

# Water and Wastewater Utilities and Storm Water Utility 2020 Annual Reports

## ISSUE

The 2020 Annual Reports for the Water and Wastewater Utilities, and the Storm Water Utility, highlight performance and activities and provide accountability for the funding that citizens entrust to the City of Saskatoon (City). The Water and Wastewater Utilities 2020 Annual Report is provided in Appendix 1, and the Storm Water Utility 2020 Annual Report is provided in Appendix 2.

## BACKGROUND

The Water and Wastewater Utilities and Storm Water Utility 2020 Annual Reports highlight the operations of the Utilities including our people, customers, infrastructure, work, environment, finances, and challenges.

## CURRENT STATUS

The Water and Wastewater Utilities deliver safe, reliable, and cost-effective water and wastewater services that meet and exceed health and environmental regulatory standards. The Storm Water Utility minimizes impacts of rain and snowmelt through operating an effective drainage network. The Saskatoon Water (SW) Department manages the Utilities including operating the Water and Wastewater Treatment Plants. Water and Waste Operations (WWO) Department maintains the linear infrastructure, and Technical Services Department provides asset preservation services. Several other departments including Roadways, Fleet and Support; Construction and Design; Finance; Information Technology; Communications and Public Engagement; Human Resources; and others support the Utilities.

## DISCUSSION/ANALYSIS

*Our People:* Since fall 2019, management team renewal included new directors at SW and WWO, and new managers at the Water and Wastewater Treatment Plants, Meter Shop, Engineering sections, and Storm Water Utility. As of December 2020, SW had 171 employees, WWO (Water and Sewer Section) had 115, and Technical Services had five employees working on water-related services. Fewer summer seasonal workers were hired in 2020 due to COVID-19 constraints. Safety is a high priority with a focus on eliminating workplace injuries; in 2020 SW and WWO (Water and Sewer Section) had seven lost-time incidents, down from ten in 2019.

*Our Customers:* The Water Treatment Plant supplies water to approximately 318,000 Saskatchewan residents including about 280,000 in Saskatoon and 38,000 customers outside of Saskatoon through SaskWater. Sanitary services are provided to water customers within the city. Storm water services are provided to almost 71,000 properties. Less than 4,000 industrial and commercial customers account for half of the Water and Wastewater revenues and 36% of Storm Water Management Charge revenues.

In 2020, treated water and wastewater volumes continued a four-year declining trend and were the lowest they have been in the last decade. Most of the 2020 decrease was the result of less commercial and industrial demand as businesses curtailed operations in response to COVID-19. Summer rainfall and temperature have substantial impacts on irrigation demand, with the summer of 2020 being slightly drier and warmer than average. The lower than expected water usage may reflect businesses and residents reducing discretionary spending on irrigation of green spaces. Overall residential water usage increased in 2020 as more people stayed at home rather than working outside the home, going to school, or travelling.

*Our Infrastructure:* The Utilities have assets with a replacement value of over \$10 billion which includes \$3.8 billion for the Water Treatment Plant, intake three reservoirs and water distribution infrastructure; \$3.8 billion for the Wastewater Treatment Plant and wastewater collection infrastructure; and \$2.6 billion for storm water assets including 29 wet and eight dry ponds and other drainage infrastructure.

Updates are progressing for Long-term Capital Development Plans for the Water Treatment Plant, Wastewater Treatment Plant, and the water distribution and wastewater collection infrastructure. The 2018-2019 State of Storm Water Infrastructure Report was completed in 2020. Work will continue on long-term capital and asset management plans in 2021 to ensure the City is well positioned to provide high quality, reliable and cost-effective future water services.

*Our Work:* In March 2020, operations were rapidly altered in response to the COVID-19 pandemic to limit health risks to employees and to minimize operational risks that could impact the reliability of essential water services. New safety policies and procedures were implemented for employees who needed to work on-site. Those who were not required to work onsite were provided with online access to facilitate productive work from home.

In 2020, the Wastewater Treatment Plant collaborated with the University of Saskatchewan (U of S) and the Saskatchewan Health Authority, in a pilot project to test for the COVID-19 virus in wastewater samples. The wastewater test results provided an early warning of trends in positive cases identified at COVID-19 testing centres and were provided to health officials for consideration in their decision making.

One mandatory water restriction was issued in 2020. Water quality was not impacted but unusually high sand loads from the South Saskatchewan River contributed to reduced output. Staff worked diligently to resolve the issue and the restriction was removed within six hours.

Fewer staff and additional procedures to limit the pandemic spread meant that less non-essential water and sewer maintenance was completed in 2020 compared to recent years. Saskatoon experienced two localized rainfall events with estimated return

periods of one in two years, with neither of these being significant enough to cause flooding.

Significant 2020 capital project highlights include the following:

Water

- Water Treatment Plant enclosure and security upgrades were completed including closure of Spadina Crescent, 11<sup>th</sup> Street West, and Avenue H access points;
- Water Treatment Plant transfer pumping and electrical upgrades were progressed (2024 completion expected);
- Water Treatment North East Sector reservoir and pump system design started for the Evergreen neighborhood (2023 completion expected);
- Water Treatment Plant Acadia pump replacement with two of three new pumps installed (2021 completion expected for third pump); and
- Installation of 6,908 Advanced Metering Infrastructure (AMI) communication modules for real time water usage readings, bringing the total to 76.3% of water meters updated since 2016 (95% completion expected by 2022).

Wastewater

- Wastewater Treatment Plant installation of a sixth Primary Effluent Pump and related ancillary works (2021 completion expected);
- Marquis Liquid Waste Haulers Station commissioning continued (2021 completion expected); and
- Wastewater Treatment Plant fourth digester and heating system upgrades were tendered (2022 completion expected).

Storm Water

- Flood Control Strategy Project 1 detailed design and tendering of W.W. Ashley District Park dry pond (2021 completion expected), with 2020 opening of Aden Bowman Collegiate multi-purpose sports field for community use;
- Flood Control Strategy Project 2 preliminary design of Churchill Park Dry Pond (2022 construction expected);
- Montgomery Place Drainage Strategy Project 1 (Caen Street area) detailed design and community engagement (2021 Project 1 construction expected pending successful funding decision from the Investing in Canada Infrastructure Program);
- East Riverbank spring reconnaissance and instrumentation monitoring for slope risk sites; and
- A Crime Prevention Through Environmental Design (CPTED) review of the Nutana Slope area lane, with several recommendations implemented including installing lockable gates to replace road closed signs.

*Our Environment:* Protecting the river and its surrounding watershed is vital to the long-term sustainability of our water supply. The Wastewater Treatment Plant consistently met or exceeded all regulatory limits for effluent discharged to the river under the Water Security Agency's Permit to Operate a Sewage Works. An internal energy management study was initiated to identify energy saving opportunities throughout the Utilities' operations. The Storm Water Utility continued partnerships with the U of S to research

storm water quality. A two-year research project in collaboration with the U of S and Concordia University was completed to assess the impacts of climate change risks and implications for Saskatoon's storm water infrastructure design standards.

*Our Finances:* Average monthly residential water-related utility bills of \$139.77 in 2020 remain below average when compared to other major prairie cities. The Utilities are fully funded through user-pay fees based on fixed meter charges and volumetric water usage. The Storm Water Utility is funded through the Storm Water Management Charge based on property size and surface imperviousness to approximate run-off generated. The temporary Flood Protection Program fee is funding the Flood Control Strategy from 2019 to 2021, and will be phased out on December 31, 2021.

In 2020, the Utilities collected \$181.3 million in revenues and incurred \$175.2 million in expenses resulting in a net surplus of \$6.1 million. The Water Utility accounted for over half, 53%, Wastewater for 40%, and Storm Water for 7% of total revenues. Compared to 2019, total water-related revenues in 2020 increased by 4.9% due to rate increases but were less than budgeted because of lower water demand.

