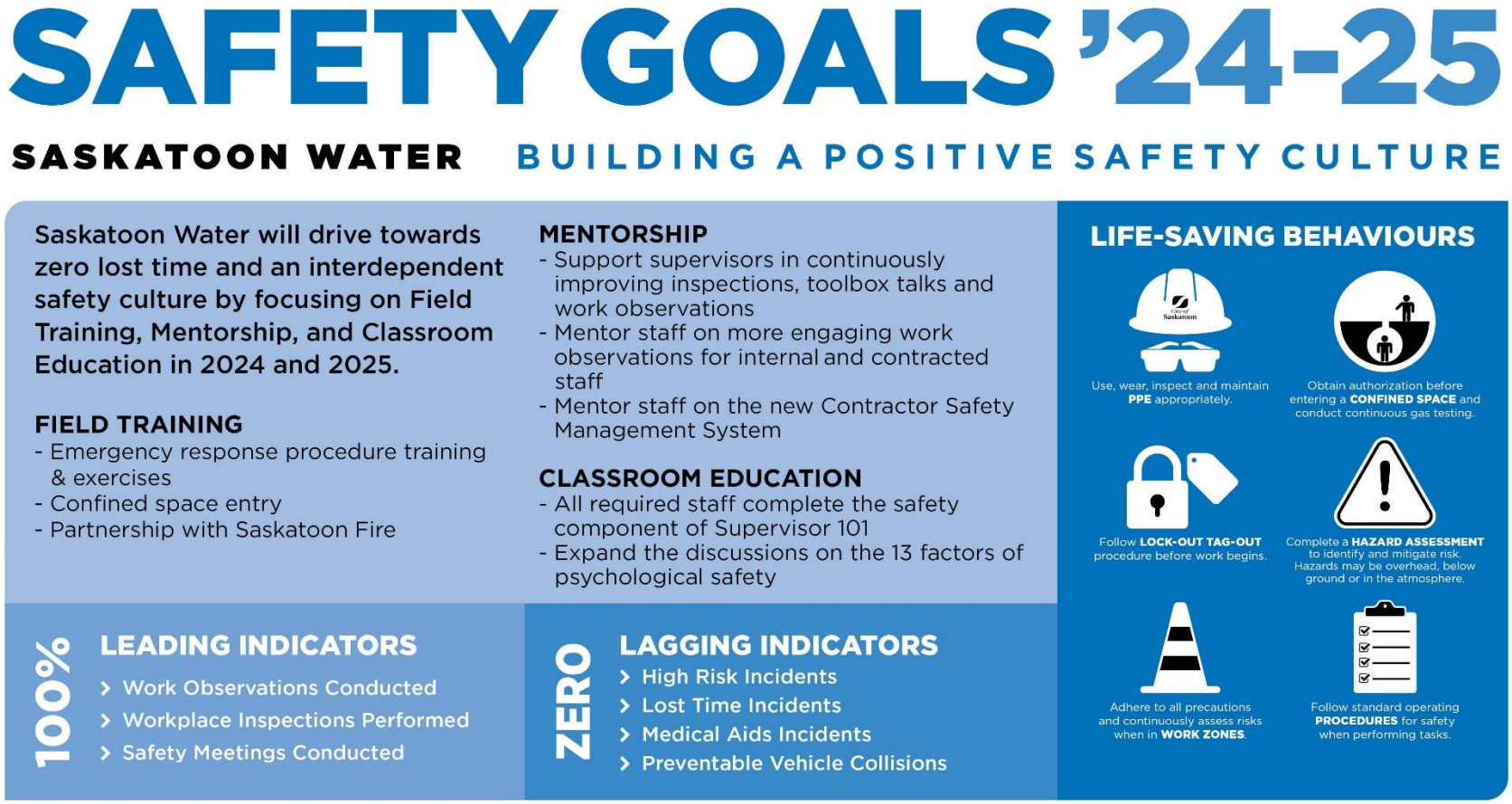


Figure 2.4 - Saskatoon Water's 2024 Safety Goal Poster

3. OUR CUSTOMERS

3.1. Number of Customers

In 2024, water treatment and distribution, and wastewater collection and treatment services were provided to approximately 308,600 Saskatoon Residents. There are approximately 79,000 in-service water meters, and of those, 4,576 are industrial, commercial, and institutional (based on water meters) customers in Saskatoon. Some water meters, such as many of those servicing multi-residential apartments and condos, may provide water services for more than one household or business. Some businesses may have more than one water meter.

The Water Utilities also sells treated water to SaskWater, which receives this water at seven supply points around the city's perimeter and redistributes it to approximately 38,000 customers outside of Saskatoon.

3.2. Water Treatment Plant Volumes

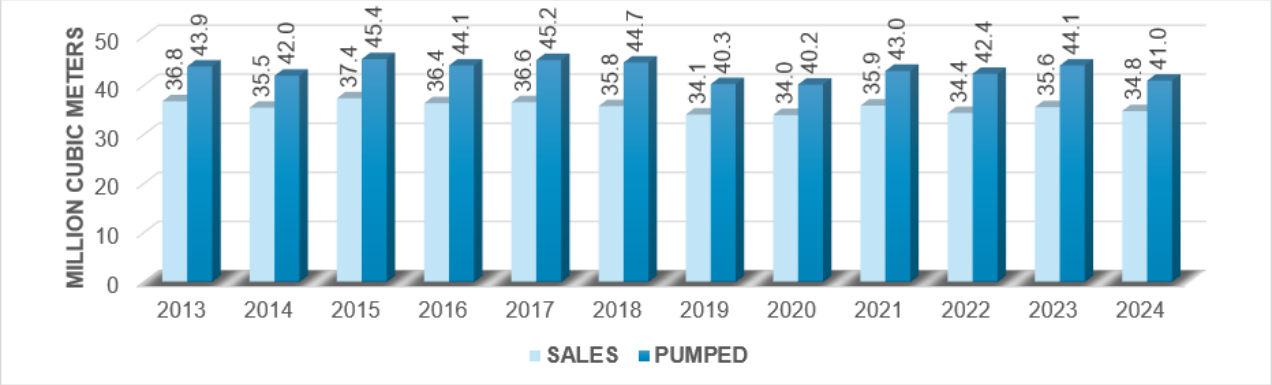


Figure 3.1 - WTP Water Pumped and Sales Volume (million cubic meters)

Based on customer meter readings, 34.8 million cubic meters of water was sold in 2024. Although the population has grown by approximately 20% since 2015, demand has not increased in a similar manner over this time. This is influenced by a generally declining trend in consumption per capita due to more low-flow faucets, toilets, and washing machines; along with the water rate (pricing) structure and an increased water conservation awareness.

The previous figure compares the annual volume of treated water pumped from the WTP into the distribution system and the volume of water sold (pumpage was estimated in 2013). In 2024, unmetered water was 15.1% of total water pumpage (41.0 million cubic meters, which was slightly lower than 2023. The difference between the volume of treated water pumped and sold was due to the following:

- Water loss through leaks

- Water main breaks
- Unauthorized water-use
- Authorized but unmetered consumption (e.g., flushing water mains and fire flow)
- Estimated consumption and year-end, unbilled volumes
- Water meter accuracy

Summer rainfall and temperatures can help explain some variation in annual water demand. In particular, weather has a significant impact on the water demand for irrigation. In 2024, Saskatoon recorded 337 mm of rainfall, which is higher than the last ten-year average of 246 mm, and approximately 58% higher than the 213 mm of rainfall received in 2023.

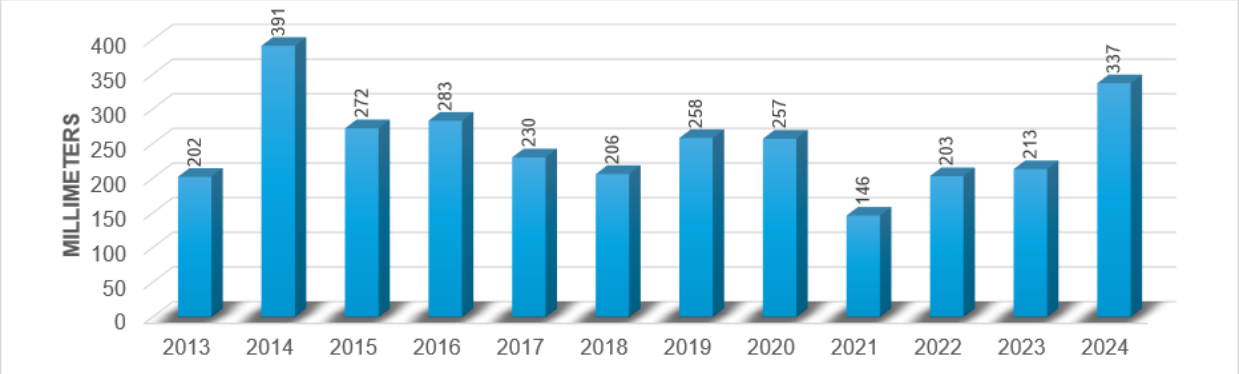


Figure 3.2 - Saskatoon Annual Rainfall, millimeters (April to September)

Source: City of Saskatoon 2024 Annual Report

Summer (May to August) temperatures in 2024 averaged 15.9 ^{o}C, which was lower than the last ten-year average of approximately 16.3 ^{o}C and lower than the average summer temperature of 17.6 ^{o}C in 2023. Temperature and rainfall are driving factors for consumption and water usage.

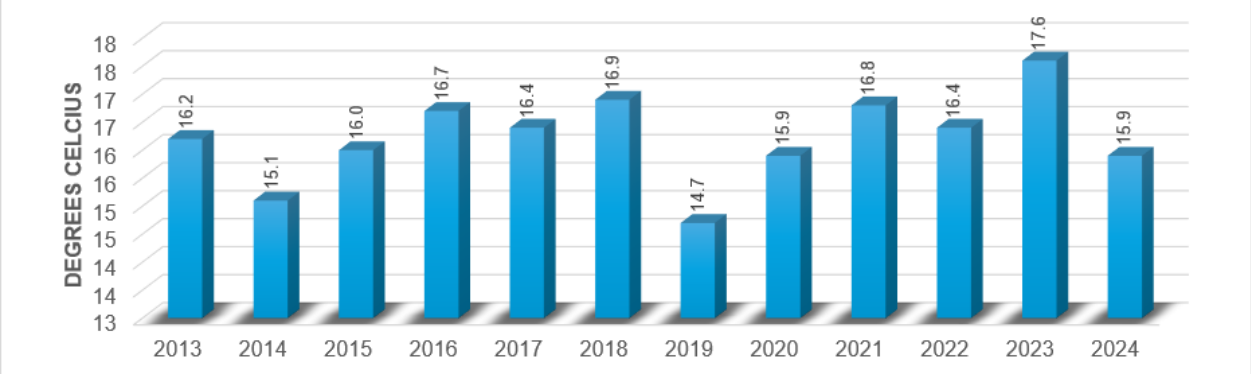


Figure 3.3 - Saskatoon Seasonal Mean Temperature, Deg. Celsius (May to August)

Source: Environment Canada

The current level of service is for the WTP's capacity to meet or exceed the maximum daily water demand, which is the average of four consecutive days of highest demand each year. Large volatility in the maximum daily demand is mostly due to weather conditions. The following figure reflects the extra capacity required for the maximum daily volume of water consumption at the height of summer irrigation relative to average daily water consumption throughout the entire year. In 2024, the maximum day pumpage to average day pumpage ratio of 1.73 was lower than the ten-year average of 1.82 and slightly lower than 2023. The maximum day pumpage ratio is used for long-term demand forecasting. However, due to its volatility, it is difficult to provide accurate forecasts. As demand approaches plant capacity, the level of service to always meet maximum daily demand will be evaluated along with conservation strategies and capital expansion plans.

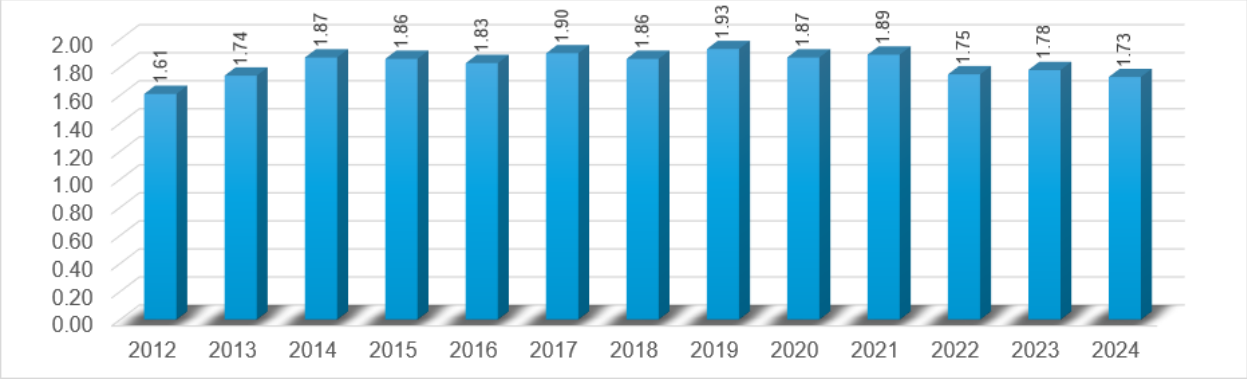


Figure 3.4 - Ratio of Treated Water Maximum Day Pumpage to Average Dry Pumpage

3.3. Wastewater Treatment Plant Volumes

In 2024, at 30.9 million cubic meters, the WWTP effluent continued to be a lower volume than the years prior to 2017, but has increased compared to 2021, which was the lowest level in the last decade at 28.3 million cubic meters.

Figure 3.5 - Volume of Wastewater Treatment Plant Effluent Flow (million cubic meters)

Volumes have decreased significantly since 2016 but began to increase slightly in the last two years. WWTP effluent flow increases as the population grows and decreases when households install water-saving appliances, such as low-flush toilets. Large commercial and industrial operations can significantly impact effluent volume. Wet weather or intense storm conditions also influence effluent flow due to inflow (e.g., weeping tiles) and infiltration (e.g., leaky pipe joints and manholes) into the wastewater collection system; therefore, less effluent is expected in dry years. The work on lining sewer mains also reduces infiltration into the collection system, thereby reducing the demand on WWTP equipment.

3.4. Meter Shop Customers

In 2024, the Meter Shop attended to over 10,867 total jobs, reflecting approximately a 5% decrease from 2023. The following figure provides a breakdown of the total jobs, which result from work orders generated by Corporate Revenue to check malfunctioning meters or for cut-offs and reconnects. For job definitions, see Meter Shop Service Calls in Appendix Two: Glossary.

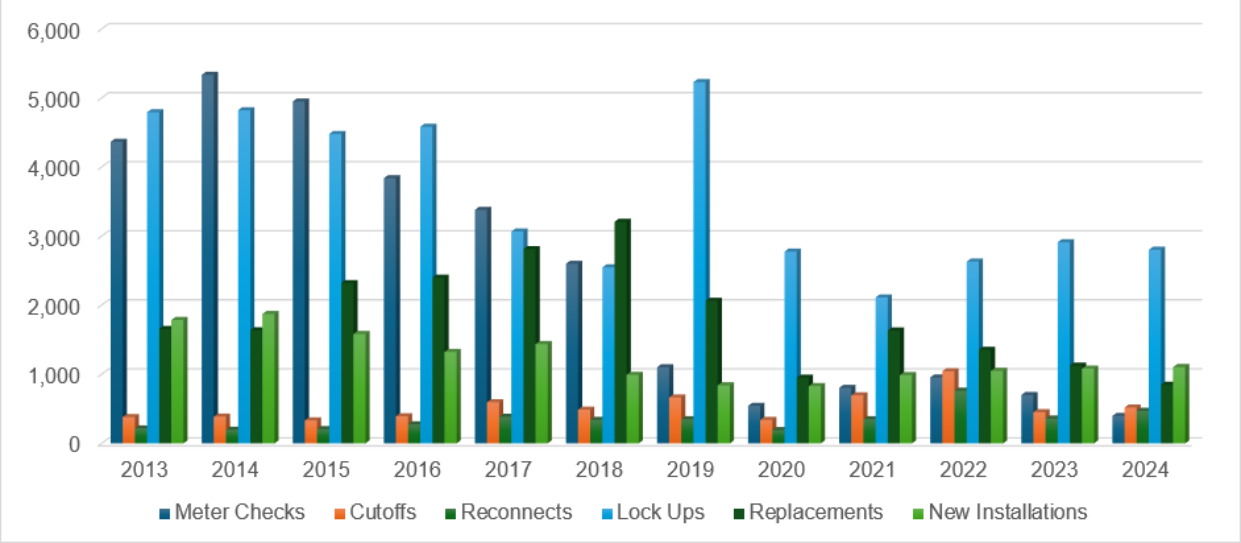


Figure 3.6 - Quantity of Meter Shop Service Calls

In 2024, 1,113 AMI communication modules were installed, totaling 78,101 since the program started in 2016. This represents approximately 99% of the approximately 79,000 total physical water meters within Saskatoon (physical meters include in-service and out-of-service meters). Most AMI installations require that installers enter homes or businesses to access water meters. Total installations in 2024 were lower than 2023 and approximately 87% lower than the average for the previous five years.

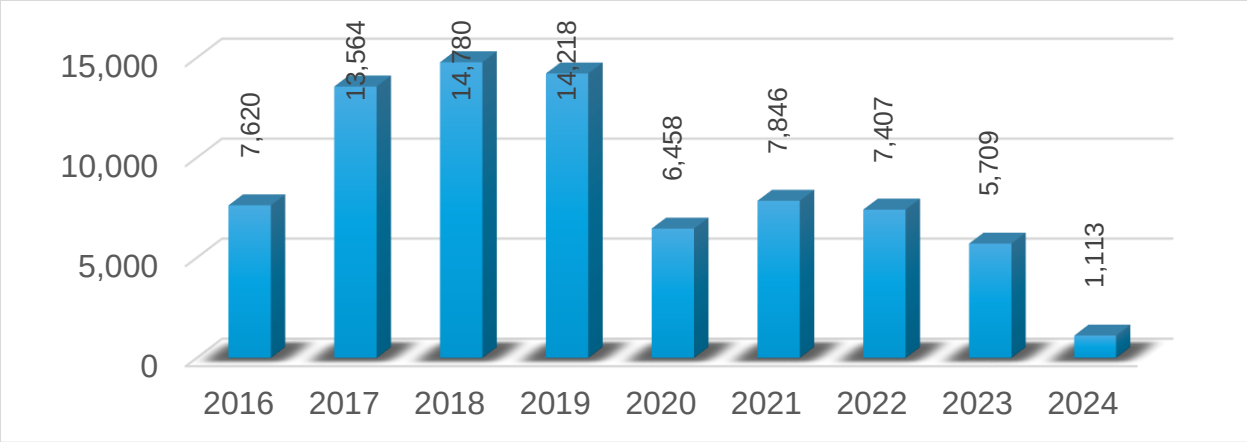


Figure 3.7 - Quantity of AMI Communication Modules Installed

Backflow prevention devices are important in reducing the risk of contaminants from entering the City's drinking water system. In 2024, 295 new backflow prevention devices were installed, with a total of 11,174 devices being active as of December 31, 2024. In 2024, 90% of the devices were tested, and of those tested, 100% passed. Saskatoon Water's Cross Connection Control Inspectors work with commercial and industrial water users to ensure proper backflow prevention devices are installed and tested annually. In 2024, 451 cross connection control survey/inspections were performed, and 12,698 notices were processed.

3.5. Customer Satisfaction

The City conducted two civic service surveys in 2024: The Satisfaction & Performance Survey and the Performance, Priorities, and Preferences Survey. Each survey was conducted through an online panel and by having a survey link available on the City's website (referred to as "self-selected").

The Performance, Priorities, and Preferences Survey's primary objectives were to gauge the following:

- Perceptions of quality of services provided by the City.
- Priorities of Services.
- Preferences on level of civic services for 12 categories.

Saskatoon citizens were asked to rate services provided by the City on a ten-point scale where a score of ten means "excellent" and one means "poor". The charts below summarize the results. Like 2021 and 2023, quality of drinking water and speed of water main break repairs ranked in the top three highest rated services in the 2024 survey.

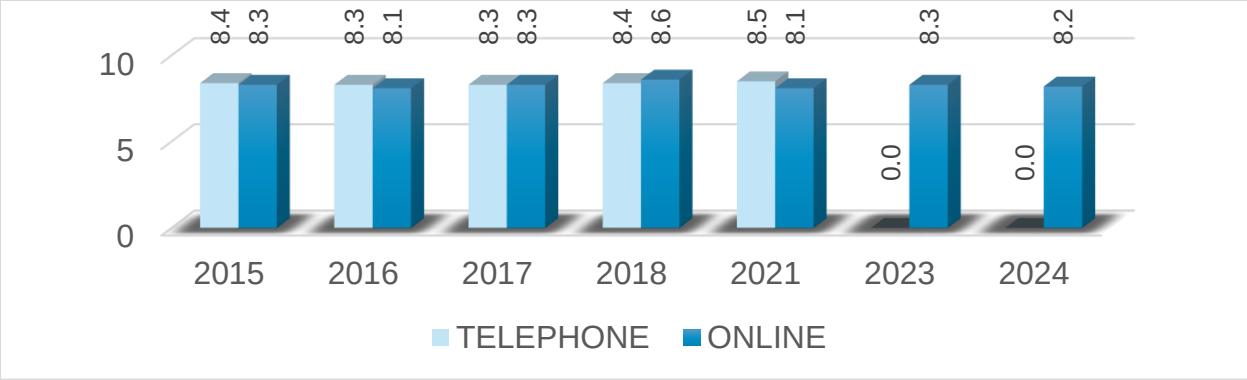


Figure 3.8 - Citizen Satisfaction with Water Quality (rating out of 10)

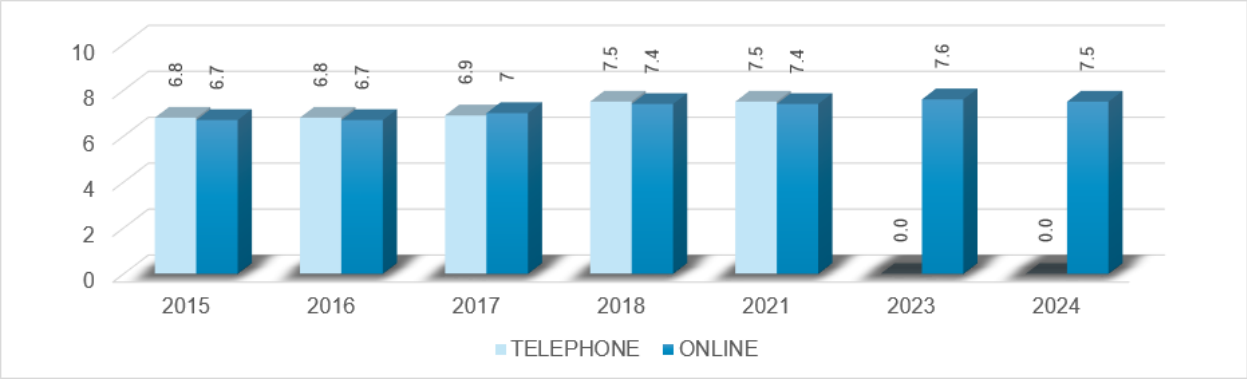


Figure 3.9 - Citizen Satisfaction with Speed of Water Main Break Repairs (rating out of 10)

3.6. Customer Enquiries

Phone calls to the Customer Care Centre are routed to the appropriate department based on the nature of the call.

One called regarding WWTP odour was received in 2024. The Customer Care Centre received approximately 62 complaints related to odours from various sanitary sewer mains across the city, and approximately 177 reports of sanitary sewer mains surcharging, blocked, or running high at various locations.

4. OUR INFRASTRUCTURE

The replacement value of all water and wastewater infrastructure was estimated at over $10.7 billion. A detailed review of the valuation of the WTP, water intakes, and reservoirs, along with the WWTP and lift stations is planned in the near future.

The WTP and assets associated with water distribution have an estimated value of $5.8 billion.

The WWTP and assets associated with the sanitary sewer collection system have an estimated replacement value of $4.9 billion.

Table 4.1 - Estimated Water Utility Asset Replacement Values

Asset	2024 Inventory	Replacement Value ($M)
Water Treatment Plant, water intakes and three reservoirs*		$944
Water Pipes	1150	$3,546
Valves	14,487	$278
Hydrants	7,114	$174
Service Connections	74,046	$843
Total		**$5,785**

* Value equals the 2022 annual report plus 10% inflation.

Table 4.2 - Estimated Wastewater Utility Asset Replacement Values

Asset	2024 Inventory	Replacement Value ($M)
Wastewater Treatment Plant*		$787
Lift Stations*	29	$208
Wastewater Pipes	1054	$2,903
Manholes	11,538	$323
Force main	46	$33
Service Connections	72,730	$678
Total		**$4,932**

* Value equals the 2022 annual report plus 10% inflation.

The condition of distribution and collection assets is continually evaluated, and a long-term asset management plan is in place outlining levels of service and funding for annual maintenance and rehabilitation programs.

5. OUR WORK

5.1. Community Awareness and Engagement

A major priority for the Utilities is ensuring residents are informed about our services, significant projects, initiatives, and campaigns. In 2024, we reached the public through reports, news releases about major projects, signage, flyers, social media, and through the City's website.

Figure 5.1 - Photograph of McOrmond Drive Reservoir and Pump Station

Key highlights this year included the McOrmond Drive Reservoir and Pump Station officially going online in March. This was celebrated through a news conference to mark the completion of this critical infrastructure that ensures consistent water availability for Evergreen, Aspen Ridge, and Willowgrove. Saskatoon Water also announced the completion and full operation of the new Spadina Lift Station, enhancing wastewater services in the area.

General information on water quality, water and wastewater treatment processes, major capital projects, and water conservation is available at saskatoon.ca/water and saskatoon.ca/wastewater.

Water Quality Reporting: Saskatoon Water produced the annual Drinking Water Quality and Compliance Report to comply with Water Security Agency (WSA) requirements to notify consumers about water quality, and the performance of the waterworks in submitting samples required by a Minister's Order or Permit to Operate a Waterworks. Quarterly Water Quality reports are published on the City of Saskatoon website, providing easily accessible key water quality data to citizens and businesses. Reports are available online at https://www.saskatoon.ca/services-residents/power-water-sewer/drinking-water/water-quality-characteristics

Advanced Metering Infrastructure System*:* Through letters and phone calls, Saskatoon Water continued to reach out to residents who had not yet signed up to receive AMI infrastructure. The meters have a communication module to improve billing by utilizing remote meter reading and monthly billing based on current usage instead of estimates.

5.2. Water Quality

The City's water treatment and distribution systems are regulated by a "Permit to Operate a Waterworks" issued by the WSA. Our drinking water quality is further regulated by Health Canada's *Guidelines for Canadian Drinking Water Quality* and Saskatchewan

Environment's *The Waterworks and Sewage Works Regulations, 2015*. Water quality is closely monitored 24 hours a day, 365 days a year.

The WTP Laboratory's comprehensive inspection program meets the highest standard in North America. In 2024, a total of 22,722 water treatment quality tests and 25,491 distribution water quality tests were conducted by our WTP Laboratory, accredited by the Canadian Association for Laboratory Accreditation Inc. (CALA) to meet ISO/IEC 17025:2017 standards for the parameters listed on the scope of accreditation.

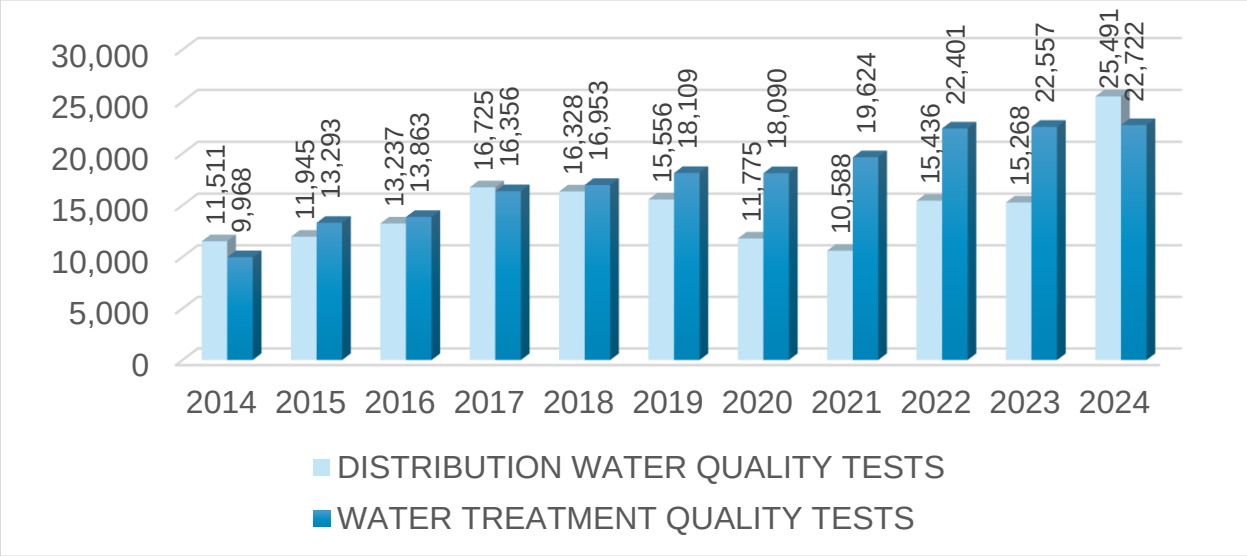


Figure 5.2 - Quantity of Treated Water Quality Tests Performed by the WTP Lab

The following table shows the results of some of the many types of testing completed by the WTP, which are well within acceptable limits under the Permit to Operate a Waterworks.

Table 5.1 - Summarized Results of Select Water Quality Tests from Distribution System

	2014	2015	2016	2017	2018	2018	2020	2021	2022	2023	2024	Allowable Values
Yearly Total Chlorine Median (mg/L)	1.78	1.83	2.00	1.93	1.99	2.00	1.95	1.90	1.90	1.85	1.74	0.5-3.0
Yearly Turbidity Median (NTU)[2]	0.14	0.18	0.13	0.11	0.09	0.1	0.1	0.1	0.09	0.09	0.10	< 1.0
Total Coliforms >0 (CFU/100mL)[3]	0	0	0	0	0	0	0	0	0	0	0	0

Wastewater Quality and Environmental Monitoring Program: The City's wastewater collection and treatment systems are regulated by a "Permit to Operate a Sewage Works" issued by the WSA. Our final effluent water quality and spillage of untreated raw sewage

are further regulated by Saskatchewan Environment's *The Waterworks and Sewage Works Regulations, 2015,* the Saskatchewan Environmental Code, and the Federal *Wastewater System Effluent Regulations, 2012*. The water quality of raw sewage coming to the WWTP and the final effluent discharged into the South Saskatchewan River is closely monitored 365 days a year.

Analytical tests to monitor required parameters are performed by the Saskatoon Water's Environmental Laboratory. The Laboratory demonstrated technical competence for a defined scope and the operation of a laboratory Quality Management System to ISO/IEC 17025:2017 as recognized by the CALA. In 2024, there were 50 laboratory non-conformances identified, and corrective actions were put in place. There was one internal audit completed to assess the Laboratory's compliance to the Quality Management System.

In 2024, the Environmental Laboratory collected 1,927 samples and performed 18,245 tests for the WWTP Permit to Operate a Sewage Works and collected 8,283 wastewater samples and performed 30,536 tests for the WWTP process control. Therefore, the total WWTP tests were 48,781.