Compared to 2019, the Utilities' total expenses increased by 0.14%, with increases in infrastructure levies, the Return on Investment (ROI) paid to the City, and provisions for Storm Water capital. In 2020, the Utilities contributed \$29.4 million to the City for ROI and grants-in-lieu of taxes, which was a 10.8% increase from 2019. Most other operating and maintenance related expenses decreased relative to 2019.

In 2020, 53.1% (\$96.3 million) of total revenues was allocated to capital and infrastructure reserves to fund long-term Water (\$48.3 million), Wastewater (\$38.6 million), and Storm Water (\$9.4 million) asset replacements, expansions, and enhancements needed to meet future expected service levels and regulatory requirements.

The Utilities' operating surpluses of \$6.1 million for Water (\$2.1 million), Wastewater (\$2.4 million) and Storm Water (\$1.6 million) were allocated to stabilization reserves to pay for future revenue shortfalls or unexpected expenses. At the end of 2020, the Water and Wastewater Revenue Stabilization Reserve balance was \$7.3 million. The Storm Water Stabilization Reserve balance was at its maximum of \$3.1 million after a transfer of \$1.3 million to the Storm Water Capital Reserve.

As of December 31, 2020, approximately \$151.9 million was allocated but not yet spent on active capital projects for Water (\$65.4 million), Wastewater (\$47.4 million), Water and Sewer Asset Preservation (\$24.1 million), and Storm Water (\$14.9 million). End-of-year Capital and Replacement Reserve balances totalled \$26.3 million for Water (\$16.7 million), Wastewater (\$4.5 million), Water and Sewer Infrastructure (\$0.6 million), and Storm Water (\$4.5 million).

*Our Challenges:* Some ongoing challenges that the Utilities are addressing include the following:

- Continuously improving operations to utilize resources as efficiently and effectively as possible to deliver the water, wastewater, and storm water service levels that citizens expect;
- Completing long-term strategies with 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 and optimizing energy usage to reduce greenhouse gases; and
- Minimizing risks to reliable water services during a pandemic through continued adherence to policies, procedures and practices that prevent virus spreading.

### **IMPLICATIONS**

There are no privacy, legal, social, or environmental implications identified.

### **NEXT STEPS**

The Storm Water and Water and Wastewater Utility 2020 Annual Reports will be posted on the City's website and shared with applicable staff. Achievements and rehabilitation plans are expected to be part of a water distribution, sanitary sewer, and storm sewer communication in 2021.

### **APPENDICES**

1. Water and Wastewater Utility 2020 Annual Report
2. Storm Water Utility 2020 Annual Report

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# **WATER AND WASTEWATER UTILITIES**

## **2020 ANNUAL REPORT**



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## MESSAGE FROM THE DIRECTORS

The Water and Wastewater Utilities fund a complex urban water ecosystem 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 and maintenance, and asset preservation falls within the following three departments:

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

Management and staff from the responsible departments are committed to providing exceptional quality water and wastewater services in the most reliable and cost-efficient way for the citizens of Saskatoon. We are pleased to present our results in the Water and Wastewater Utilities 2020 Annual Report on behalf of our departments.

The report describes our contributions to achieving the City of Saskatoon's Strategic Plan. We take great pride in receiving one of the highest citizen satisfaction ratings of City service for the quality of our water. Several initiatives have been completed and more are underway to further enhance service to citizens, increase efficiencies, reduce costs, and strengthen our environmental leadership.

Our financial statements show responsible stewardship of the resources that Saskatoon citizens have entrusted to us. We continue to provide excellent value to our citizens 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.

The departments have been focused on addressing growing demands, changing expectations, regulatory changes, and aging infrastructure for water-related services.

In March of 2020 the water and wastewater utilities, faced the unprecedented challenge of COVID-19. The supply of potable water and removal of wastewater are essential to quality of life and have a key role in fighting a pandemic. The Utility directors were extremely proud of their staff for rising to this challenge, and contributing to fight against COVID-19, especially participating in screening wastewater for COVID-19 to give an accurate picture of community infections which helped the Saskatchewan Health Authority (SHA) make informed decisions in Saskatoon.

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

## EXECUTIVE SUMMARY

The Water and Wastewater Utilities fund essential services that contribute to our city's 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 76,000 residential and commercial water meters. The Water Treatment Plant supplies water to approximately 318,000 Saskatchewan residents including about 280,000 in Saskatoon and approximately 38,000 customers outside of Saskatoon through SaskWater. Less than 4,000 commercial customers account for half of the Utilities' revenues.

In 2020, treated water and wastewater volumes continued a four-year declining trend and were the lowest they have been in the last decade. Most of the 2020 decrease was the result of less commercial and industrial demand as businesses curtailed operations in response to COVID-19. Summer rainfall and temperature also have substantial impacts on the demand for irrigation, with the summer of 2020 being slightly drier and warmer than average. The lower than expected water used during the summer may reflect businesses and residents cutting back on discretionary spending to keep lawns green. Citizens are increasingly switching to low-flow appliances and reducing irrigation due to the water block pricing structure and conservation awareness. However, residential water usage increased in 2020 as more people stayed at home rather than working or working outside the home, going to school, or travelling.

Water services are performed by the Saskatoon Water Department, the Water & Sewer Section of the Water & Waste Operations Department, and some staff in the Technical Services Department. Approximately 317 staff are employed through these three departments to

- Operate and maintain the Water Treatment Plant, three reservoirs and pump stations, the Wastewater Treatment Plant, 26 lift stations, the Meter Shop, and underground water and wastewater infrastructure;
- Provide engineering and planning services; and
- Manage asset preservation for underground water and wastewater infrastructure.

The year 2020 was one of transformational change for Saskatoon Water and Water and Waste Operations, with new directors in each department, and manager changes in all five of Saskatoon Water's sections between fall 2019 and spring 2020. The new leadership team brought fresh approaches and also faced the challenges of adapting to the COVID-19 pandemic. In March 2020, operations were rapidly altered to limit pandemic health risks to citizens and employees, as well as minimize operational risks to the reliability and quality of essential water services. New safety policies and procedures were implemented for employees who needed to work on-site with modified shifts. Employees who were not required to work onsite were provided with online access to facilitate productive work from home. Safety continued to be a high priority.

In 2020, the Wastewater Treatment Plant collaborated with the University of Saskatchewan (U of S) and the Saskatchewan Health Authority (SHA) in a pilot project to test for the COVID-19 virus in wastewater samples. The wastewater test results provided an early warning of trends in positive cases identified at COVID testing centres and were provided to health officials for consideration in their planning decisions.

One mandatory water restriction was issued in 2020. Water quality was not impacted but unusually high sand loads from the river contributed to reduced output. Staff worked diligently to resolve the issue and the restriction was removed within six hours.

Fewer Water and Sewer summer seasonal workers were hired in 2020 due to COVID-19 and social distancing requirements. Fewer staff and additional procedures to limit the pandemic spread meant that less non-essential water and sewer maintenance was completed in 2020 than in recent previous years.

Average monthly residential water-related utility bills of \$139.77 in 2020 remain below average when compared to other major prairie cities. In 2020, the Water and Wastewater Utilities collected \$171.2 million in revenues and incurred \$166.7 million in expenses resulting in a \$4.5 million surplus. Compared to 2019, total revenues in 2020 increased by 4.0% due to rate increases but were less than forecast because of lower volumes. Expenses decreased by 0.4% due to lower operational costs which were offset by increases in infrastructure levies and the Return on Investment (ROI) paid to the City. The Utilities contributed \$29.4 million to the City for ROI and grants-in-lieu of taxes.