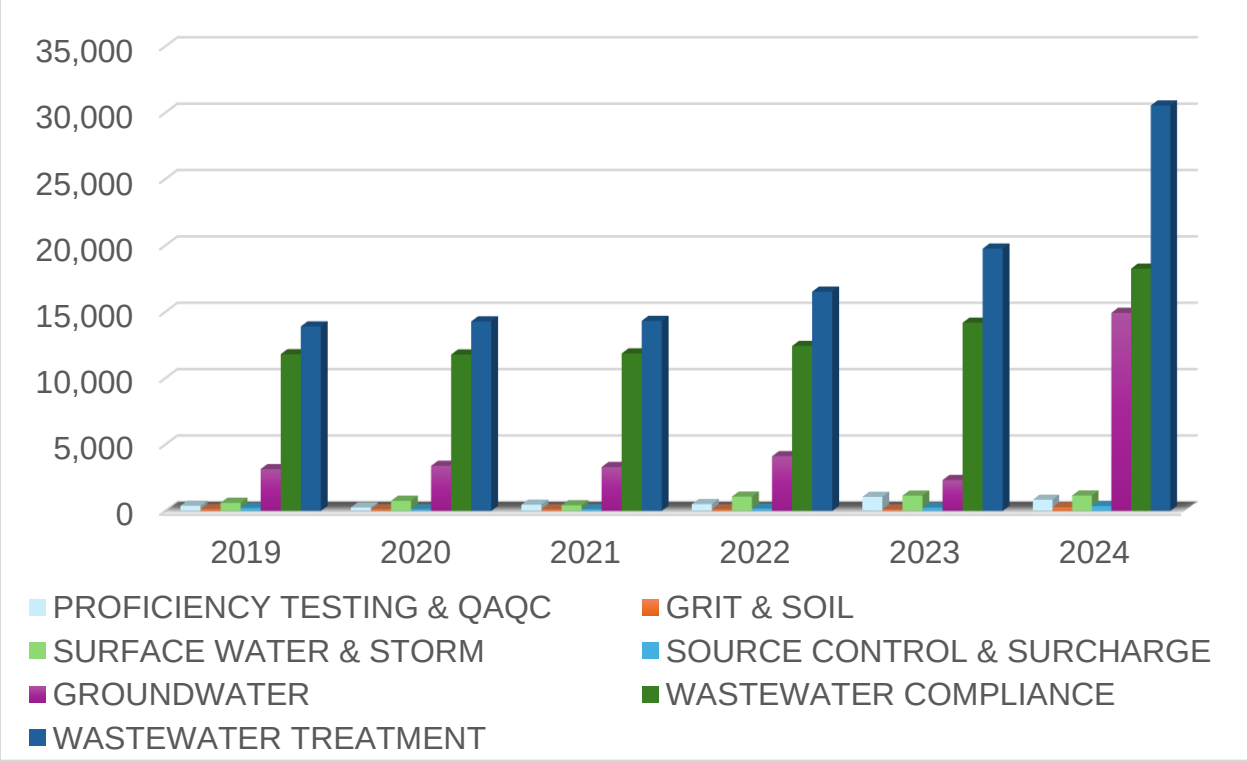


Figure 5.3 - Quantity of Water Quality Tests Performed by Environmental Lab

The Environmental Laboratory also collected over 622 samples and performed 16,700 water quality tests to support other divisions and departments of the City. The other sampling and monitoring programs are groundwater, ponds, stormwater outfalls, bylaw compliance, industrial sewer surcharge, and the South Saskatchewan River water quality.

The Environmental Laboratory performed 19,153 additional tests through third-party labs for the tests that were not in the scope of the Environmental Laboratory's activities.

The following table shows the results of some of the many types of wastewater testing completed by Saskatoon Water's Environmental Laboratory, which are well below the acceptable limit under the Permit to Operate a Sewage Works.

Table 5.2 - Summarized Results of Select Wastewater Quality Tests

	2017	2018	2019	2020	2021	2022	2023	2024	Wastewater Effluent Standard
Yearly Median cBOD[4]	3.5	4.0	3.0	2.0	3.6	3.0	1.5	1.5	<25 mg/L
Yearly Median BOD	14.9	16.7	9.8	8.2	13.0	13.0	10.0	8.0	<30 mg/L
Yearly Median TSS[5]	7.3	10.0	7.8	6.2	7.3	5.0	6.4	6.4	<25 mg/L
Yearly Median Total Phosphorous (TP)	0.310	0.425	0.364	0.287	0.323	0.331	0.303	0.292	<0.75 mg/L
Yearly Median E.coli[6]	<10	<10	<10	<10	<10	<10	20	20	<200 mpn/100mL
Yearly Median unionized ammonia	0.179	0.203	0.089	0.074	0.248	0.245	0.125	0.037	<1.25

5.3. Water Main Operations

A high-level of service has been established for maintaining utility services for residents. Water main breaks are to be repaired within 48 hours. Maintenance crews repaired 1,551 water and sewer locations in 2024, of which only 171 (11%) were water main breaks. In 2024, approximately 56% of water main breaks were repaired and water restored within 24 hours, the average repair time was 25 hours per break, and the service level time was exceeded on 9 locations.

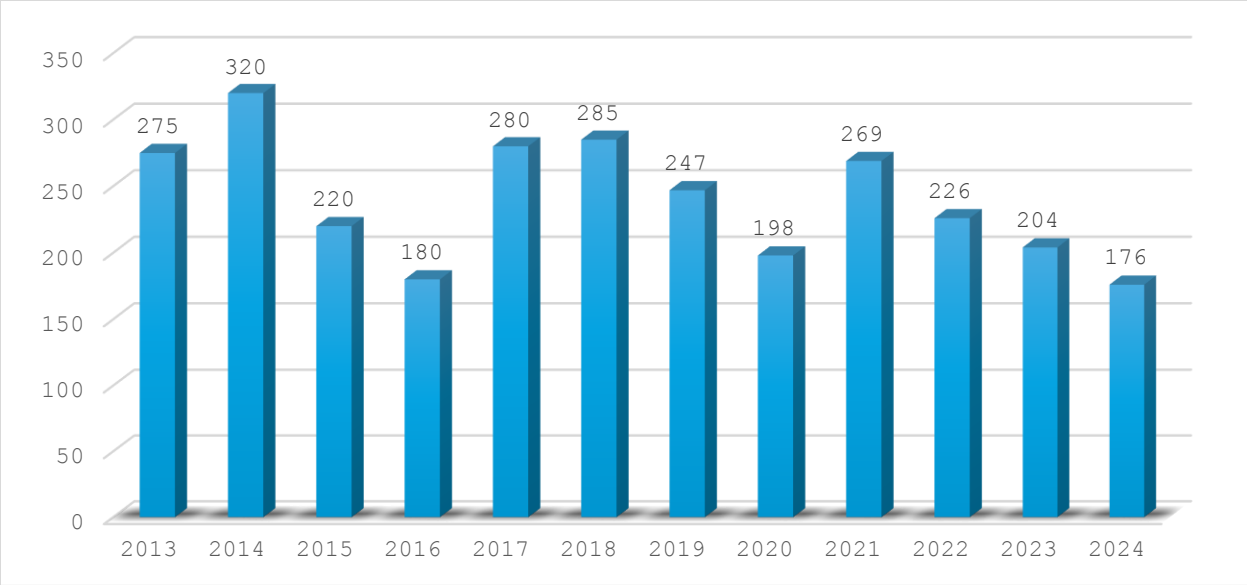


Figure 5.4 - Quantity of Water Main Breaks per Year

The previous figure shows the number of water main breaks in previous years. The number of breaks in 2024, 171, was lower than the ten-year average of 243. The number of breaks varies every year due to weather and frost depth; however, the trend of the average number is going down over the last thirty years. While there are spikes in water main breaks, the Planned Maintenance Program and the Capital Rehabilitation Program, supported by Technical Services and Construction and Design, are having an overall positive impact on the reliability of the distribution system.

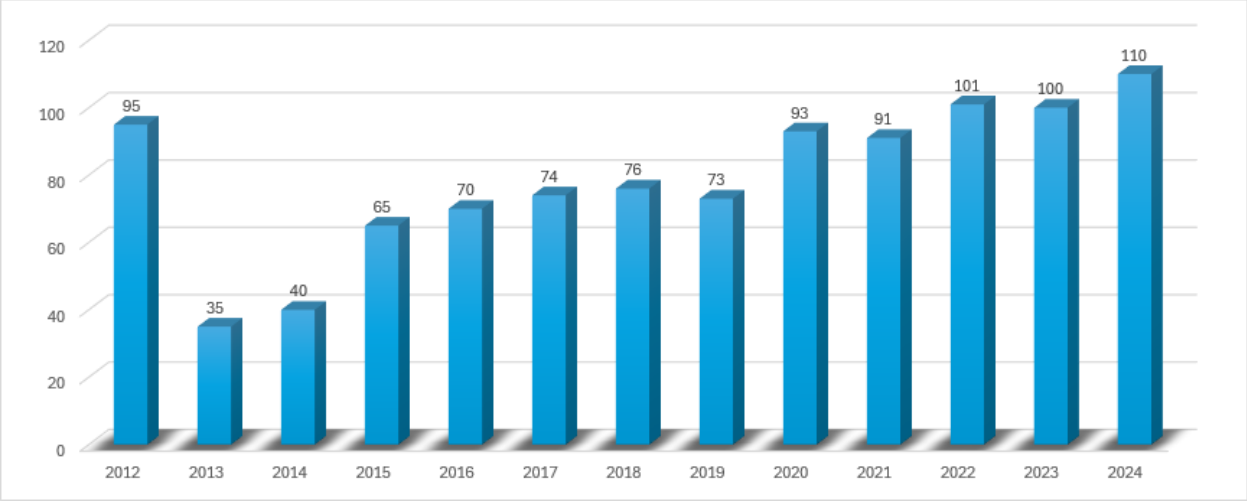


Figure 5.5 - Quantity of Water Main Valve Repairs and Replacements

The previous figure shows the number of completed water main valve repairs and replacements throughout the system. These repairs are part of the approximately 1,600 locations maintained by Water and Sewer staff in 2024.

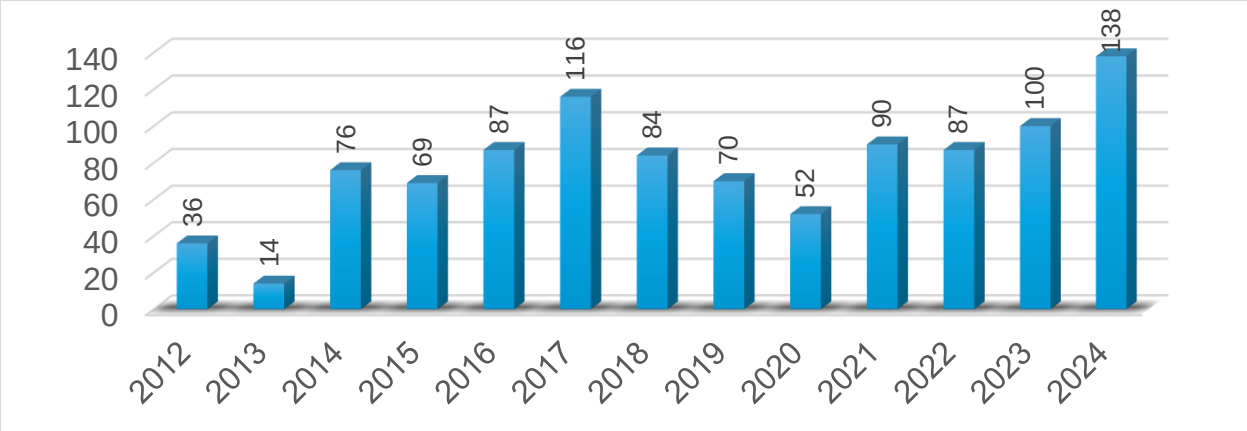


Figure 5.6 - Quantity of Valve Casings or Spindles Repaired Using Hydro-Excavation

The previous figure shows the number of locations in each year where valve casings or spindles were repaired using hydro-excavation. This method is less damaging to the road infrastructure and is used wherever possible.

Figure 5.7 - Photos of Water Main Break Repair Work

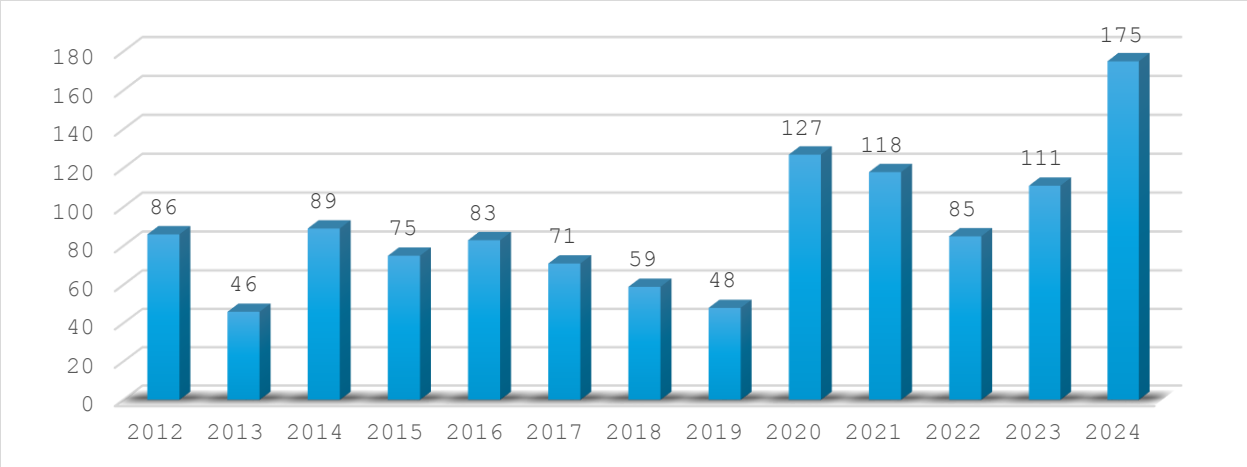


Figure 5.8 - Quantity of Fire Hydrant Repairs

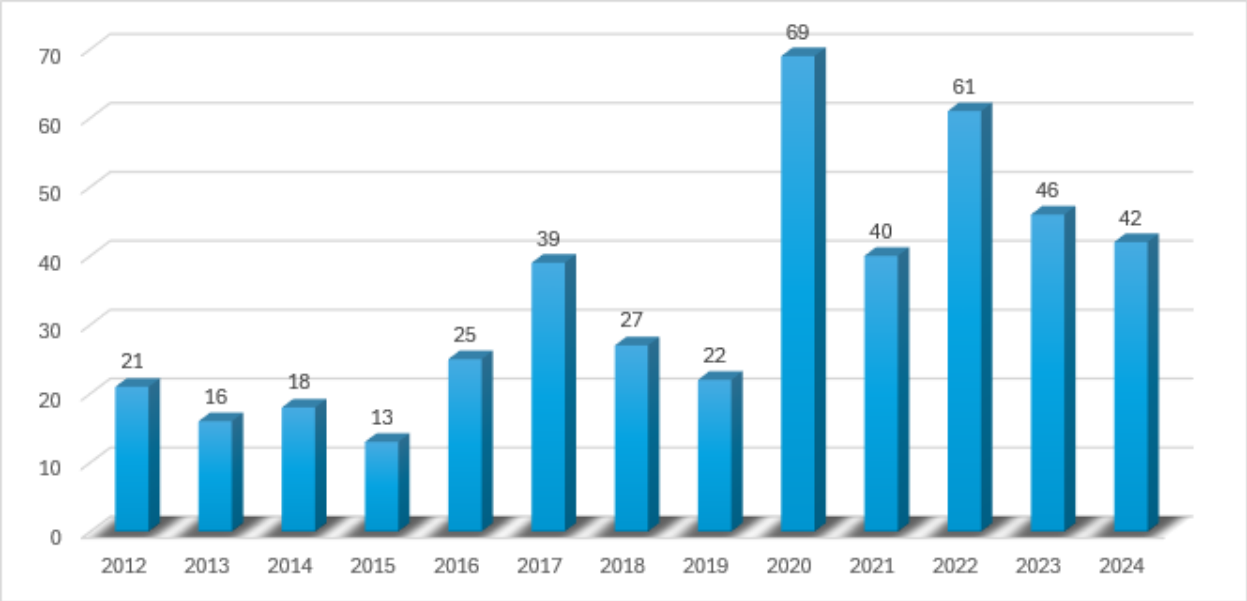


Figure 5.9 - Quantity of Fire Hydrant Replacements

The previous two figures show the number of fire hydrants repaired and replaced by WWO each year. The decision to replace or repair a non-functional or damaged hydrant is made based on the most cost-effective option. Each hydrant is also inspected and tested annually to ensure high reliability for firefighting.

5.4. Sanitary Sewer Operations

The Sewer Operations workgroup is responsible for maintaining over 12,560 sanitary manholes. Two types of sewer maintenance activities are performed. The first technique utilizes high-pressure water jetting called “flushing”. The second technique is called “brushing” and involves pulling stiff brushes through sewer mains. In 2024, approximately

456 km of sanitary sewer mains were cleaned using flushing and 24 km were brushed. Closed-Circuit Television (CCTV) crews inspected 39 km of pipe.

Figure 5.10 - Photos of Closed-Circuit Television Inspection Work

5.5. Capital Projects

The Water and Wastewater Utilities funded 73 capital projects in 2024, budgeted at $538.3 million, of which $209.9 million was unspent. The following table summarizes the active capital projects by three areas.

Table 5.3 - Active Capital Projects Summary by Work Group, as of December 31, 2024

Section	# of Active Projects	Approved Funding	Unspent Funding
Water Treatment	40	$252,495,600	$106,891,446
Wastewater Treatment	31	$224,773,200	$76,543,443
Water Distribution and Wastewater Collection	2	$61,054,897	$26,496,187
Total	**73**	**$538,323,697**	**$209,931,076**

The following section describes some of the Utilities major capital projects.

Water Treatment Plant

Waterworks Program: In the most recent Long Term Capital Development Plan update, the City has significantly broadened the scope of the planning effort to not only rationalize how best to maintain the existing plant, but to identify the preferred approach to sustaining a reliable long-term supply of safe drinking water. This requires a significant increase in capacity from the existing 250 million litres per day (MLD) to 450 MLD, approximately

twice the capacity of the existing plant, which is planned to meet projected demands for the next 50 years.

A long-term strategy was created to identify future needs of a preferred long-term staged approach to upgrading and expansions required to keep pace with growing demands. Key factors influencing the strategy included climate change, regulations, growth, and condition of existing facilities.

The chosen strategy focuses on sustaining capital at the existing WTP and staged development of a new WTP, as growth requires, to bring the total treatment capacity between the two WTPs to 450 MLD. The resulting development of a second WTP on the east side of the South Saskatchewan River would deliver a staged capacity of 150 MLD with plans to increase capacity to 250 MLD, as dictated by demand. The strategy was reported to City Council throughout 2022. Following approval to proceed with strategy planning, a Program Manager was hired in December 2022. In 2023, the Waterworks Program was formalized, and a team was created to deliver the mandate. The team completed the program definition phase in mid-2025. Additional scope definition, estimated project costs, proposed project sequencing, and schedules were summarized into a Program Definition Report. Another important area of focus was the evaluation of the most suitable procurement strategy and project delivery method. The decision on the project delivery model was part of the program definition phase. Construction Management at Risk (CMAR) was identified as the preferred delivery method. A trial project at the existing WTP will be delivered using CMAR. A detailed funding strategy was prepared with the Finance team and brought forward for City Council approval in May 2025. The funding plan was conditionally approved by City Council on May 21, 2025. It identified a required investment of $500 million from 2025 through 2033. Preliminary design is expected to commence in 2025, and project delivery will occur in 2026 and beyond.

McOrmond Drive Reservoir and Pump Station: This project included the design and construction of a new 43 million litre reservoir system and pump station in the Evergreen neighborhood. Construction was completed by PCL Construction Management Inc. for approximately $41.5 million. Final landscaping work will be completed in 2025.

Figure 5.11 - McOrmond Drive Reservoir Pipe Gallery

Residual Handling Facility Pilot: This project is a continuation of past research to improve suspended solids removal in the treatment process prior to discharging water back to the South Saskatchewan River. A pilot technology was selected and arrival of a Hydrocyclone unit is expected in 2025. This technology may replace the existing solids removal filter presses that are near end-of-life pending the outcome of the pilot.

Laboratory Services Assessment: A study was initiated to assess the current and long-term needs of the laboratory. The outcome of the study will be included in a laboratory upgrade project, which includes replacement of several lab testing infrastructure (benches, cabinets, flooring, etc.) that are near end-of-life in 2025 and 2026.

Meter Shop

Advanced Metering Infrastructure: AMI is used to transmit electrical and water consumption data directly from individual meters to the utilities. The data will assist in obtaining more accurate revenue projections throughout the year. Consumers benefit from having their monthly bill based on actual consumption rather than estimates. AMI continues to be implemented throughout the city to provide accurate utility readings. Saskatoon Water is installing communication modules on all water meters and are approximately 99% complete.

A final wave through the city is being completed using the opt-out policy to assist with installations. City Council determined that fees would apply to those who will not accept AMI, and this policy will facilitate project completion. Letters are issued and phone calls are made to residents providing information about AMI. Completion is dependent on several factors, including resident response rates to the letters. Once installations are finished, the project will move into maintenance mode and the data can be utilized to help optimize operations. In 2024, 3,271 customers were contacted by the Corporate Revenue Department about abnormal high water or continuous water consumption based off their AMI data.

Wastewater Treatment Plant

New Spadina Lift Station and Force Main: The construction ($19.7 million) completed by Graham Construction and Engineering LP of a new lift station and piping to replace the existing Spadina Lift Station to maintain conveyance of more than 60% of the city's collected wastewater was completed in 2024.

Figure 5.12 - Spadina Lift Station

Lift Station PLC Upgrade Strategy: The PLC Upgrade Strategy Project identified and prioritized lift stations throughout the city due to outdated controls system and dial-up internet connections. Aim Electric Ltd. continued to address at-risk prioritized locations as identified in the strategy throughout 2024.

Biosolids Handling Facility Force Main Twinning: Two 12 km long pipelines transfer digestate from the WWTP to the Biosolids Handling Facility, which is located north of Saskatoon require replacement. The existing pipes were constructed in 1984 and 2005

and have accumulated a large amount of struvite, which is a rock-like precipitate that forms along the inside walls of the pipes. The limited number of manholes and removeable couplings located at various locations along the pipes creates maintenance challenges and results in a lack of redundancy. CIMA+ was awarded the detailed design services contract for this project, with the design expected to be complete in 2025, and construction planned to start in 2026.

Hampton Village Business Park Lift Station and Force Main: Construction started by Con-Tech General Contractors Ltd. for the new lift station for approximately $14 million to support development in the neighbourhood. The lift station is expected to be complete by the end of 2025.

Figure 5.13 - Hampton Village Business Park Lift Station

Digester Tank C Refurbishment: The replacement and improvements of piping systems, upgraded roof system, and structure improvement construction was completed by Graham Construction and Engineering LP in 2024 for approximately $4.3 Million.

Wastewater Treatment River Study: Approximately every five years, the WWTP undertakes a downstream river study to analyze potential impacts from the wastewater treatment process discharge to the South Saskatchewan River. This study was completed in 2024 by HDR Corporation for approximately $100,000.

Wastewater Treatment Bioreactor Nitrification Pilot: A pilot study was implemented throughout 2024 within the bioreactor process of the wastewater treatment. The piloting of the new technology through Nuvoda Innovative Wastewater Technologies is to potentially achieve year-round nitrification with reduced ammonia being released back to the South Saskatchewan River. The pilot costs approximately $600,000 and will continue in 2025.

Landfill Lift Stations Electrical Refurbishment: The detailed design of planned electrical and control system upgrades for two existing lift stations located at the Landfill was completed in 2024 by Associated Engineering. Construction is expected to occur in 2025.

58th Street Lift Station Refurbishment: The detailed design of planned electrical upgrades, pump replacements, control system upgrades, and building mechanical

replacements was initiated in 2024 and was awarded to Associated Engineering. Detailed design is expected to occur throughout 2025.

Water and Sewer Monitoring Program: The Monitoring group of Engineering and Planning develops, implements, maintains, and reports on environmental and hydraulic monitoring programs in the following categories:

- Sanitary and Storm System Hydraulics
- Precipitation
- Water Distribution Hydraulics
- Water Quality
- H_2S Monitoring
- Storm Pond Bathymetry and Mapping
- Monitoring Equipment Testing and Calibration.

The following table details the number of monitoring locations managed by this group.

Table 5.4 - Engineering and Planning Monitoring Program in 2024

Program	Number of Monitoring Locations
Sanitary System	51
Storm System	10
Sanitary Tank	5
Rain Gauge	11
Hydrant Pressure	59
Hydrant Flow	27
PWM Pressure and Flow	3
Water Quality	3
H_2S Monitoring	3
Storm Pond Bathymetry	3
Total	**175**

***Northeast Swale Hydrology, Hydraulics and Water Quality Monitoring Report*:** Water quality and quantity monitoring and reporting of the Aspen Ridge neighbourhood development impact on the Northeast Swale continued in 2024.

***Annual and Monthly Rainfall Reports*:** Reporting continued on major rain event classification, daily rainfall totals and accumulation, moisture condition in each neighbourhood based on the previous 30 days of rainfall, and historical comparison since 1900.

Figure 5.14 - Photo of Flow Bench for Equipment Testing and Calibration

Figure 5.15 - Aspen Ridge Forebay Bathymetric Map Comparison, 2017 (left) 2022 (right)

Figure 5.16 - Photo of Rainfall and Wind Measurement Equipment

Figure 5.17 - Fire Flow Testing

***Water and Sewer Modeling*:** The Water and Sewer Modeling group of Engineering and Planning is responsible to develop, maintain, and update city-wide water and sewer models using the best accepted modeling software packages in the industry. The current software packages include WaterCAD for the water distribution system, PCSWMM for sanitary collection, and XPSWMM for storm water collection. The models are the basis for City and regional water and sewer systems short and long-term planning, design, system capacity assessment for infill and greenfield developments, operational impact analysis and improvement, flood analysis and mitigation, flood mapping, etc.

Infill and Redevelopment Water and Sewer Capacity Improvement

The City's growth plan to half a million aims to accommodate 35% of total growth in infill and redevelopment areas. Most of these areas are in older parts of the city with water and sanitary capacity constraints. Engineering and Planning has initiated a program to address system capacity deficiencies related to infill and densification along key corridors

and in the downtown. The water and sewer systems were modeled, and maps were prepared showing the potential water and sewer upgrades. In collaboration with the Asset Preservation section, projects have been defined and added to the three-year plan to address the capacity deficiencies in prioritized locations. This will be an ongoing, long-term program.

Distribution and Collection System Planning

Long Term Capital Development and Expansion Planning: Functional water and sewer planning and updates progressed in 2024 as part of the Riel Sector Plan Amendment. The master planning document will be updated with the latest design for those sectors that have had changes, and costing information will be updated to reflect the updated servicing strategy.

Saskatoon Freeway Planning Study: Collaboration continued throughout 2024 with internal and external stakeholders, including the Saskatchewan Ministry of Highways through Technical Services. Information was provided about regional drainage and utility easements required for future servicing near the proposed freeway.

Distribution and Collection System Servicing Designs

Engineering and Planning completes water, sanitary, and storm water system design work for Saskatoon Land and for other major City capital projects. Highlights of 2024 work include the following:

Figure 5.18 - Brighton Storm Trunk Installation

Acadia Drive PWM: Completed design of the Acadia Drive primary water main (1050 mm). Stakeholder consultation was completed for expected 2025 construction.

Aspen Ridge Phase E1 and E2: Initiated detailed design of area grading, local water distribution, sanitary, and storm sewer collection systems.

Water Mains Rehabilitation (Multiple Locations): Completed designs for water mains that needed to be replaced and/or upsized as part of the Capacity Upgrade Program.

Kensington Phase E1 and E2: Initiated detailed design of area grading, local water distribution, sanitary, and storm sewer collection systems.

Cartwright Sanitary Sewer: Completed detailed design of a new sanitary sewer main to allow development in the Willows neighbourhood and further redevelopment in the CN Industrial area.

***Hampton Village Business Park Sanitary Trunk**:* Completed design and tendering of the 525 mm sanitary trunk sewer extension along Markham Avenue south to the planned Hampton Village Business Park lift station.

Hampton Village Business Park Storm Pond and Outlet Trunk: Completed detailed design of the Hampton Village Business Park storm water dry pond and 1,050 mm storm outlet trunk.

***Brevoort Park Stormwater Pond**:* Provided ongoing design review and construction contract support for the installation of Saskatoon's first ever large underground concrete storage chambers.

Brighton Naturalized Stormwater Pond: Initiated detailed design of the naturalized storm water management pond, including collaboration with Sustainability and external stakeholders. The design includes native plants at varying water depths to encourage water quality improvement, diverse habitats, and shoreline aesthetics.

Sanitary Sewer River Crossing: Initiated the project procurement process for hiring a design consulting firm to design the new sanitary sewer river crossing. The project will include three sanitary sewer pipes to support new development in the east and northeast neighbourhoods.

Private Development Applications: Reviewed 126 applications and advised on water or sewer servicing considerations for proposed re-zonings, subdivisions, condo developments, discretionary uses, utility installations, concept plan amendments, etc.

Building Permit Applications: Reviewed 106 commercial building permit applications for design standard and bylaw compliance.

Distribution and Collection System Preservation

Water Distribution and Sewer Collection Assets: Water and Sewer preservation programs are selected annually based on the condition of assets (water and sewer mains and service lines), as well as approved levels of service and funding plans. Funding for the water and sanitary programs comes from the Water and Wastewater Infrastructure Levies. The City has the following annual programs for preservation of water and sewer assets:

- Water Main Replacement: 6.3 km in 2024.
    - Capacity Program: Focuses on areas where water main capacity needs to be improved and there is a high density of lead service lines. Replacement of the water main is done via open trench excavation. Water main diameters are increased to improve flow capacity, typically from 150 mm diameter to 200 mm diameter; and lead service lines, if present, are replaced at the same time as the water main.

- Preservation Program: Targets water mains that have had high numbers of water main breaks, prioritizing locations that have been breaking frequently in recent years. Since this program relies on water main break rates that are constantly changing and being updated, locations are prioritized and selected each year.

- Sewer Main Lining: 13.0 km in 2024.
  - Sanitary and storm sewer mains are inspected using remote video cameras and assigned condition ratings. Based on these ratings and other risk factors, a long-term rehabilitation strategy has been developed. Lining for sewer mains uses the same method as water mains, except excavation is typically not required. Sanitary and storm mains have access points (manholes) approximately every 150 m to 200 m that allow for liner installation. This method of rehabilitation for sanitary and storm mains has been used in Saskatoon since the 1990s and has been so effective that open trench replacement of sewer mains has been phased out, except for very limited circumstances where a liner cannot be installed.

- Water and Sewer Service Line Replacements: 345 service lines replaced in 2024. Water Service Lines and Tar Fiber Sewer Service Lines are replaced:
  - In conjunction with open trench water main replacement.
  - Prior to certain roadway preservation treatments.
  - On an emergency basis.

Table 5.5 - 2024-2025 Projected Budgets - Technical Services

Program	2024 Budget ($M)	2025 Budget ($M)
Water Preservation	$25.32	$26.01
Sewer Preservation	$7.40	$7.61
TOTAL	**$32.72**	**$33.62**

5.6. Continuous Improvement Initiatives

Saskatoon Water, WWO, and Technical Services are committed to Continuous Improvement through improved customer service and continually implementing innovations to improve efficiencies and reduce costs. In addition to the operating and capital projects described above, the departments have undertaken the following Continuous Improvements initiatives:

Fusion (SAP): With SAP allowing integration of supply chain, work management, finance, and HR systems, the three departments are leveraging the new data available to make improvements. Operator Certification (required by WSA) is also tracked automatically in the system, alongside other corporate training. The WWTP has also been able to directly track the natural gas savings from the digester and heating upgrades to help better budget for natural gas consumption. WWO has been working towards establishing activity-based unit rates cost tracking and holistic assets lifecycle cost tracking.

Improved Sewer Operations and Procedures: The Planning and Scheduling Group was established in 2018 to support the WWO and Roadways, Fleet and Support departments in planning, scheduling, and coordination of jobs. The group continues to contribute to more efficient and organized operations and maintenance workflow by designing planned maintenance programs, distributing work, and providing regular progress tracking reports with Key Performance Indicators for improved accountability. Supervisors and superintendents are able to spend less time in the office and more time in the field.

Water and Sewer Repairs for Roadway Restoration Locations: The Planning and Scheduling Group lead a coordination effort to streamline scheduling and communications for Water and Sewer inspection and repair work performed in advance of roadway restoration projects. This effort was successful in creating a proactive approach rather than the largely reactive model previously in place.

The Valve App Project: The valve application, in use since 2018, has been used to record the on/off status of 54% of water valves (8,666 out of 16,060 total valves). Using this app reduces miscommunication and saves time for staff and contractors completing important repair and installation work in the field. Valve status also is used to interpret water pressure monitoring and modelling results, contributing to data-driven decisions about water flow.

The Sanitary & Storm Sewer App Project: The sewer application will be used to track maintenance, inspections, and repairs to individual asset segments in a Geographic Information System (GIS). This will assist in planning and coordinating operations across the linear system and update antiquated technologies and supporting digital maps.

Water & Sewer Operation Dashboard**:** Dashboards are being developed for real-time business decision making on water and sewer assets by integrating Enterprise Asset Management and GIS technologies in Microsoft Power BI. This will assist with annual tracking requirements such as benchmarking, holistic lifecycle cost, and unit-rate activity tracking.

Primary Water Main Valve Inspection and Isolation Assessment: In 2024, the Planning and Scheduling Group continued supporting WWO, with an assessment into the primary water main valve inspections and isolation procedures. The objective of this work is to increase the number of valve inspections to ensure all primary water main valves meet the two-year inspection goal, and to update the current inventory database and isolation procedures for primary water main valves. Once completed, this information will help ensure that Water and Sewer has all relevant, up-to-date information necessary to successfully manage emergencies.

Digital Application Reviews: In 2024, digital applications continued to be received and reviewed from developers for proposed re-zonings, subdivisions, condominiums, discretionary uses, etc., saving time and costs compared to the previous paper-based

process. Engineering and Planning tracks all applications and summarizes review responses in a single accessible digital file.