In 2020, 51.9% of total revenues, or \$88.9 million, was allocated to capital to fund longer-term, water-related infrastructure projects. In 2020, the Utilities funded 84 active capital projects valued at \$471.0 million. Significant 2020 capital project highlights include the following:

- Water Treatment Plant enclosure and security upgrades
- Water Treatment North East Sector Reservoir
- Water Treatment Plant transfer pumping and electrical upgrades
- Water Treatment Plant Acadia Pump replacement
- Wastewater Treatment Plant digester and heating upgrades
- 13.2 km of sanitary sewer main lined
- 4.6 km of water main replacement

In 2020, 6,908 Advanced Metering Infrastructure (AMI) communication modules were installed to offer real time water usage readings for customers, bringing the total to 76.3% of all water meters updated since the program started in 2016. The program is expected to reach 95% completion by the end of 2022.

Progress was made in 2020 in updating Long-term Capital Development Plans for the Water Treatment Plant, Wastewater Treatment Plant, and linear distribution and collection infrastructure. Work will continue on these plans in 2021 to ensure Saskatoon Water is well positioned to provide high quality, reliable and cost-effective water services in the future.

## 1.0 OVERVIEW

### 1.1 Introduction

The Water and Wastewater Utilities fund the Saskatoon Water Department, Water & Sewer Section of the Water & Waste Operations Department, and portions of the Technical Services Department which are collectively responsible for the planning, design, operation, maintenance, and capital for all water and wastewater services for existing and future citizens and businesses. The Utilities also fund a portion of Corporate Revenue for customer billing, meter reading, and collection services. The Utilities have assets with a replacement value estimated at over \$7.6 billion (2017 assessment).

Abbreviations are listed in Appendix One, a Glossary of key definitions for the report can be found in Appendix Two.

**Saskatoon Water** consists of five sections. The following summarizes the responsibilities of each of these sections.



**The Water Treatment Plant (WTP)** supplies all consumers with safe and reliable, high-quality drinking water that meet high provincial and federal regulatory standards. Core functions include operating and maintaining the South Saskatchewan River Raw Water Intake, the WTP, and three potable water storage reservoirs with a capacity of 114 million litres.

**The Wastewater Treatment Plant (WWTP)** ensures that wastewater is treated to meet high provincial and federal regulatory standards before being returned to the South Saskatchewan River. The wastewater's system includes the WWTP, 26 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.





**The Meter Shop** is responsible for the purchase, installation, testing, repair, and replacement of water meters; the installation 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 of Saskatoon's (City) potable water.



**Engineering & 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 sewer and rain gauge monitors are operated and maintained by the system modeling group to assist with water-related planning and design activities. Engineering & Planning also manages the Storm Water Utility and provides storm water engineering expertise. The section monitors and mitigates damage to public property from riverbank settlement and instability due to high ground water levels. The 2020 Storm Water Utility Annual Report provides more information on storm water operations.

**Engineering Services** is a professional and technically 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.



**Water & Sewer** ensures the maintenance, repair, and minor replacement of underground infrastructure. Water & Sewer is responsible to operate, maintain, and inspect the water distribution, sanitary sewer collection, and storm water collection systems, which have a replacement value in excess of \$7.6 billion. Lined up end-to-end, the underground pipes (not including service connections) that make up Saskatoon's water distribution, sanitary sewer collection, and storm water collection systems total over 3,200 km.



Water & Sewer material handling sites are separated into three locations: The Downtown Yards, Nicholson Yards, and West Saskatoon Yards (new in 2020). Each location houses resources for the Water & 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.

**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 or safety of those around.

**Technical Services** consist of three sections with the Asset Preservation section 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 service and funding for annual maintenance and rehabilitation programs. Construction & Design provides construction engineering services to deliver the required capital projects to upgrade the water and sewer assets.



## 1.2 Our Response to COVID-19 Pandemic

In March 2020 operations were quickly adapted in response to the COVID-19 pandemic to minimize operational risks for the reliability and quality of water services and to minimize health risks for employees and citizens. Some highlights of new policies and procedures implemented to adapt include the following:

- Reducing the number of essential workers per shift and increasing the number of shifts at the Water and Wastewater Treatment Plants;
- Daily COVID-19 questionnaires for all onsite employees, contractors and visitors;
- Social distancing standards including limiting the number of employees to one per vehicle for required travel;
- Distributing personal protective equipment (PPE) to include approved masks;
- Enhanced cleaning processes;
- Providing online access to files to facilitate productive work from home for all employees who were not required to work onsite;
- Holding online rather than in-person meetings among staff and with stakeholders;
- Limiting non-essential personal contact through suspending plant tours, in-person engagement, and other events;
- Fewer Water and Sewer seasonal staff hired due to workplace social distancing constraints;
- Reducing spending on discretionary maintenance, travel, employee appreciation, training, etc.

While there were adaptation challenges, many positive changes increased efficiencies and productivity and will be maintained in the future.

## 1.3 Strategic Linkages

The City's [Strategic Plan 2013-2023](#) provides the direction that guides the activities of the Saskatoon Water and Wastewater Utilities. The following section outlines our Mission, Vision, and linkages to the Corporate Strategic Goals, Leadership Commitments, and Values.

### Our Mission

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

### Our Vision

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

The Water & Sewer Section falls under the Water & Waste Operations Department. Their mandate is to provide delivery of potable water, removal of waste and storm water, and collection of waste materials. These include operations, maintenance, and emergency

response for the water distribution, and storm and wastewater collection systems. Municipal Engineering Services (Technical Services) supports Water & Sewer through program design, contract management, and Continuous Improvement initiatives.

## Our Strategic Goals

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

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

*Asset and Financial Sustainability:* Implement capital preservation and expansion plans that provide the most cost-effective, water-related infrastructure for current and future citizens and businesses.

*Environmental Leadership:* Implement leading-edge innovations for environmentally responsible water-related infrastructure and services.

*Sustainable Growth:* Work closely with other departments to provide efficient and resilient designs for water and wastewater infrastructure for new developments.

*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.

## Our Leadership Commitments

Our employees support leadership commitments in our day-to-day work:

- Reliable and Responsible Service
- Strong Management and Fiscal Responsibility
- Effective Communication, Openness, and Accountability
- Innovation and Creativity

## Our Corporate Values

**Trust makes us Stronger:** We build trust with citizens and colleagues by providing accurate technical information, analysis, and responses in a timely manner.

**Act and Communicate with Integrity:** We lead by example, making the best decisions and striving to work beyond the scope of the position.

**Respect one Another:** We build on each other's strengths; respectfully acknowledging individual beliefs.



**People Matter:** In the water professions, we place the protection of the public and our staff as our highest priority.

**Courage to move Forward:** We take smart risks, thinking through challenges, suggesting new approaches, and embracing change to enhance our level of service.

**Safety in all we do:** We put safety at the forefront of all decision making and never compromise on the safety or well-being of ourselves, co-workers or the public.

## 2.0 OUR CUSTOMERS

### 2.1 Number of Customers

In 2020, water treatment and distribution, and wastewater collection and treatment services were provided to approximately 279,900 residents and to about 3,900 industrial, commercial and institutional (based on water meters) customers in Saskatoon. The Water Utility 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.

In 2020, Saskatoon Water provided water services to approximately 75,800 residential and commercial water meters. 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.

### 2.2 Water Treatment Plant Volumes

Based on customer meter readings, 34.0 million cubic meters of water were sold in 2020, which is the lowest volume in the last ten years. Although the population has grown by 21.5% since 2011, demand has decreased. Decreasing demand is influenced by a generally declining trend in consumption per capita due to more low-flow faucets, toilets and washing machines; the water rate (pricing) structure; and an increased water conservation awareness. However, per capita residential water volumes increased by 3.4% in 2020 relative to 2019, which was impacted by the significant increase in the time that citizens spent at home due to COVID-19 rather than travelling, working outside the home, or going to school.