Saskatoon Water Energy Management: In 2024, Saskatoon Water continued work in energy management by completing the following activities:

- Performed measurement and verification of energy savings from using biogas for heating, process operation changes at the WWTP, and changing pumping operations at the WTP, reservoirs, and Raw Water Intake.
- Obtained grant funding from Natural Resources Canada and conducted an ISO 50001 Gap Analysis on the Energy Management System at the WTP and reservoirs.
- Applied for additional grant funding from Natural Resource Canada to implement corrective actions identified in the ISO 50001 Gap Analysis to obtain an ISO 50001 compliant Energy Management System at the WTP and reservoirs.
- Entered into an agreement with the Federation of Canadian Municipalities for grant funding for the nitrification pilot at the WWTP.
- Completed construction phase for the lighting upgrades at both plants.
- Proceeded on improvements to the Building Management System at the WTP and WWTP.
- Joined the Canadian Water Network (CWN) National Advisory Committee on Greenhouse Gas Mitigation.

Motion Sensors and LED Lighting: Motion Sensors and LED lighting replaced conventional lighting systems at the WTP and WWTP, reducing power consumption and maintenance requirements.

Employee Onboarding and Training: Saskatoon Water is continually enhancing employee onboarding, along with training processes and resources. Deliverables included an employee orientation and welcome video, an updated employee handbook, a formalized training procedure, and a comprehensive training matrix that outlines minimum training requirements for each position within the department.

Cross Connection Control Program: Saskatoon Water has two cross connection inspectors who manage a program to protect the city's potable water supply from contamination. There are 109 certified cross connection testing companies and 203 certified cross connection control specialists (testers) in Saskatoon. In 2021, Saskatoon Water initiated a project to identify Continuous Improvements for the Cross Connection Control Program. The goal is to recommend ways to optimize efficiency and effectiveness of service delivery, and reduce the risk associated with water backflow from private properties into the potable water distribution system. To date, improvements have been made to design standards and device requirements. Work will continue through 2025 and beyond to implement recommendations.

Quality Decision Making: Quality decision making is vital to not only achieve the City's Strategic Goals, but also to support our Purpose, live our Values, and realize our workplace transformation vision. In 2021, Saskatoon Water initiated a project to support employees in their efforts to make quality decisions. A combined decision-making process and framework was introduced, which has been proven to capture the art, the science, and the practice of achieving optimum value in decisions. Additional training and resources have been made available to support employees as they apply this collaborative philosophy.

Continuous Quality Management System: Technical Services began developing written Administrative Procedures for all its essential services in 2020. In 2022, Technical Services continued to advance work on an Administrative Procedure for emergency water main break response with contractor forces. When completed, this will mark the completion of Administration Procedures for all essential services in the department's portfolio. In 2022, Saskatoon Water began implementing the revised Document Control and Management Procedure and worked on ensuring Policy and Procedural documents were reviewed on a set schedule.

Primary Watermain Critical Spares Research Project: Municipal Engineering Services has partnered with the University of Saskatchewan on a research project on the city's primary watermain network. The project aims to:

1. Analyze the primary watermain network to identify critical components.
2. Identify supply chain risks.
3. Decide on a strategy for purchasing and warehousing critical safety stock.

6. OUR ENVIRONMENT

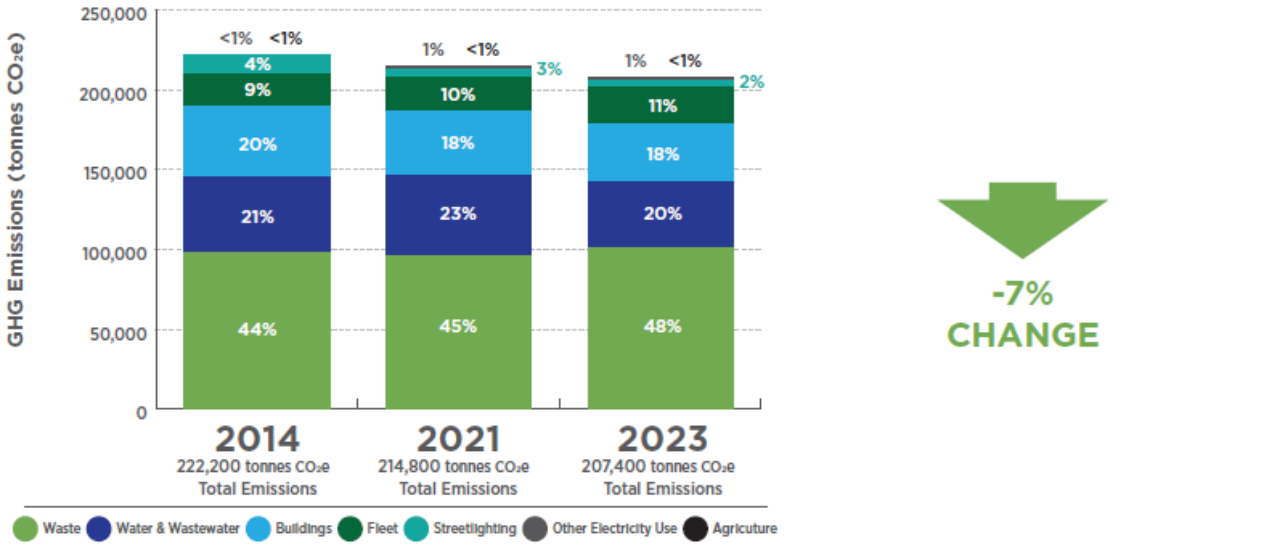
6.1. Stewardship

Protecting the river and its surrounding watershed is vital to the long-term sustainability of our water supply. The City is committed to responsible watershed management and stewardship that meet citizens' expectations. The City is represented on the advisory committee of the Northwest District of the Saskatchewan Association of Watersheds. The WWTP consistently meets or exceeds all regulatory limits for effluent discharged to the river under the WSA's Permit to Operate a Sewage Works.

Saskatoon Water and the Water and Sewer section of Water and Waste Operations support the Provincial Operator Certification Program for both the Water and Wastewater Treatment Plants, and the water distribution and collection systems, which help protect both the public and the environment.

6.2. Energy Management

Water and wastewater activities accounted for 20% of total municipal government greenhouse gas (GHG) emissions in 2023, a 12% decrease from the 2014 baseline. The Water and Wastewater sector of the corporate inventory includes emissions resulting from the use of energy – natural gas, propane, and electricity – to heat/cool and power buildings associated with the City's water and wastewater treatment and distribution systems. This sector also includes fugitive emissions resulting from the wastewater treatment process (i.e., digester gas and flaring).



	2014	2021	2023	% Change from 2014
Waste	97,600	96,300	100,500	+3%
Water & Wastewater	47,200	50,400	41,600	-12%
Buildings	45,000	39,700	36,800	-18%
Fleet	20,300	21,400	22,500	+10%
Streetlighting	11,400	5,400	4,700	-58%
Other Electricity Use	700	1,500	1,300	+98%
Agriculture	<100	<100	<100	+10%
Total Emissions (tonnes CO_2e)	222,200	214,800	207,400	-7%

Figure 6.1 - Municipal Government GHG Emissions Inventories for 2014 (baseline), 2021, and 2023. Source: 2023 Climate Action Progress Report

Achieving a balance between efficiency, renewable energy, and water conservation is part of an integrated approach to reducing emissions in the water system.

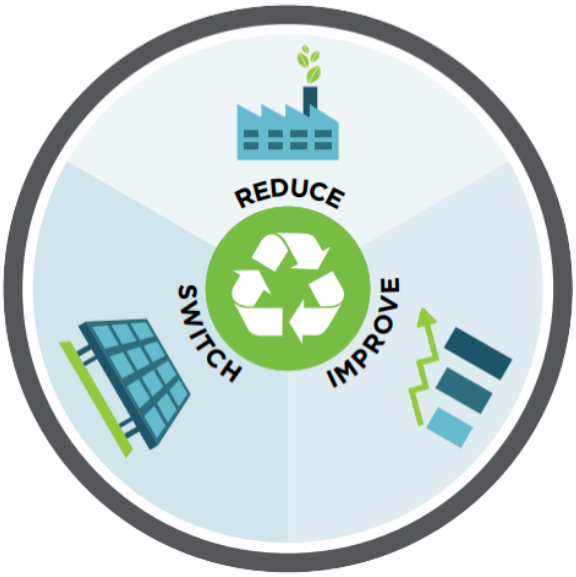


Figure 6.2 - A Three-Pronged Approach to Reducing Water-Related Emissions: Reduce, Improve, Switch

The WWTP and WTP have committed to managing energy-use through the development of a Department Energy Policy and plant specific strategies. Energy teams have been created at both plants to conduct energy studies, capital projects, and process optimizations. Results, achievements, and external collaborations from energy management will be communicated through annual reports.

In 2024, the WWTP continued to utilize biogas for heating and was able to meet approximately 78% of their heating load using biogas. The WWTP is planning to continue to use biogas for heating in 2025 but is also planning to explore other energy options, such as Combined Heat and Power and Renewable Natural Gas. The WWTP is also evaluating the potential of a ~1MW ground mount solar photovoltaic system.

As part of the City's commitment to electrify 100% of its municipal fleet, the WTP has initiated a project to replace three internal combustion engine light-duty vehicles with equivalent electric vehicles (EVs) and acquire an additional EV for the operations group. To support the new EVs, charging infrastructure is also planned to be installed at the WTP and key remote sites to ensure adequate charging capabilities.

In addition to the above initiatives, both plants have completed the construction phase of a lighting retrofit and have started implementing improvements to their Building Management Systems.

6.3. Conservation

The City's Water Conservation Program is founded on the need to provide the community with safe and high-quality drinking water as a top priority for the City. The Program uses the Water Conservation Strategy to identify actions that can be taken to meet the City's targets and goals. Several climate change and WTP risks have been identified that could

affect the water system, and water conservation helps ensure that the City can meet the community's water needs in the long term, even with a growing population. The Program works to identify, plan for, and mitigate water risks for the community and the City as an organization, through the actions outlined with the Water Conservation Strategy. There are four main reasons for conserving water:

1. To increase system resilience and maximize capacity to deal with intensifying climate change.
2. To help manage water demand — especially during summer peak periods. This will ease strains on the capacity-limited water systems and create opportunities to better manage and schedule capital expenditures, potentially deferring or reducing spending.
3. To help households and businesses moderate their water-use. This can relieve the utility burden on those most impacted by cost increases by placing equity and opportunity at the forefront of water conservation, making programs accessible.
4. To reduce GHG emissions. Water and wastewater treatment have historically accounted for a quarter of the City's total emissions.

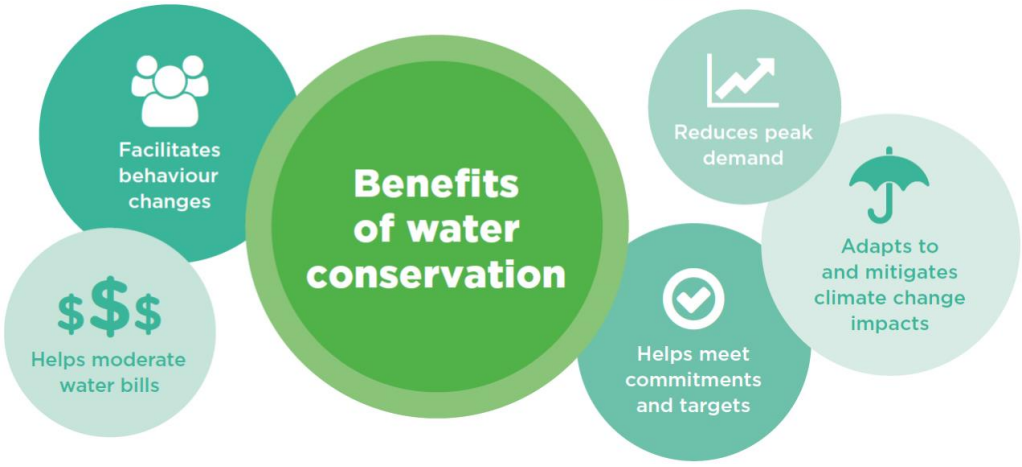


Figure 6.3 - Infographic Outlining the Benefits of Water Conservation

Water conservation initiatives in the strategy are prioritized based on overall water and GHGs reduced with specific focus on peak summer demand reductions, as well as the costs and savings associated with the measures and community feedback.

There was a strong public preference for the City to lead-by-example and make civic water conservation a priority. Two thirds of the City's own water-use in facilities and operations is used outdoors in the summer – the majority for park irrigation.

Targets

The Water Conservation Strategy is based on the water conservation targets set in the Low Emissions Community Plan. Action 25 is a 5% reduction in absolute water demand by 2026. Action 26 is a 20% outdoor and 30% indoor water-use reduction by 2050.

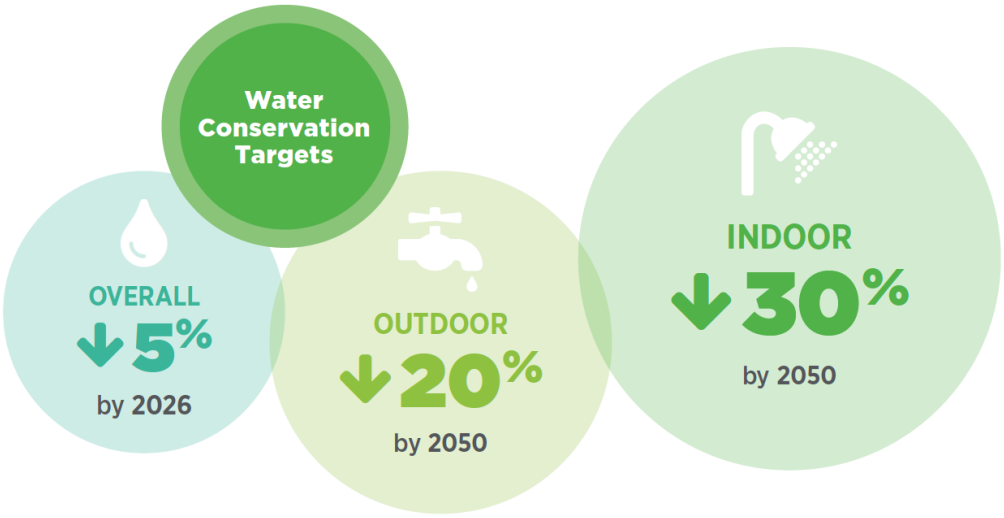


Figure 6.4 - Infographic Outlining Water Conservation Targets from the Low Emissions Community Plan

In 2024, progress was made towards all targets, including outdoor water-use, which has been high for several consecutive years. Overall water-use achieved a 5.4% reduction since the 2016 baseline year. Indoor water-use achieved a 4.6% reduction and outdoor water-use achieved a 9.5% reduction from baseline. Factors contributing to this include wetter weather in June, increased education and awareness activities in 2024, and the Calgary water main break that brought more awareness to water resources.

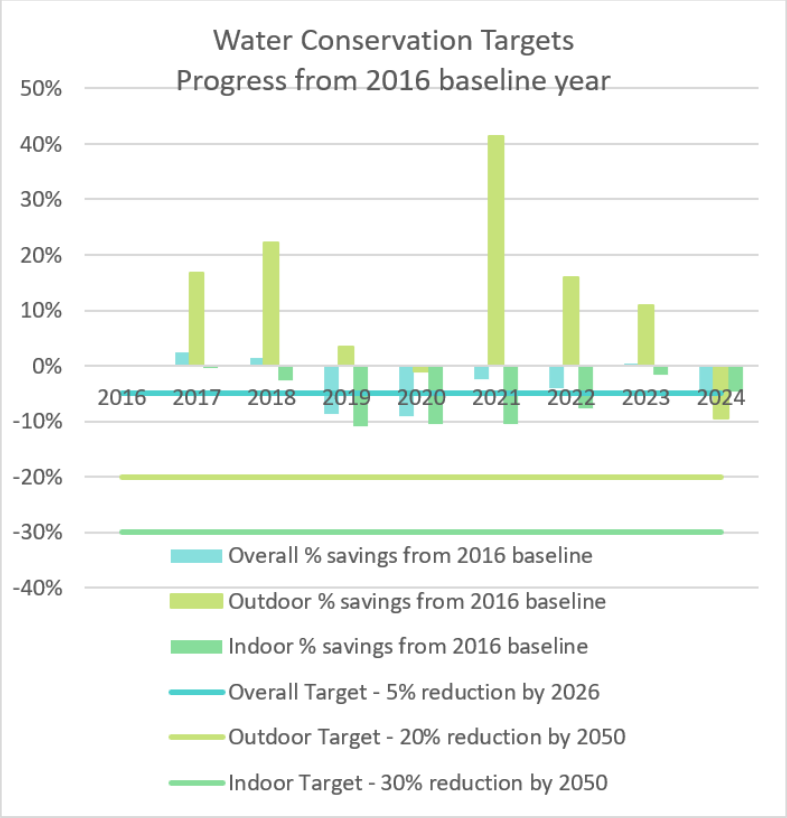


Figure 6.5 - Water Conservation Targets Progress from 2016 Baseline Year

Per capita, residential water-use also continues to trend down. In 2024, it was at 181 litres per person, per day. In 2016, per capita, residential water-use was 208 liters per person, per day.