The increases in residential usage in 2020, however, did not offset the decreased demand by commercial and industrial users as many businesses reduced their operations in response to COVID-19. Summer rainfall and temperature also have substantial impacts on the demand for irrigation, with the summer of 2020 being slightly drier and warmer than average - conditions which would normally see higher water usage to keep lawns green. The lower than expected water usage during hot dry summer days may reflect businesses and residents cutting back on discretionary spending.

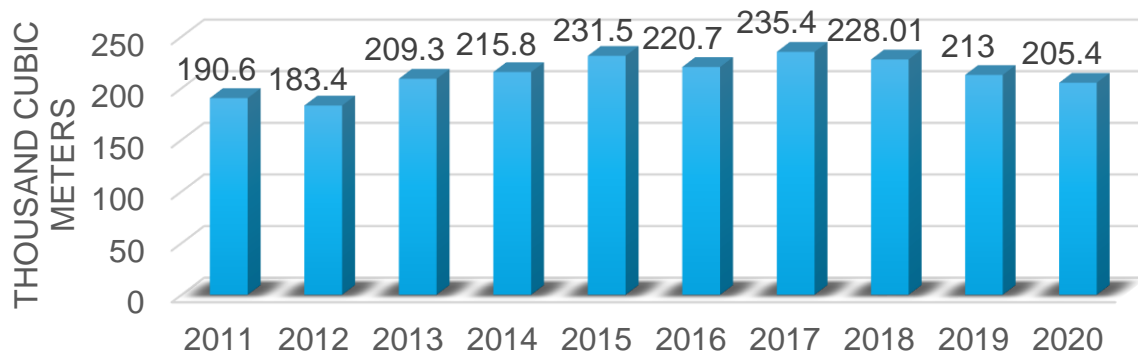
## WATER TREATMENT PLANT WATER PUMPED AND SALES VOLUME (MILLION CUBIC METERS)



The chart above compares the annual volume of treated water pumped from the WTP into the distribution system and the volume of water sold (the pumpage was estimated from 2011 to 2013). In 2020, unmetered water was 15.4% of total water pumpage, which was similar to 2019. 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

## MAXIMUM DAILY PUMPAGE (THOUSAND CUBIC METERS)



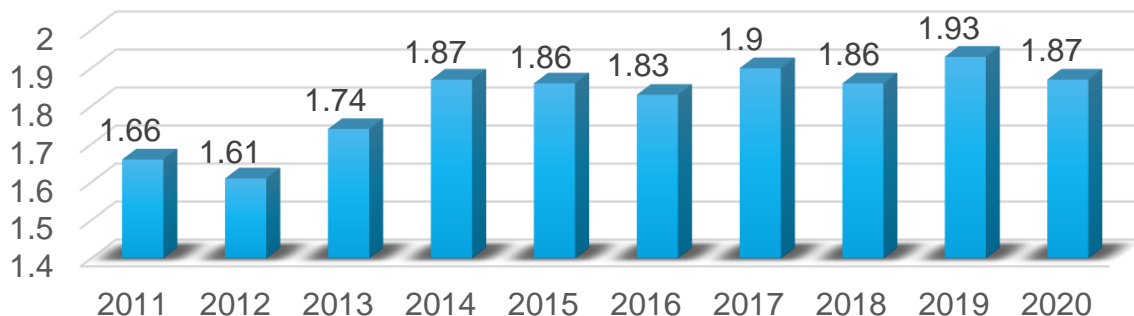
Maintenance and investment in the water distribution system and the new water audit program, introduced in 2018, will reduce water loss and lower water treatment operating costs.

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. The large volatility in the maximum daily demand is mostly due to weather conditions and population growth. Conservation initiatives, including residential rates that increase based on volume, have helped to mitigate maximum daily pumpage, even with population growth.

The chart above 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 2020, the maximum day pumpage to average day pumpage ratio of 1.87 was higher than the ten-year average of 1.81. Water usage patterns were generally lower than expected based on the temperature and rainfall that was seen, and due to the COVID-19 pandemic. The maximum day pumpage ratio is used for long-term demand forecasting; however, due to its volatility, it is difficult to provide accurate forecasts.

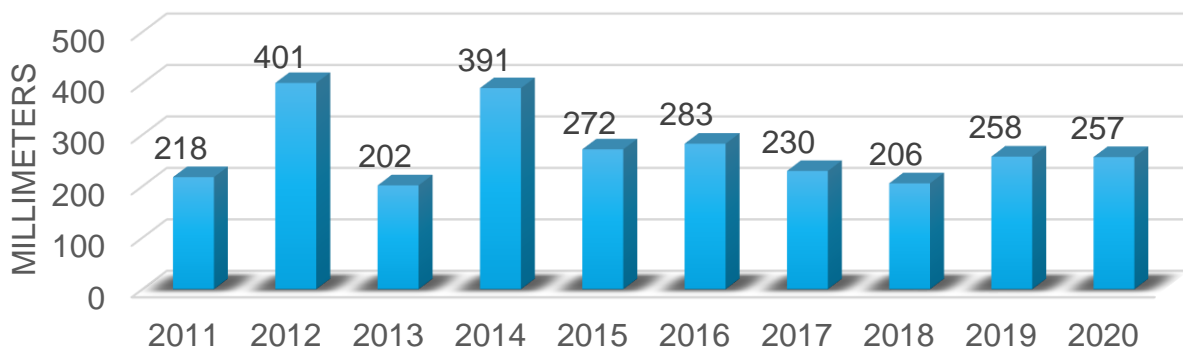
## MAXIMUM DAY PUMPAGE TO AVERAGE DAY PUMPAGE RATIO



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.

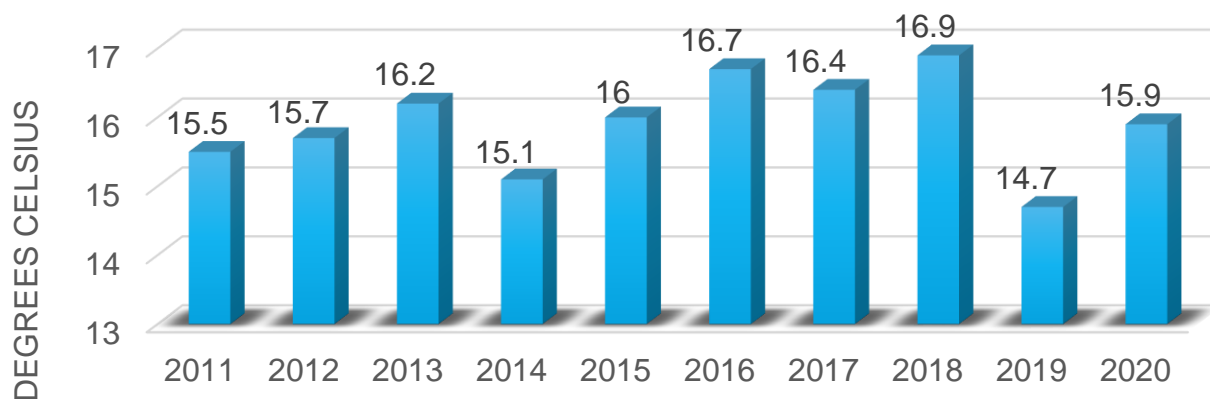
*Rainfall and Temperature:* Summer rainfall and temperatures can help explain some variation in annual water demand. In 2020, Saskatoon recorded 257 mm of rainfall, which is lower than the last ten-year average of 272 mm and the historical average of 264 mm.

### SASKATOON ANNUAL RAINFALL (APRIL TO SEPTEMBER) (MM)



Average summer (May to August) temperatures in 2020 averaging 15.9° C were similar to the last ten-year average and 0.1° C warmer than historical summer averages.

### SASKATOON SEASONAL MEAN TEMPERATURE (MAY TO AUGUST)

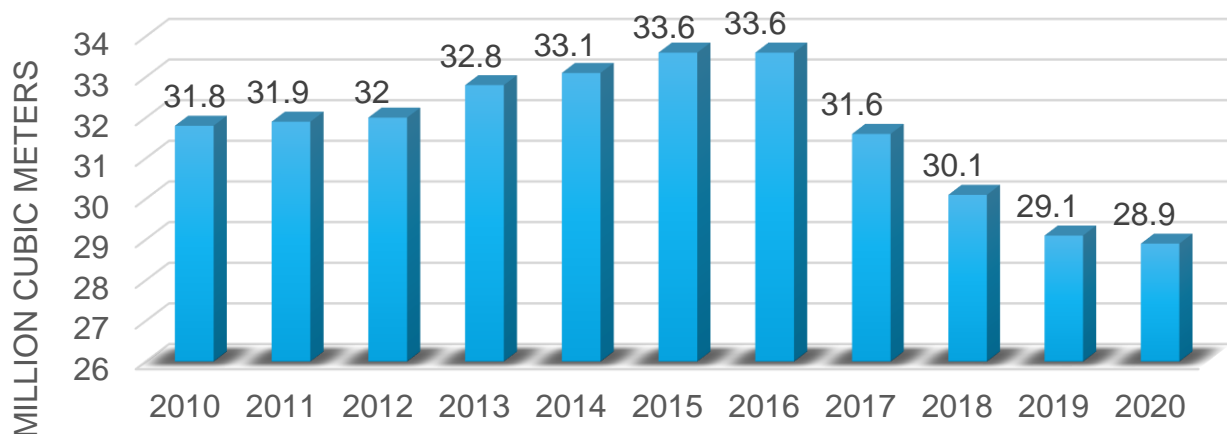


## 2.3 Wastewater Treatment Plant Volumes

In 2020, WWTP effluent was at its lowest level in the last decade and was 8.8% lower than the ten-year average of 31.7 million cubic meters. Volumes have decreased significantly over the last four 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 inflow and infiltration reducing the demand on WWTP equipment.

### WASTEWATER TREATMENT PLANT EFFLUENT FLOW (MILLION CUBIC METERS)

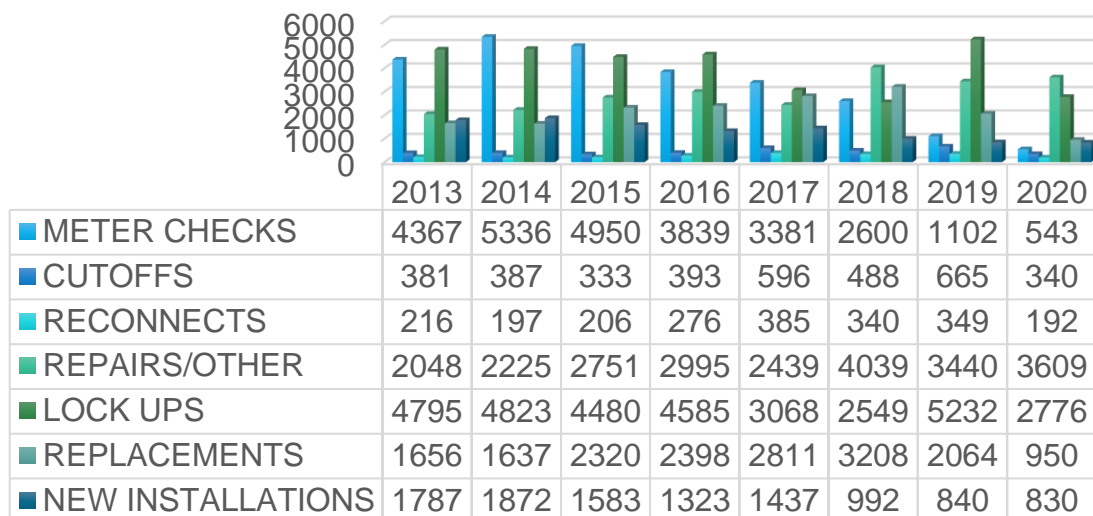


\*2011 was estimated due to missing flow data. The monitoring instrumentation was replaced.

## 2.4 Meter Shop Customers

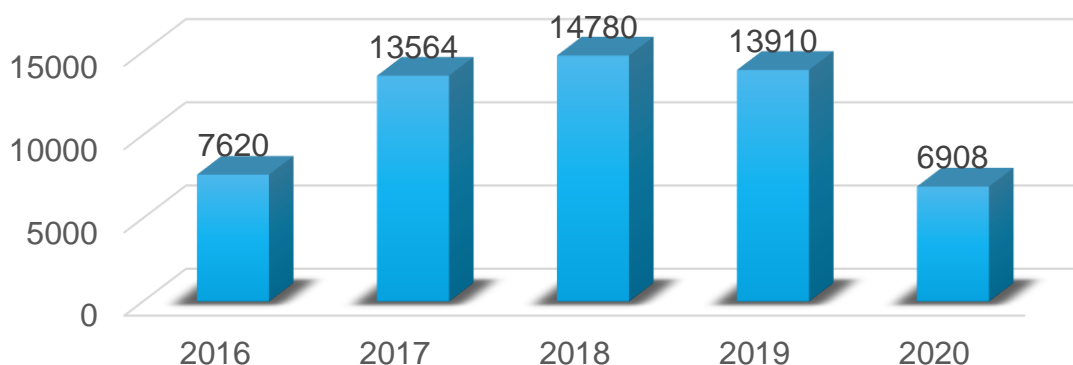
In 2020, the Meter Shop undertook 9,240 total jobs. Some of the 33% decrease in jobs undertaken compared to 2019 was due to the COVID-19 response. See the below graph for a breakdown of the total jobs, which result from work orders generated by Corporate Revenue to check malfunctioning meters or for cut-offs and reconnects. For job definitions, see Meter Shop Service Calls in Appendix Two: Glossary.

## METER SHOP SERVICE CALLS



In 2020, 6,908 AMI communication modules were installed, totaling 57,854 since the program started in 2016. This represents 76.3% of the 75,812 total water meters within Saskatoon. Most AMI installations require that installers enter homes or businesses to access water meters. AMI installations in 2020 were approximately one half of the previous three-year average because installations were suspended in March and resumed at lower levels in response to COVID-19. The AMI program is expected to reach 95% completion by the end of 2022.

## INSTALLATION OF AMI COMMUNICATION MODULES

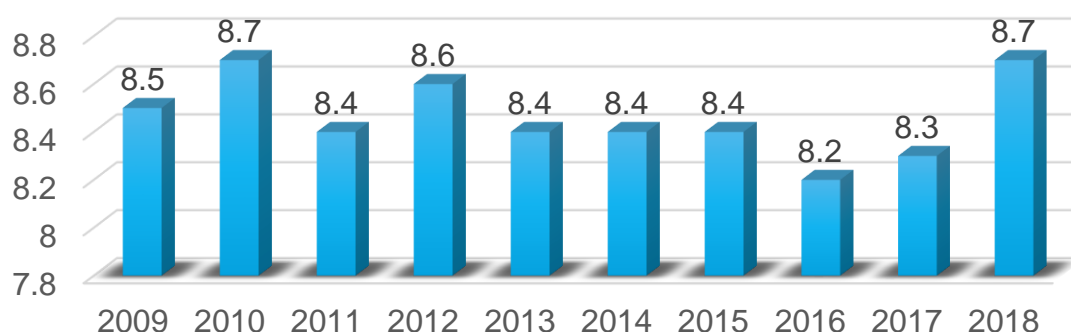


Backflow prevention devices are important in reducing the risk of contaminants from entering the City's drinking water system. Saskatoon Water's Cross Connection Control Inspectors work with commercial and industrial water users to ensure proper backflow prevention devices are installed and tested annually. In 2020, 406 new backflow prevention devices were installed, with a total of 9,842 devices being active as of December 31, 2020. In 2020, 90.0% of the devices were tested, and of those tested, 97.0% passed.