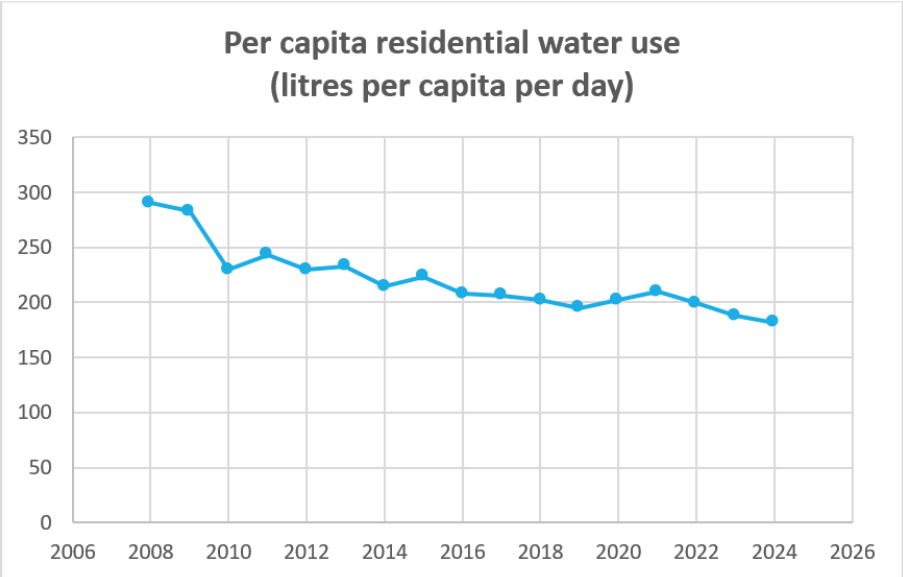


Figure 6.6 - Per Capita Residential Water Use

6.4. Work Completed in 2024

Civic Water Conservation: In 2024, the City used 1.3 billion litres of water in its own facilities and operations, with the majority used outdoors in the summer.

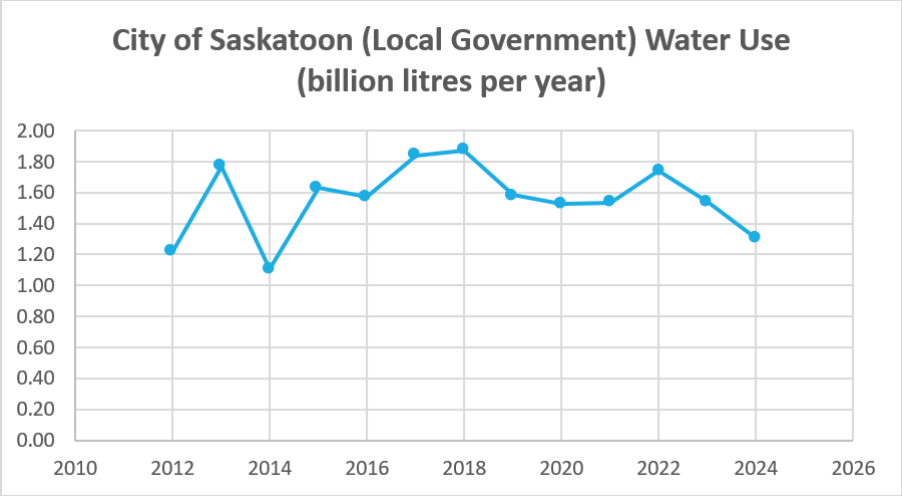


Figure 6.7 - Civic Water Use

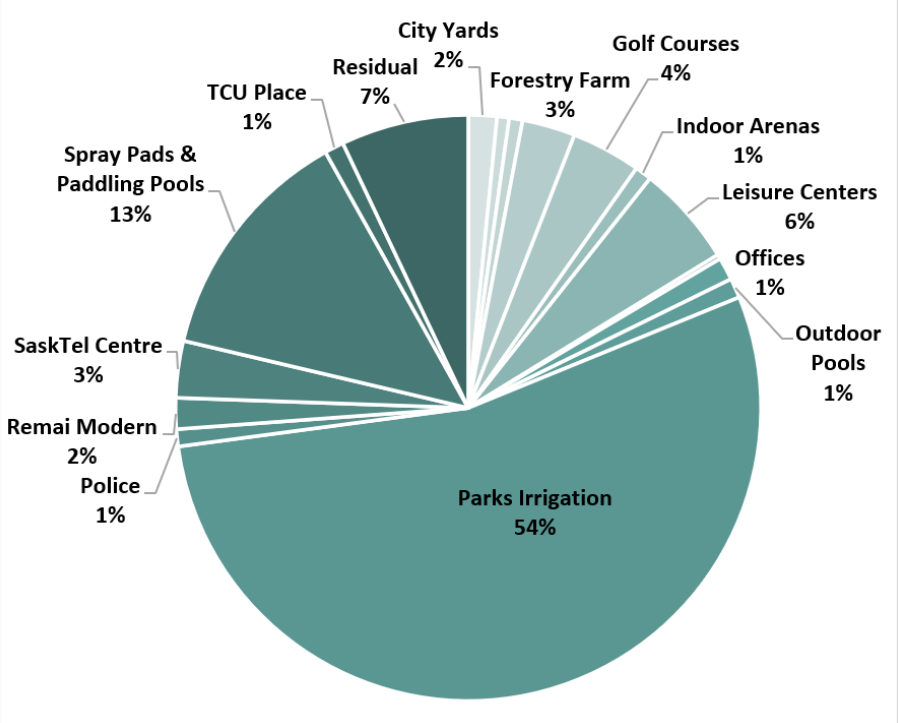


Figure 6.8 - Sectoral Breakdown of Civic Water Use, 2024

Irrigation Optimization: From 2021-2023 Sustainability and Parks worked together to pilot irrigation optimization using evapotranspiration (ET) controls. In 2024, the results of the pilots were developed into a business case for full-scale implementation. The business case shows a Return on Investment (ROI) that would be eligible for a green loan.

The Irrigation Optimization and Naturalization Transition Study – funded through the Natural Infrastructure Fund grant – was completed. Based on the results of the study, construction began to upgrade Boughton and Leif Erickson Parks to improve irrigation efficiency; reduced irrigated areas; and add native, drought-tolerant species planting beds. The project collaborated with the Food Forest Initiative, park upgrades, and Active Transportation to make a more complete project with many benefits and is expected to be completed in 2025. Conceptual designs and budget estimates to optimize irrigation and increase naturalization at Holland Park and Robert Hunter West Park were also completed as part of the study and are ready for implementation, should funding opportunities arise.

Figure 6.9 - Park Irrigation

The Non-Potable Water for Irrigation Study, also funded by the Natural Infrastructure Fund grant, was completed. This study will support the advancement of non-potable water initiatives across the City. It also identified ways in which the City is already utilizing non-potable water, including:

- Silverwood and Holiday Park Golf Courses use raw water from the South Saskatchewan River.

- A water truck filling station at the Blair Nelson Park (Stonebridge) Storm Pond that is heavily used for tree watering.
- 20th street streetscape passively captures storm water to irrigate street trees.
- Access Transit building harvests rainwater in cisterns for bus washing.
- The bioswale at River Landing, an example of Low-Impact-Development, captures water from the adjacent spray pad.
- The WWTP irrigates with reclaimed treated wastewater and uses it for other operations at the plant.

Spray Pads: The 2023 Spray Pad Efficiency Pilot was extended in 2024 to test other lower-flow nozzles and misters at three spray pad sites (Briarwood, Stonebridge, River Heights). A network connection to the spray pad controller at Kensington was added to be able to remotely adjust spray pad schedules that saves time on manually visiting each spray pad site to make the adjustment, as is the current practice, and change the sequencing of spray pad features to further reduce water consumption. Overall, the 2024 pilot saved 17.9 million litres of water at the three spray pad sites, saved $52,000 in water bills, and avoided 7.7 tonnes of carbon emissions. Based on the pilot results, a business case to improve all spray pads was prepared and led to the Spray Pad Water Conservation and Climate Change Adaptation Project.

Figure 6.10 - Robert Hunter Park East Spray Pad

The Spray Pad Water Conservation and Climate Change Adaptation Project was approved for a $1.65 million green loan in September 2024 and subsequently received a $700,000 Adaptation in Action Green Municipal Fund grant. This includes an additional $100,000 because it met the incentive criteria to meaningfully address equity in the work. The project involves replacing existing spray nozzles with low-flow and misting nozzles;

adding remote controllers to modify the sequencing patterns and remotely adjust schedules; and adding shade structures, misting stations, and water fountains at six sites to help the community adapt to extreme heat. The grant will help pay back the loan faster.

Be Water Wise is the community education and awareness program. In 2024, the Be Water Wise website was refreshed with new tips for saving water, a six-month utility bill campaign shared information on saving water from May to November, and two short videos – "Tuna Can Test" and "Leak Detective" were developed and promoted on YouTube. A Be Water Wise children's activity book was also developed and distributed through the Summer Play Program.

Rain Barrel Rebate: The Rain Barrel Rebate program promotes sustainable water-use by offering a financial incentive to residents, schools, community gardens, and businesses. Participants can receive a $40 rebate or a $100 rebate if they are income-qualified residents and part of the Leisure Access or Transit Subsidy programs. The program issued 248 rebates in 2024, which was a 45% increase from previous years. These installations help conserve nearly 500,000 litres of drinking water annually by capturing and reusing rainwater.

Environmental Grant: Funding is available to non-profit organizations implementing initiatives that support the City's Strategic Goal of Environmental Leadership. Initiatives prioritized for funding in 2024 include those that increase awareness and protection of our water resources and increased water efficiencies. The projects funded in 2024 with a focus on water included:

- First Nations University of Canada – Create a SIIT Medicinal and Traditional Garden, led by Elders. They aim to enhance natural green spaces, promote water conservation efforts, and create cross cultural learning opportunities for visitors.
- SOS Tree Coalition – This project includes neighborhood planting, volunteers planting, watering & maintaining a naturalized planting of native trees & shrubs and establishment of a volunteer group of tree stewards.
- Native Plant Society of Saskatchewan – This project includes supporting the return of native plants by hosting a well-publicized Pollinator Celebration and Native Plant Market and participating in other public events.
- Tykes and Tots Early Learning Centre – Educating young environmental champions: Outdoor Learning Materials/Equipment materials for Forest School in Saskatoon including outdoor nature stations, rain barrels, library boxes, and garden boxes.
- Riversdale Badminton and Tennis Club – This project will purchase water-efficient toilets and a water fountain fitted with a water bottle dispenser to limit water waste and promote use of reusable water bottles.

Saskatoon Home Energy Loan Program (HELP): HELP provides Property Assesses Clean Energy loans to single-family residential homeowners to improve the energy and water efficiency of their home and install renewable energy. In 2024, four low-flow faucets, seventeen low-flow toilets, and two permanently affixed rainwater catchments were installed reducing an estimated 430,000 litres of water per year. Funding was approved in 2025 to expand this program to additional homes, as well as commercial and multi-unit residential buildings, expecting to be launched in 2026.

7. OUR FINANCES

7.1. Utility Bills

Residential water-related utility charges were $159.41 per month in 2024, based on a standard 3/4-inch meter connection and a monthly water volume of 25.5 m^3 (900 ft^3). Saskatoon residents with smaller 5/8-inch water meters, which are common in core neighbourhoods, pay $13.51 less per month on the fixed portion of their utility bill. In 2024, 50% of meters for single residential homes were 5/8 inch and 50% were 3/4 inch. All new homes are fitted with 3/4-inch meters, which meet customers' expectations for water demand for watering lawns, etc.

At average residential water volumes, Saskatoon's total water, wastewater, and storm water[2] utility bills remain lower than most other cities in Alberta, Manitoba, and Saskatchewan. Based on the standard water meter size and monthly water volume of 25.5 m^3, the utility bill in Saskatoon was 14.2% higher than in Calgary, which has the lowest utility bill, and 21.9% lower than in Edmonton, which has the highest bill. Under Saskatoon's inclining block rate system, water and wastewater rates increase at volumes of 17 m^3 (600 ft^3) and 34 m^3 (1,200 ft^3). See Appendix C for more information about utility bill charges.

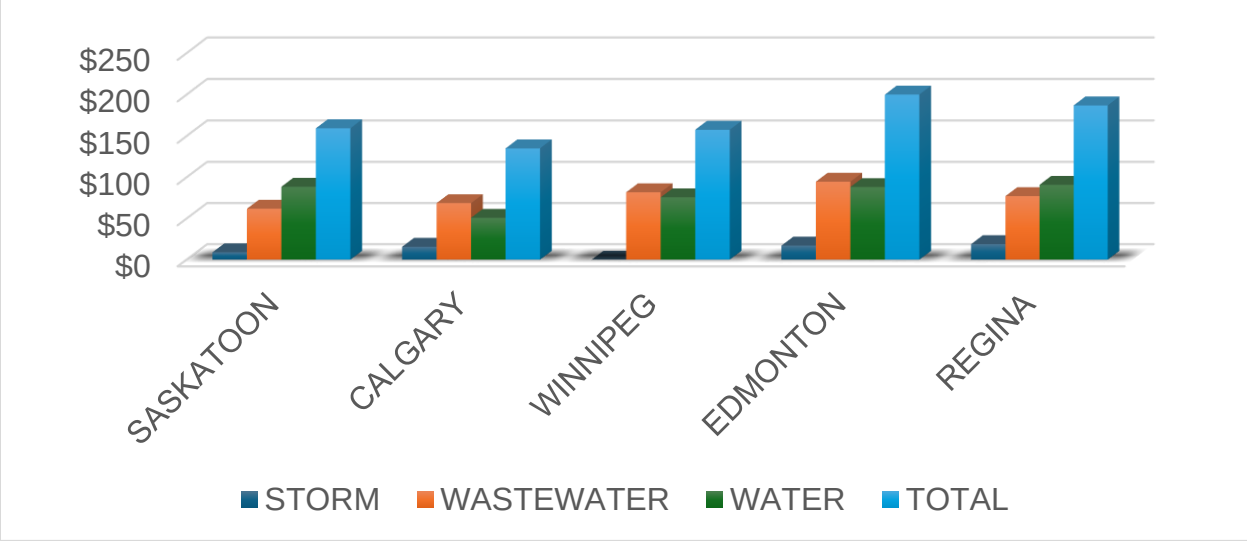


Figure 7.1 - Residential Water, Wastewater, and Storm Water Monthly Charges by Utility [3/4 inch meter and volume of 25.5m^3 (900ft^3)]

[2] The 2024 Storm Water Utility Annual Report documents Saskatoon's storm water financial information and other highlights.

7.2. Financial Summary

The Water and Wastewater Utilities are based on a user-pay principal and are fully funded through their rates. In 2024, the two utilities collected $197.6 million in total revenues and had $187.7 million in total expenses for a positive variance of $9.903 million.

Table 7.1 - Water and Wastewater Revenues and Expenditures ($1000s)

Water and Wastewater Statement of Revenues and Expenditures ($1000s)				
	Water Utility 2024	**Wastewater Utility 2024**	**Consolidated 2024**	**Consolidated 2023**
Total Revenues	**110,979**	**86,596**	**197,575**	**192,463**
Expenditures				
Utility Operations	18,329	13,224	31,553	29,910
Public Works Operations	18,017	10,245	28,262	28,137
Administration & General	1,614	1,556	3,170	4,231
Corporate Services & Billing	3,356	2,508	5,864	5,633
Capital Charges	28,139	18,628	46,767	48,186
Infrastructure Services Capital Reserve	19,785	25,427	45,212	43,096
Grants-in-lieu of Taxes	8,144	5,240	13,384	12,761
Return on Investment	7,791	5,669	13,460	12,294
Total Expenditures	**105,175**	**82,497**	**187,672**	**184,249**
Revenues less Expenditures	**5,804**	**4,099**	**9,903**	**8,214**
(To)/From Stabilization/ Capital Reserves	**-5,804**	**-4,099**	**-9,903**	**-8,214**

Total Utility revenues increased by 2.66% in 2024 as a result of higher metered revenues[3].

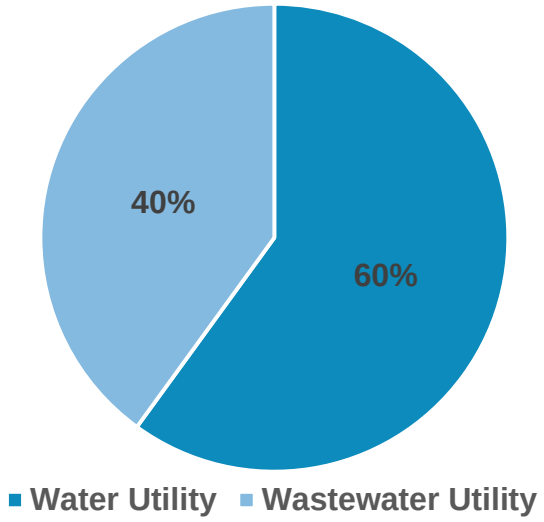


Figure 7.2 - Percentage of Revenue by Utility (Water or Wastewater)

The Water Utility accounts for 60% and Wastewater for 40% of revenues.