## 2.5 Customer Satisfaction

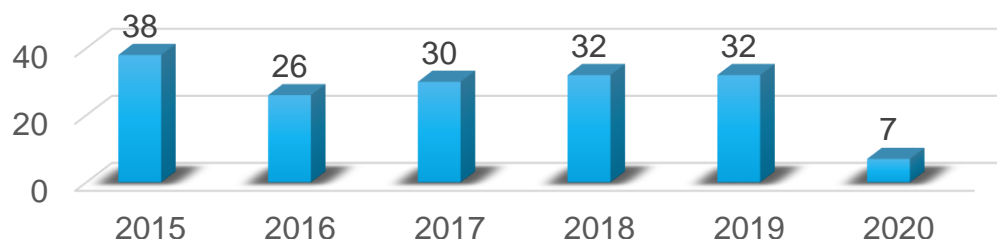
A citizen satisfaction survey was not undertaken in 2019 or 2020 so the 2018 Citizen Satisfaction & Performance Survey was used for this report. Saskatoon citizens were asked to rate services provided by the City on a 10-point scale where a score of ten means “excellent” and five means “average”. In 2018, the average citizen satisfaction for quality of drinking water was 8.5 and speed of repair of water main breaks was 7.5, both being in the top three highest rated services. Water quality has consistently received the highest or second highest Saskatoon citizen satisfaction rating of all civic services. Biannual surveys are expected to resume in spring 2021.

**CITIZEN SATISFACTION WITH WATER QUALITY  
(RATING OUT OF 10)**



## 2.6 Citizen Calls

**NUMBER OF CITIZEN COMPLAINTS ABOUT WATER  
QUALITY THAT REQUIRE ACTION**



In 2020, citizen calls resulted in lab personnel making seven on-site visits to conduct water-quality testing for bacteria and inorganic material to ensure safe, high-quality water is maintained. Two calls regarding WWTP odour were received in 2020. The Customer Care Centre handled concerns regarding odour near the Nutana Lift station area (Poplar Crescent and Idylwyld Drive) and provided information to about 12 households about Saskatoon Water’s pilot project to address the issue. The Care Centre received approximately 70 complaints related to odours from various sanitary sewer mains across the City, and approximately 150 reports of sanitary sewer mains surcharging, blocked or running high at various locations.



## 3.0 OUR PEOPLE

### 3.1 Number of Employees

Saskatoon Water had 171 employees as of December 2020, an increase of five from 2019. The graph shows the distribution in major areas. (Engineering includes Engineering Services and Engineering & Planning sections. Director and support staff are included in the Water Treatment Plant.)

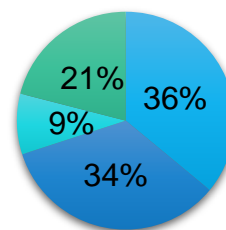
At its peak in July, the Water & Sewer Section had 141 employees and as of December 31 had 115. Technical Services had five staff.

### 3.2 Representative Workforce

Saskatoon Water continues to participate in diversity programs with Human Resources and other organizations to increase awareness among under-represented groups of career opportunities with Saskatoon Water.

Relative to goals set in 2014 by the Saskatchewan Human Rights Commission (SHRC) and adopted as corporate targets by the City in 2016, Saskatoon Water had a higher proportion of self-declared visibility minority employees and lower proportions of employees who self-declared as Aboriginal, female, or with a disability as of December 2020. Water & Waste Operations had a higher proportion of employees self-declared as Indigenous background and significantly lower proportions of employees who self-declared as female or with a disability as of December 2020.

### Employee Distribution within Saskatoon Water



- Water Treatment Plant
- Wastewater Treatment Plant
- Plant Meter Shop
- Engineering

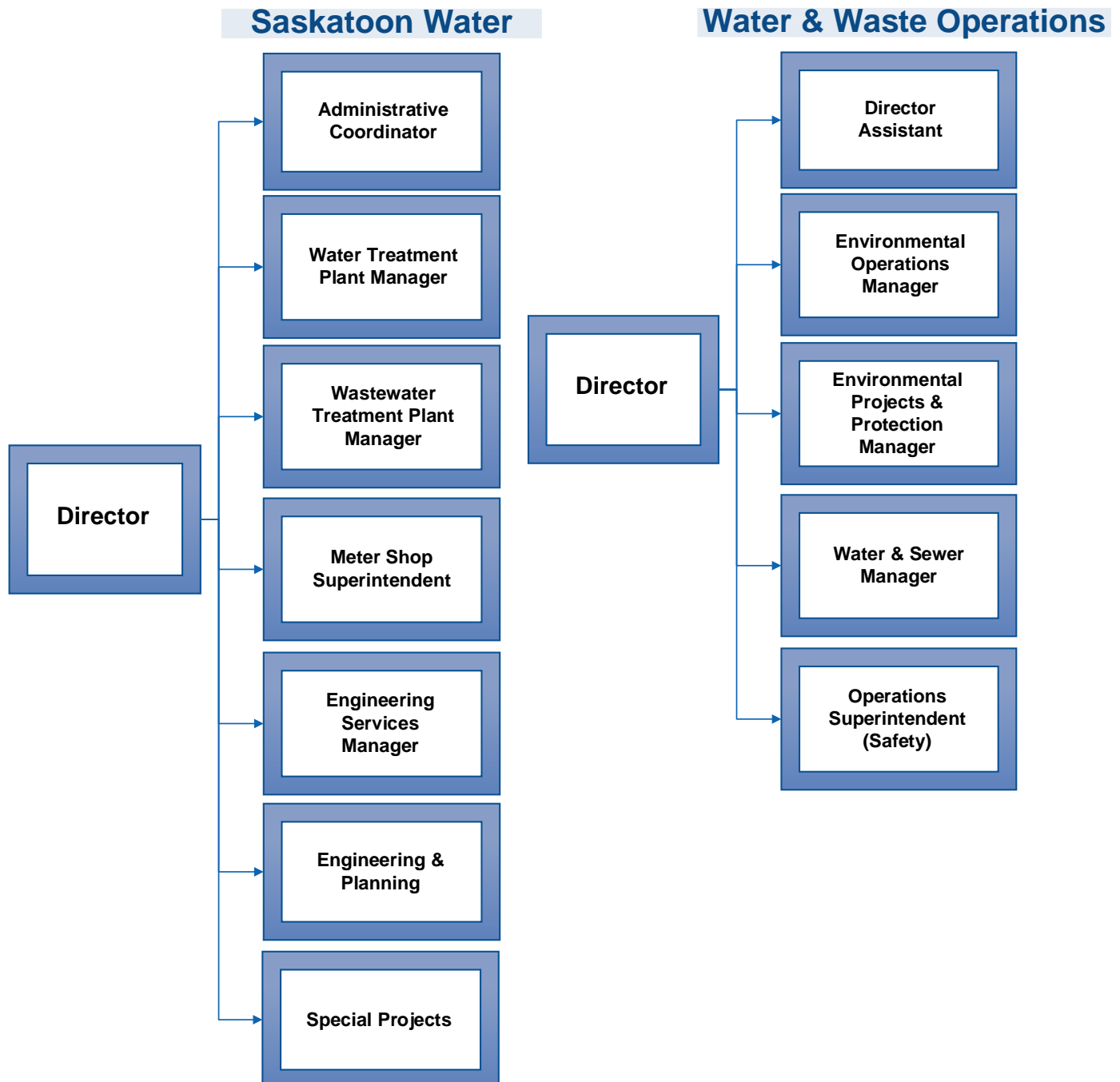


Percentage of Employees Self-Declared as an Equity Group Member December 2020			
Equity Group	Saskatoon Water	Water & Waste Operations	City Target (2016)
Self-Declared as Indigenous Ancestry	4.7%	19.0%	14.0%
Self-Declared as Visible Minority	17.0%	10.3%	11.0%
Self-Declared as Person with Disability	2.3%	1.7%	12.4%
Self-Declared as Female	19.9%	1.7%	46.0%



### 3.3 Organizational Charts

The following organizational charts provide a high-level overview of how Saskatoon Water and Water & Waste Operations are organized and key positions in 2020.

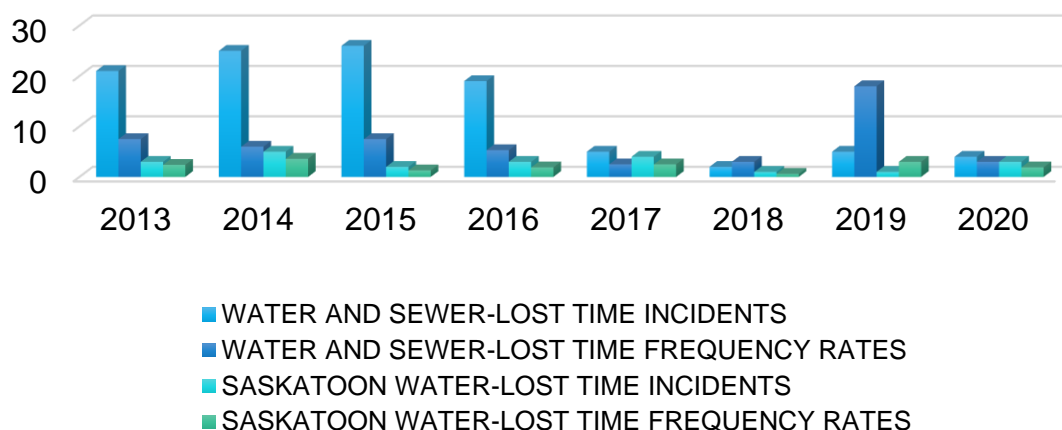


### 3.4 Employee Safety

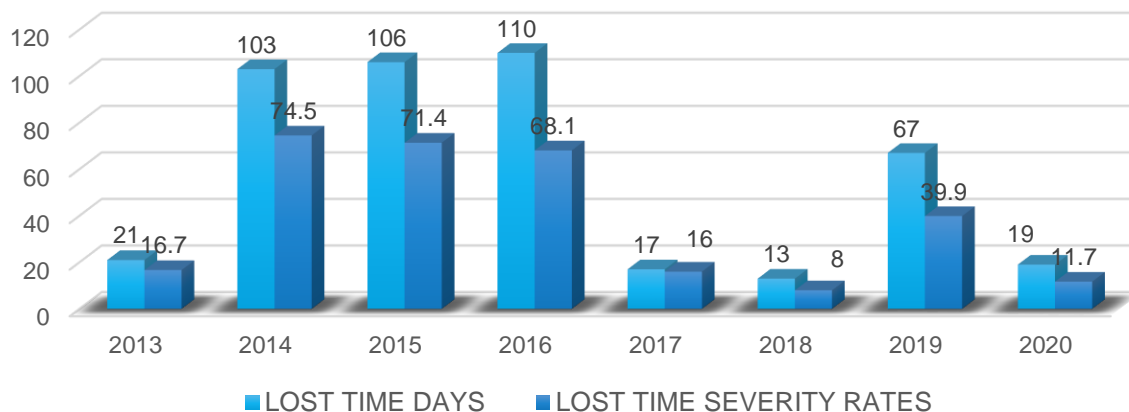
Management and staff place a strong emphasis on safety in the workplace to strive to meet the corporate target of zero lost-time injuries. Various safety initiatives have been implemented by the departments over the last few years. The Health Management and Safety Program (HMSP) and Disability Assistance Program supports employees from the first day of injury or illness to return to their pre-injury job or an accommodation.

In 2020, Saskatoon Water experienced three lost-time incidents, compared to five in 2019, resulting in a frequency rate of 11.7. The number of lost time days in 2020 due to injury was 19, down from 67 in 2019. Injury severity was rated 11.7, which was down significantly from 2019. In 2020, Water & Sewer experienced four lost-time incidents, compared to five in 2019, resulting in a lost-time frequency rate of 3.0. Technical Services had no lost-time incidents.

#### SASKATOON WATER/WATER AND SEWER LOST TIME INCIDENTS AND FREQUENCY RATES



#### SASKATOON WATER DEPARTMENT LOST TIME DAYS AND SEVERITY RATE



A health and safety audit conducted in late 2019 has informed Saskatoon Water's safety strategy with a goal of eliminating workplace incidents and injuries. Safety accountability expectations for 2020 were clearly specified by the Saskatoon Water Director to all Section Managers through individual "Safety Accountability Plan" letters, and safety discussions were a key part of all regular Saskatoon Water manager meetings. The Dupont Bradley Curve was introduced, and employees were inspired to work towards an "Interdependent" safety culture, looking out for each other's safety and encouraging safe work practices among team members at all times (See Appendix One).

Other ongoing initiatives being implemented to reach the target goal of zero lost time and zero incidents include the following:

- Setting clear targets for specific sections.
- Revitalizing staff engagement and having senior managers more engaged with front line staff.
- Continuing hazard identification, assessment, and control through the ongoing development and implementation of Job Safety Analyses, Standard Operating Procedures for critical tasks, and field level hazard identification procedures (tailgate/site hazard assessment).
- Continuation of the hearing conservation program.
- Entering all high and medium risk safety documents into the Document Control System.
- Developing Field Access Plans for all safety, policy, and training records.
- Implementing new working alone procedures for fieldwork (e.g. monitoring).
- Improving incident reporting.
- Ensuring all employees receive the necessary education and training required to perform their job safely and effectively.

The Safety Poster on the following page summarizes Saskatoon Water's 2020 safety goals.

## SASKATOON WATER

2020

# SAFETY GOALS

- ☐ Develop a process for education on past performance for leading and lagging indicators for all staff.
- ☐ Design a Health and Safety Management System (HSMS) how-to training program including an update to the employee handbook.
- ☐ Director to host safety engagement meetings with staff from all work groups.
- ☐ Re-align accountability for Director and section managers to HSMS.
- ☐ Refresh our approach to Incident Reporting and Work Observations.

## S.T.A.R.T. SAFELY

Stop • Think • Assess  
Review • Talk

100%

### LEADING INDICATORS

- › Work Observations Conducted
- › Workplace Inspections Performed
- › Safety Meetings Conducted

ZERO

### LAGGING INDICATORS

- › High Risk Incidents
- › Lost Time Incidents
- › Medical Aids Incidents
- › Preventable Vehicle Collisions

E V E R Y O N E I S A C C O U N T A B L E

## 4.0 OUR INFRASTRUCTURE

The replacement value of all water and wastewater infrastructure was estimated at over \$7.6 billion (2017 assessment). An update to the valuation of the WTP, water intakes, and reservoirs is planned in the near future.

The WTP and assets associated with water distribution have an estimated value of \$3.78 billion.

The WWTP and assets associated with the sanitary sewer collection system has an estimated replacement value of \$3.84 billion.

The **Water Distribution System** is used to deliver potable water from the WTP to the customers. The system is composed of approximately 1,192 km of water mains, 15,116 valves, 7,418 hydrants, and 71,398 service lines.