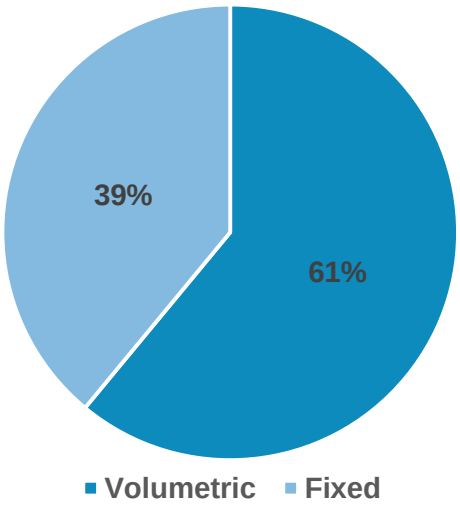


Figure 7.3 - Water and Wastewater Revenue Chart, by Customer Class

[3] Positive Water and Wastewater variances fund the Water and Wastewater Revenue Stabilization Reserve which is utilized in years when there is an operating deficit (negative variance). The Stabilization Reserve has a maximum allowable balance of 5% of the current year's budgeted metered revenue and Infrastructure Levy. Any amount that exceeds the maximum is transferred to the Waterworks Capital Projects Reserve, the Sewage Treatment Capital Reserve, or the Infrastructure Replacement Reserve.

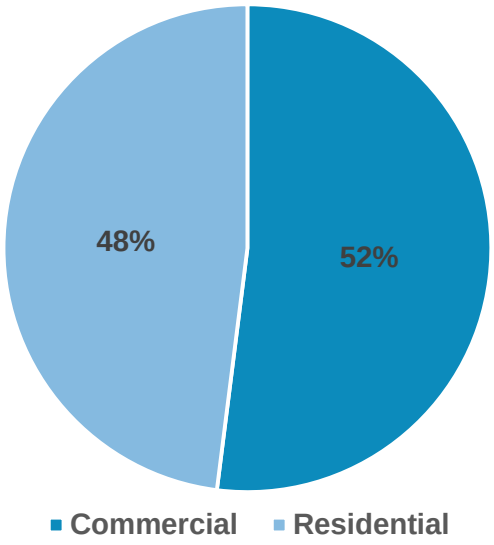


Figure 7.4 - Water and Wastewater Revenue Chart, by Rate Type

Commercial customers account for 52% of Water and Wastewater's total revenues. About 61% of revenues are based on volumetric charges and 39% are from fixed charges.

In 2024, total expenditures were 1.9% higher than 2023 as a result of increased contributions to Grants-in-Lieu of Taxes and Return on Investment; as well as capital investment; materials and supplies; security costs, which were partially offset by decreased maintenance work; and savings in overtime, utilities, and special services expenses resulting in actual expenses 0.68% less than budgeted. Total 2024 revenue was 0.95% more than budgeted. Overall, the results were a positive balance of $9.903 million, which was transferred to the Water and Wastewater Revenue Stabilization Reserve.

Funding to the Roadways, Fleet and Support, and WWO departments to deliver the day-to-day operation and maintenance of the water distribution, collection, and drainage systems accounted for 15.1% of total expenditures. Funding for the Infrastructure Services Capital Reserve accounted for another 24.1% of expenditures.

An original Infrastructure Levy was implemented to fund the Infrastructure Services Capital Reserve for water distribution and wastewater collection system rehabilitation and replacement projects needed to address aging infrastructure and eliminate the water main replacement backlog to meet service levels. A Redevelopment Levy was added in 2013 and a Roadway Levy was added in 2014, which now generate $3.7 million and $6.0 million, respectively, annually for a total of $9.7 million in 2024.

In 2024, the Water and Wastewater Utilities paid $13.5 million (planned to be 10.0% of metered budgeted revenue) ROI. The year 2020 was the final year of a five-year phase-

in plan for the ROI, which after that was to be 10% of budgeted metered revenues. The Utilities also paid $13.4 million in 2024 to the City as Grants-in-Lieu of Taxes.

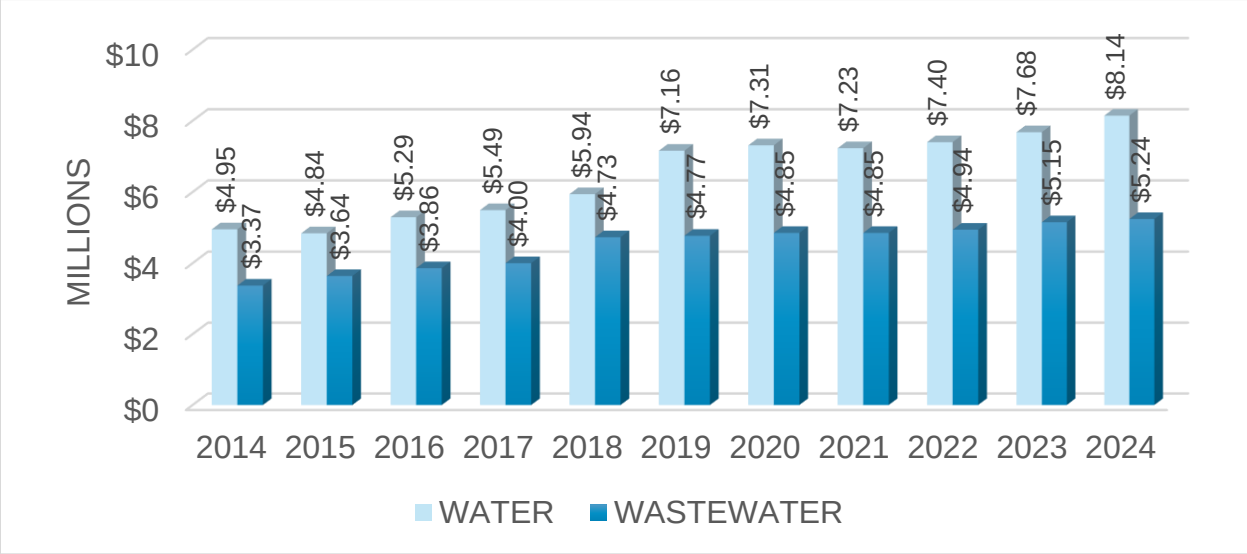


Figure 7.5 - Water and Wastewater Utility Grant-in-Lieu of Taxes ($ Millions)

7.3. Water Utility

Revenues

The Water Utility's 2024 total revenues of $111.0 million were $0.2 million or 0.16% more than budgeted. Total revenues increased by 4.2% from 2023. Other revenues included late payment penalties and some miscellaneous revenue.

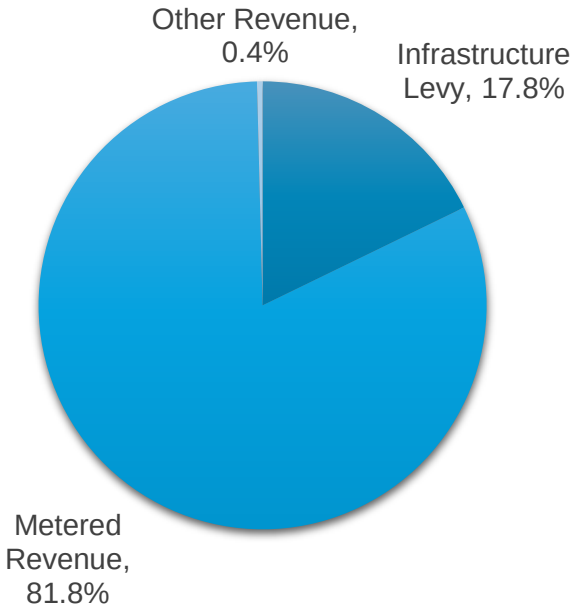


Figure 7.6 - Water Utility Revenue

Expenses

The Water Utility's 2024 expenses of $105.2 million included the following:

- Saskatoon Water, Water Utility operating expenses of $19.9 million include water treatment, pumping storage, Meter Shop, administration, and general expenses incurred by Saskatoon Water.
- WWO operating expenses of $18.0 million include funding to the department to operate and maintain the water distribution system.
- Saskatoon Water Capital of $28.1 million funds all capital work related to the WTP and reservoirs, including debt servicing costs.
- Infrastructure Replacement Reserve – Water and Wastewater of $19.8 million (funded by the Infrastructure Levy) includes capital replacement of the water distribution systems, roadway damage associated with the utility, and water upgrades for core area developments.
- Corporate Charges of $11.5 million include the Grants-in-Lieu of taxes, cross-charges for customer billing and collections, and corporate administration.
- ROI of $7.8 million.

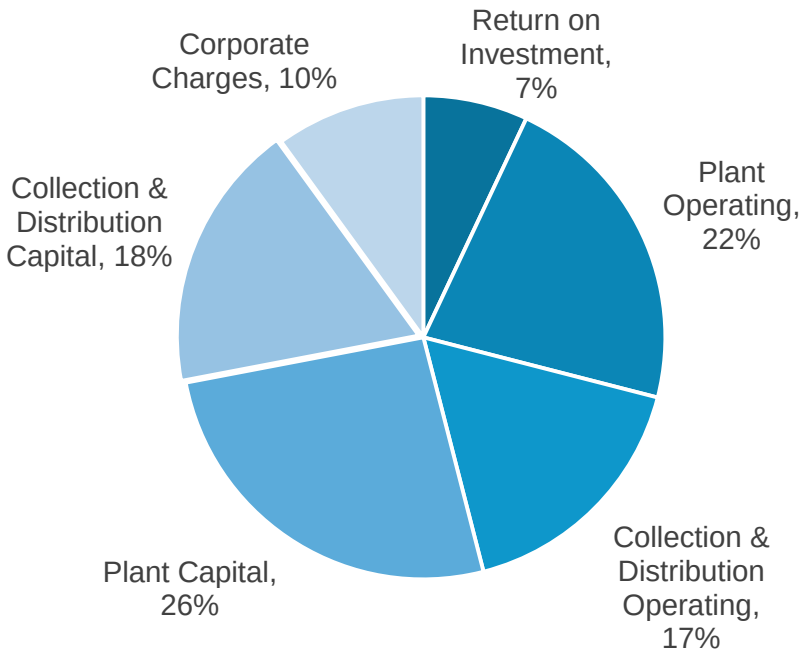


Figure 7.7 - Water Utility Operating Expenses

The Water Utility's 2024 total expenses were 5.1% under budget due to savings in equipment and materials, overtime, chemicals, special services, contractor costs, equipment maintenance and training, offset by increases in utilities, vehicle costs, and increased transfers to Capital Reserves. Expenses were 3.2% more than in 2023 due to

inflation, Grants-in-Lieu of Taxes and Return on Investment increases, and an increased contribution to the Capital Reserves, offset by various savings, such as for special services and construction and maintenance costs.

Financial Statement

Table 7.2 - Water Utility Statement of Operating Revenues and Expenses ($1000s)

Water Utility Statement of Operating Revenues and Expenses ($1000s)	2024 Budget	2024 Actual	2023 Actual
Revenues			
Metered revenue	90,492	90,791	87,853
Infrastructure Levy	19,793	19,785	18,100
Other revenue	522	403	505
Total Revenue	110,807	110,979	106,459
Expenses			
Water Treatment, Pumping, Storage	19,835	15,331	15,081
Water Meters	2,704	2,998	2,055
Water Administration & General	2,099	1,614	2,981
Corporate Services	3,396	3,356	3,247
Distribution (Public Works)	18,466	18,017	16,780
Capital Charges	28,375	28,139	28,847
Provision to Infrastructure Services Capital	19,794	19,785	18,100
Grants-in-lieu of Taxes	8,340	8,144	7,680
Return on Investment	7,798	7,791	7,144
Total Expenses	110,807	105,175	101,915
Revenues less Expenses	-	5,804	4,544
(To)/From Stabilization/Capital Reserves	-	-5,804	-4,544

The positive balance of $5.8 million was transferred to the Water and Wastewater Revenue Stabilization Reserve.

7.4. Wastewater Utility

Revenues

The Wastewater Utility's Revenues increased by 0.7% from 2023 due to greater than anticipated metered revenues.

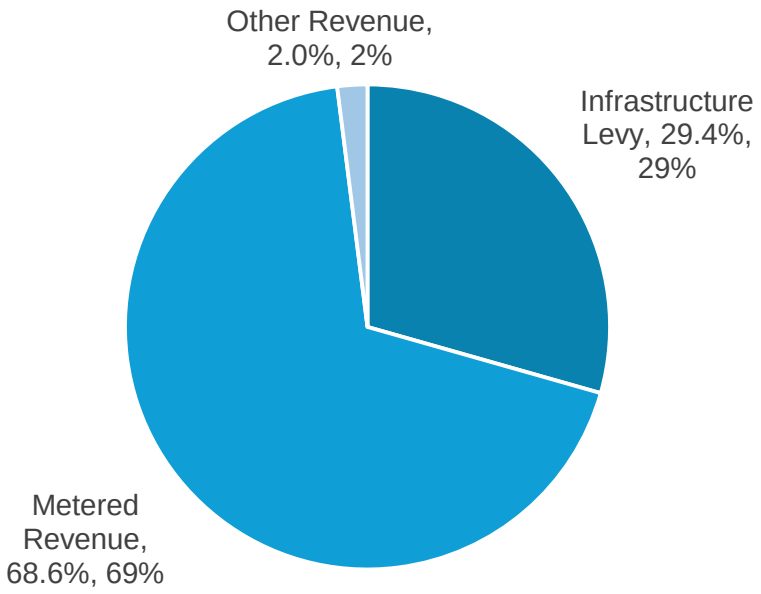


Figure 7.8 - Wastewater Utility Revenue

Expenses

The Wastewater Utility's 2024 expenses, of $82.5 million, included the following:

- Saskatoon Water Wastewater Utility Operating expenses of $14.8 million include wastewater treatment, pumping, sludge handling and disposal, administration and general expenses incurred by Saskatoon Water.
- WWO operating expenses of $10.2 million include funding to WWO to operate and maintain the wastewater collection system.
- Saskatoon Water Capital of $18.6 million funds capital work related to the WWTP.
- Infrastructure Replacement Reserve – Water and Wastewater of $25.4 million funds capital replacement of the wastewater collection systems, roadway damage associated with the utility, and wastewater upgrades for core areas.
- Corporate Charges of $7.7 million include the Grants-in-Lieu of Taxes, cross-charges for customer billing and collections, and corporate administration.
- ROI of $5.7 million is provided to the City for general operations.

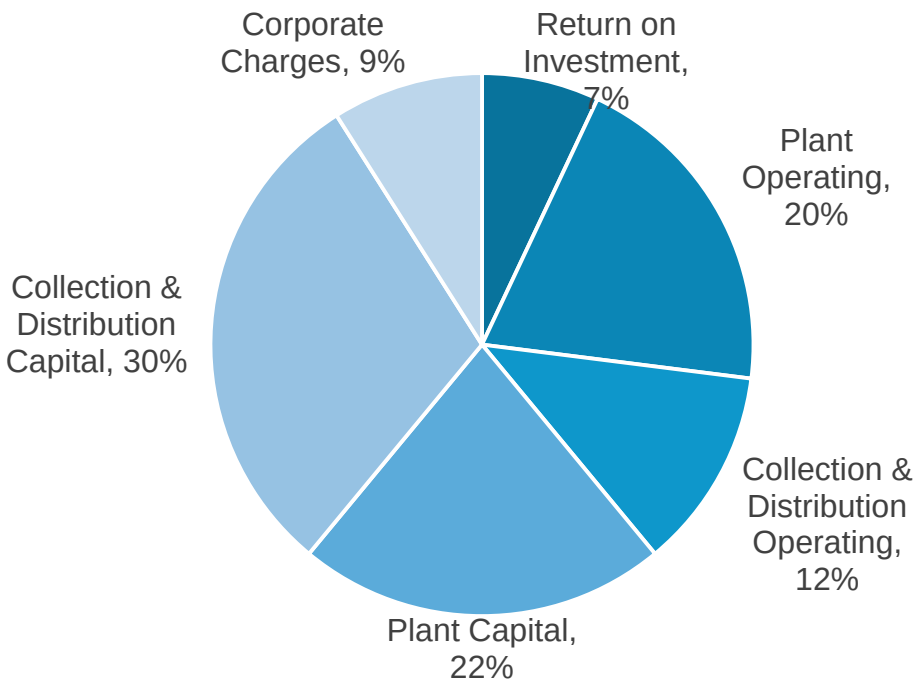


Figure 7.9 Wastewater Utility Operating Expenses

The Wastewater Utility's 2024 expenses were 2.84% less than budgeted due to increased contributions to reserve offset by savings in overtime, contract support costs, special services, utilities. Expenses were about 0.2% more than in 2023 due to increases in ROI, Grants-in-lieu, contributions to Capital reserves and capital charges, and collection maintenance costs.

Financial Statement

Table 7.3 - Wastewater Utility Statement of Operating Revenues and Expenses ($1000s)

Wastewater Utility Statement of Operating Revenues and Expenses ($1000s)	2024 Budget	2024 Actual	2023 Actual
Revenues			
Metered revenue	58,217	59,376	58,932
Infrastructure Levy	25,006	25,427	24,996
Other revenue	1,687	1,793	2,076
Total Revenues	84,910	86,596	86,004
Expenses			
Wastewater Treatment	10,736	9,840	8,952
Wastewater Lift Stations	2,371	1,861	2,312
Wastewater Sludge Handling & Disposal	2,127	1,523	1,510
Wastewater Administration & General	2,012	1,556	1,249
Corporate Services	2,720	2,508	2,386
Collection (Public Works)	10,214	10,245	11,357
Capital Charges	18,878	18,628	19,339
Provision to Infrastructure Services Capital	25,006	25,427	24,996
Grants-in-lieu of Taxes	5,293	5,240	5,082
Return on Investment	5,553	5,669	5,150
Total Expenses	84,910	82,497	82,334
Revenues less Expenses	-	4,099	3,670
(To)/From Stabilization/Capital Reserves	-	-4,099	-3,670

The positive balance of $4.10 million was transferred to the Water and Wastewater Revenue Stabilization Reserve.

7.5. Water and Wastewater Reserves

Maintaining balances in reserves is essential for the Utilities to have the capacity to pay for revenue shortfalls or unexpected operating expenses that are higher than budgeted and for large long-term capital projects, such as plant improvements and expansions.

As of December 31, 2024, balances for Water and Wastewater Utility reserves were $44.3 million. The Water and Wastewater Revenue Stabilization Reserve balance is $9.7 million. This reserve is funded from operating surpluses, up to a maximum balance of 5% of revenues, and is used to fund annual operating deficits. Other reserves fund longer-term capital asset replacements, expansions, and enhancements needed to meet water and wastewater service levels that customers expect and regulatory requirements. End-of-year Capital and Replacement Reserve balances total $10.83 million for Water, $22.39 million for Wastewater, and $1.36 million for Water and Sewer infrastructure (e.g. manholes, pipes). See the table below for reserve details.

Table 7.4 - Operating Stabilization and Capital Reserves Balances, Dec 31, 2024 ($1000s)

Balances as of December 31, 2024 ($1,000s)	
W/WW Revenue Stabilization Reserve	$9,675
Waterworks Capital Projects Reserve	$10,844
Water Replacement Reserve *	($11)
Wastewater Capital Projects Reserve	$18,294
Wastewater Replacement Reserve	$4,093
Water and Sewer Infrastructure Replacement Reserve	$1,358
Total	**$44,253**

*A pending closure was not completed by year end however will return reserve to surplus

2024 Waterworks Financial Overview

- Total waterworks revenues (R) 110,979,273.58
- Total waterworks expenditures (E) 121,436,869.13
- Total debt payments on waterworks infrastructure loans (D) 7,979,335.95
- Comparison of waterworks revenues to (waterworks expenditures plus waterworks debt payments), expressed as a ratio:

  R = (110,979,273.58) / (121,436,869.13 + 7,979,335.95) = 0.914

8. OUR CHALLENGES

Saskatoon Water, Water and Sewer, and Technical Services have been proactive in anticipating and managing the following ongoing challenges:

Keeping Up with Growth: Saskatoon's growth in population and development has required additions to water infrastructure with large up-front capital expenditures. Construction costs fluctuate depending on competing demands for contractor services. Saskatoon Water is continually coordinating multiple capital projects to respond to growth and has identified ways to defer some capital capacity expenditures. Long-term capital development plans are continually updated for the Water and Wastewater Treatment Plants and for the water distribution and collection systems.

Infill Development: Cumulative impacts of infill development are placing higher demands on the carrying capacity of existing water and sewer infrastructure. Expanding water and sewer underground linear infrastructure in developed areas is more expensive, technically challenging, and disruptive, than constructing infrastructure in new greenfield areas.

Brown Field Construction: Similar to the challenges of infill development, construction at the WTP and WWTP requires extensive planning to work around existing infrastructure and maintain service while upgrades continue.

Condition and Capacity of Existing Infrastructure: Some infrastructure has entered into a "replacement era" where asset sustainability and reliability are at risk if not properly managed. Some of the infrastructure is over 100 years old and does not meet modern design standards for new development areas. Monitoring and assessing the physical condition and capacity of the infrastructure is a foundation for an asset management program to better maintain our assets, prolong life, and increase resiliency.

Climate Change: Changing temperature and rainfall patterns impact demand for water, with high-peak demands during dry stretches. Wet weather conditions and extreme rain events can cause storm water infiltration to the sanitary system, resulting in sewer back-ups and flooding. Extremely cold weather and freeze/thaw cycles can increase water main breaks, creating challenges to meet repair service levels.

Reducing Greenhouse Gases and Our Environmental Footprint: 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 WWTP 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 WWTP will pursue energy efficiency, cost control, and emissions reduction. Using 2019 as a baseline year, the WWTP has set both short and long-term targets to reduce energy consumption

and ultimately reach net zero GHG emissions, aligning with the City's Low Emissions Community Plan.

Measures are also being undertaken to reduce water leakages and conserve water through the Water Conservation Strategy. Saskatoon Water is updating long-term capital development plans to include the energy optimization goals, while working towards better water efficiency.

Regulatory Requirements: The provincial *Environmental Management & Protection Act,* it's relevant regulations, and our Permits to Operate impact the required processes and standards for the utilities. Further evolving federal and provincial regulations have the potential to impact drinking water quality standards and discharges to the river. Saskatoon Water and Water and Sewer will continue to monitor regulatory trends and opportunities to be a leader in protecting our watershed.

Inflow and Infiltration: Identifying and removing the amount of inflow and infiltration entering the sanitary sewer system will help to protect the environment, reduce sewer back-ups, and reduce costs for collection and treatment. Partial treatment of high flows, which are mostly rain or groundwater, will be considered as the WWTP reaches capacity.

Inadequate Space for Personnel, Materials, and Equipment: WWO's current facilities are not optimal for accommodating current and expected future staff, material, and equipment necessary to meet the needs of a growing city. The department has been improving communications with remote work sites and adapting existing spaces to meet requirements. The department will continue to make creative short-term adjustments and work towards suitable long-term replacement space.

Employee Retention: As a section, the majority of Water and Sewer's employees are unionized by CUPE Local No. 859, which provides opportunity for movement and growth within the corporation. Employee turnover can cause stress to individual groups because of the change in work group dynamics and the time and expenditures to train employees in new roles.

Meeting Approved Level of Service: Water and Sewer aims to reach their level of service of no more than 48 hours of water outage after a main break. This goal, combined with the new planned work program, is harder to reach with current resources.

Incomplete Integrated Asset Management Approach: Water and Sewer lacks an integrated asset management strategy to maintain and replace assets based on lowest life-cycle cost. Work will continue on the development of an Asset Management Strategy and Policy for linear water and sewer infrastructure, with an annual maintenance workplan, including labour, materials, equipment, and schedules that are integrated with the other sections. Establishing this approach is hindered by core technology system, such as GIS and SAP, not having two-way integration. Benchmarking data for Key Performance Indicators are expected to be defined to measure success.

Non-standard Equipment: WWO has a range of non-standard equipment that has created maintenance and training challenges. The department will continue to identify equipment needs, specifications and participate in procurement activities, with the objective of standardizing equipment where possible.

Incomplete Integrated Equipment Life Cycle Management Plan: WWO does not have a plan for managing equipment maintenance and replacement for lowest life-cycle costs. The department will continue efforts to develop a life-cycle management plan, including expansion, proactive maintenance, and optimized replacement plan. The department will also continue to enhance equipment training and maintenance programs and develop service agreements with service providers, where appropriate. This will be integrated into the service area asset management strategy.

9. CONCLUSION

The year 2024 continued to be transformational for the Water and Wastewater Utilities. Workplace policies and procedures were revised to maintain reliable, high-quality essential water services. Significant progress was made on capital projects and long-term planning, which will be vital for reliable water services, both now and in the future.

The Utilities' employees look forward to the challenges and the opportunities that the future presents, including the following areas of focus:

- Enhancing employee engagement and striving to meet all safety goals.
- Continuously improving operations to minimize our environmental impact through energy reduction initiatives and water conservation work, including process efficiency and water reuse.
- Executing long-term strategies and funding plans to keep up with growth and to maintain and replace aging infrastructure based on lowest life-cycle costs.
- Adapting to climate change impacts through mitigation of impacts and by reducing our overall environmental impact, such as with the quality of water returned to the river.

The delivery of essential water and wastewater services is dependent on the dedication and skills of our employees. Our competent team of plant operators, tradespersons, maintenance staff, engineers, technologists, technicians, and administrators play a crucial role. The continued guidance and support of our General Managers, City Manager, and City Council is appreciated.

10. APPENDICES

Appendix A: Abbreviations

AMI: Advanced Metering Infrastructure

CALA: Canadian Association for Laboratory Accreditation Inc.

CBOD: Carbonaceous Biochemical Oxygen Demand

CFU: Colony Forming Unit

City: City of Saskatoon

GHG: Greenhouse Gases

GIS: Geographic Information System

IEC: The International Electrotechnical Commission

ISO: The International Organization for Standardization

MLD: Million litres per day

MPN: Most Probable Number

NTU: Nephelometric Turbidity Units

PLC: Programmable logic controls

ROI: Return on Investment

TP: Total Phosphorous

WSA: Water Security Agency

WWO: Water and Waste Operations

WTP: Water Treatment Plant

WWTP: Wastewater Treatment Plant

Appendix B: Glossary

Backflow Prevention Device: A device installed to prevent liquids or solids from mixing with drinking water, whereby one or both become or may become contaminated or polluted. A backwater valve is a device that prevents sewage from backing up into basements.

Biosolids: Organic matter recycled from sewage.

Capital Reserve: Funding that is reserved for long-term infrastructure projects to be undertaken in the future.

Colony Forming Unit (CFU): A measure of viable bacterial cells.

Commercial customers: For this report, refers to all non-residential customers and includes retail, wholesale, industrial, and institutional customers.

Cross Connection Control Program: A cross connection is any link between the water supply and potentially contaminated sources. The Cross Connection Control Program ensures that proper backflow prevention devices are installed and tested to prevent foreign substances from entering the water distribution system.

Digester: One step of the wastewater treatment process used to decrease the amount of organic matter present.

Effluent: Treated water discharged back into the river.

Ferric: Iron-containing materials or compounds.

Grants-In-Lieu of Taxes: Money paid by the Water and Wastewater Utilities in place of taxes.

Infill (Development): Development of land within already developed areas.

Infiltration: Groundwater seeping into sanitary sewers through cracks and crevices, such as defective pipe joints and broken pipes.

Inflow: Water flowing into the sanitary sewer through large openings, such as cross connections and weeping tile.

Irrigation: Applying water to support plants growth and green spaces health, typically due to low amounts of rainfall.

Lift Station: Facility designed to move wastewater or storm water from lower to higher elevations with pumps.

Low-Flow Fixture: Fixtures that use water efficiently to reduce overall water usage.

Meter Shop Service Calls:

- Meter Checks: Meter verifications completed when meter recording information is deemed likely to be inaccurate (i.e. not recording or low or change in consumption).
- Cut-offs: Water service is turned off because of arrears, seasonal (irrigation), demolitions, renovations, etc.
- Reconnects: Water service is turned on seasonally, after payment is made on an arrears account, demolition or renovations are completed, etc.
- Repairs/Other: Work is completed to fix module wiring or modules, test meters, etc.
- Lock ups: Visits to sites where access to meters is not possible (homeowner away or not allowing access). A card is left instructing the homeowner to contact the Meter Shop for information and to arrange an appointment.
- Replacements: Old meters that are no longer working, are leaking, or require replacement due to updates in technology are replaced with new meters.
- New installations: Meters are installed in new buildings in order to complete the water service connection.

Nephelometric Turbidity Units (NTU): A measure of the amount of light that is passed through a sample. A high turbidity level may result from a variety of sources and can indicate the potential for pathogens and lower clarity.

PCSWMM: Computer software for wastewater, watershed, and storm water management modeling.

Potable: Safe to drink.

Procurement: The process of obtaining or purchasing.

Stabilization Reserve: Water utility revenues fluctuate due to rainfall and demand for irrigation. Annual operating surpluses, which are more likely during drier years, are allocated to the Stabilization Reserve that can be used in years with an operating deficit. The Stabilization Reserve is capped at 5% of the current year's budgeted metered revenue, and any additional surplus is allocated to the Capital Reserve(s).

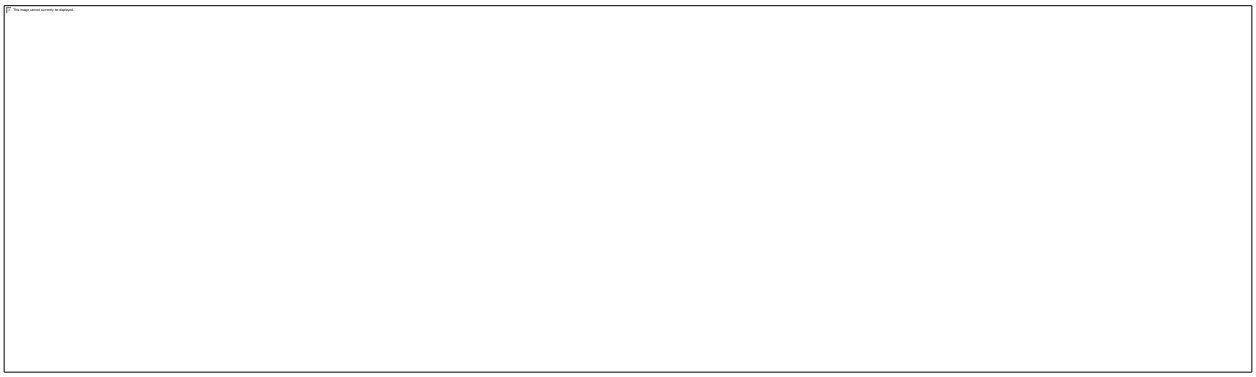
Turbidity: The cloudiness or haziness of a fluid caused by a large number of individual particles that are generally invisible to the naked eye.

WaterCAD: Computer software to analyze, design, and optimize water distribution systems.

XPSWMM: Computer software for storm water modeling, including hydrology, hydraulics, water quality, and surface flooding.

Appendix C: Understanding Your Residential Water-Based Utility Bill

The bill was simplified in 2019, and the details can be viewed on the City's website. The 2024 rate structure remained the same except for the elimination of the Temporary Flood Protection Charge.



Appendix C 1.10.1 - Sample Residential Water-Based Utility Bill (2024)

Water Service Charge: The fixed monthly charge for a 5/8-inch water meter is $13.51, and $20.27 for a 3/4-inch meter. The fee is prorated by the number of days in the month. A second water service charge is based on water usage (volumetric): $5.316 per 100 ft^3 for the first 600 ft^3, $5.993 per 100 ft^3 for the second 600 ft^3, and $7.890 per 100 ft^3 for over 1,200 ft^3. The water service charges are used to fund water utility operations and capital projects.

Sewer Service Charge: The fixed monthly sewer service charge is based on the size of the water meter and is the same amount as the fixed water service charge. The sewer volumetric charge is 46.31% of the water volumetric charge. Rates are set on a cost recovery basis and recognize that not all water returns to the sanitary sewer: $2.462 per 100 ft^3 for the first 600 ft^3, $2.775 per 100 ft^3 for the second 600 ft^3 and $3.654 per 100 ft^3 for over 1,200 ft^3. Sewer service charges fund wastewater operations and capital projects.

Residential Infrastructure: The fee is $4.111 per 100 ft^3 of water usage. This fee is used for the capital replacement and upgrade of the water distribution and wastewater collection systems. The Redevelopment Levy to increase capacity of existing infrastructure to accommodate infill developments and the Roadways Levy that funds remediation of roadway damage associated with the utilities are included in the charge.

Storm Water Management Charge: The monthly charge for residential properties is a fixed amount of $8.90 prorated by the number of days in the month. This fee is used to fund operations and capital projects for storm water and for stabilizing riverbank slumping.