Water Utility Assets		
Asset	2020 Inventory	Replacement Value (\$M)
Water Treatment Plant, Water Intakes and three reservoirs		\$ 600
Water Pipes	1,192 km	2,154
Valves	15,116	213
Hydrants	7,418	146
Service Connections	71,398	666
<b>Total</b>		<b>\$ 3,779</b>

The **Wastewater Collection System** is used to collect wastewater from customers and deliver it to the WWTP. The system is composed of approximately 1,092 km of gravity sewer mains, 51 km of pressurized force mains, 11,975 manholes, and 71,301 service lines.

Wastewater Utility Assets		
Asset	2020 Inventory	Replacement Value (\$M)
Wastewater Treatment Plant		\$ 500
Lift Stations	24	132
Wastewater Pipes	1,092 km	2,408
Manholes	11,975	141
Force main	51 km	105
Service Connections	71,301	551
<b>Total</b>		<b>\$ 3,837</b>

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.

## 5.0 OUR WORK

### 5.1 Community Awareness and Engagement

Saskatoon Water and Wastewater Utilities take pride in the quality and reliability of our water, and we are committed to keeping citizens informed and updated about our water and sanitary systems. Communication utilized in 2020 included reports on operations, signage, flyers, videos, Saskatoon.ca website, notifynow, social media, news releases, and partnerships with community-based organizations to reach students. The COVID-19 response resulted in cancellations or adjustments to some planned communications such as Water Week activities, plant tours, and presentations to schools.

**Water Quality Reporting:** Saskatoon Water produced the annual [Drinking Water Quality and Compliance](#) report to comply with the 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.

For general information on water quality, water and wastewater treatment processes, environment, major capital projects, and water conservation, Saskatoon Water posts [Saskatoon Water's Annual Water Quality Report](#) on the City's website.



**Water Restriction:** On December 24, 2020, Saskatoon Water issued a mandatory water restriction and communicated through a notifynow alert, social media, Saskatoon.ca, and a media news release. Although water quality was not impacted, the unusually high sand loads from the river contributed to reduced output. Staff worked around the clock to resolve the issue and the restriction was removed within six hours.

**Water Treatment and Wastewater Treatment Plant Outreach:** Guided tours are normally available to the public, ages 16 and older, to increase awareness of how the utilities operate in providing safe, reliable water and in returning quality effluent to the South Saskatchewan River. No tours were conducted in 2020 due to heavy construction in January and February, and the COVID-19 pandemic.

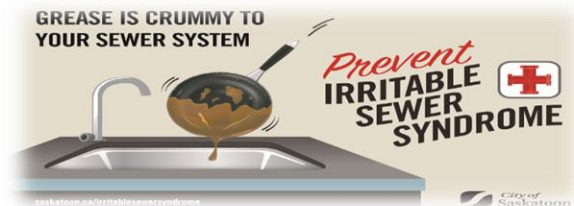
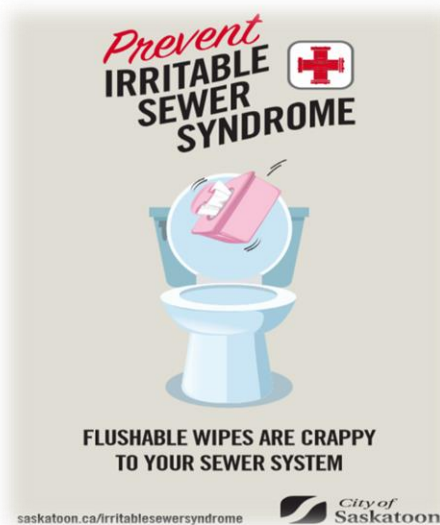
The City shared videos on social media and on the City's website showing how the Urban Water Cycle moves through our City's infrastructure, following the water's journey from the river to residences/businesses, and back to the river. The videos educated residents on the role they and the City together play in protecting these resources and maintaining our infrastructure.



**Advanced Metering Infrastructure (AMI) System:** Water meters with a new communication module will improve billing for customers by utilizing remote meter reading and monthly billing based on current usage instead of estimates. Communication to inform citizens about the AMI program and to encourage citizens to schedule appointments in neighbourhoods where AMI was being introduced included temporary signs, notification letters, the [website](#) for online booking, and proactive phone calls by the AMI Customer Service Centre.

### Prevent Irritable Sewer Syndrome:

Significant problems can occur in the sewer system when individuals put harmful things down their drain. To shift behaviors, the City developed an education campaign, [Prevent Irritable Sewer Syndrome](#), in partnership with Partners For the Saskatchewan River Basin (PFSRB). The program's goal is to reduce the number of blockages experienced throughout the community by building awareness of what is and is not to be flushed down toilets and rinsed down sinks. As part of the program, PFSRB purchased an "Enviroscape Drinking Water and Wastewater Treatment Model" to support slide and video presentations. In 2020, the focus changed to provide online program delivery to adapt to COVID-19 restrictions. The program was delivered to 165 students and teachers in six schools in 2020.

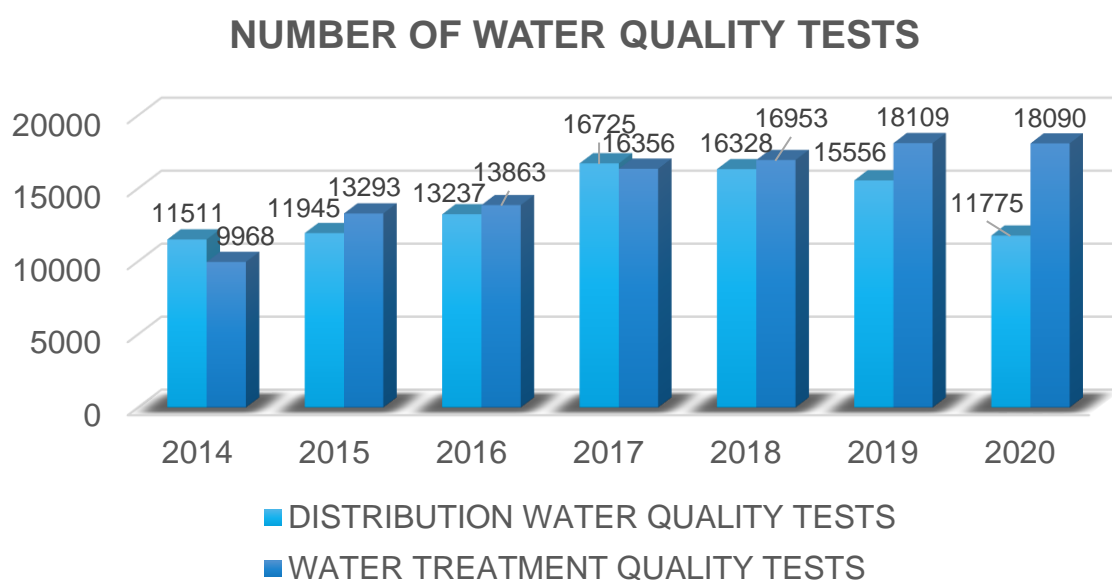




## 5.2 Water Quality

**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 Water Regulations, 2002*. 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 2020, a total of 18,090 water treatment quality tests and 11,775 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.



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.

Water Distribution Systems Values								
	2014	2015	2016	2017	2018	2018	2020	<u>Allowable Values</u>
Yearly Total Chlorine Median (mg/L)	1.78	1.83	2.00	1.93	1.99	2.0	1.95	> 0.5
Yearly Turbidity Median (NTU) <sup>2</sup>	0.14	0.18	0.13	0.11	0.09	0.10	0.10	< 1.0
Total Coliforms >0 (CFU/100mL) <sup>3</sup>	0	0	0	0	0	0	0	0

<sup>2</sup> Nephelometric Turbidity Units (NTU) is a measure of scattered light. A high turbidity level is caused by organic matter which can promote the growth of pathogens as well as being aesthetically unappealing.

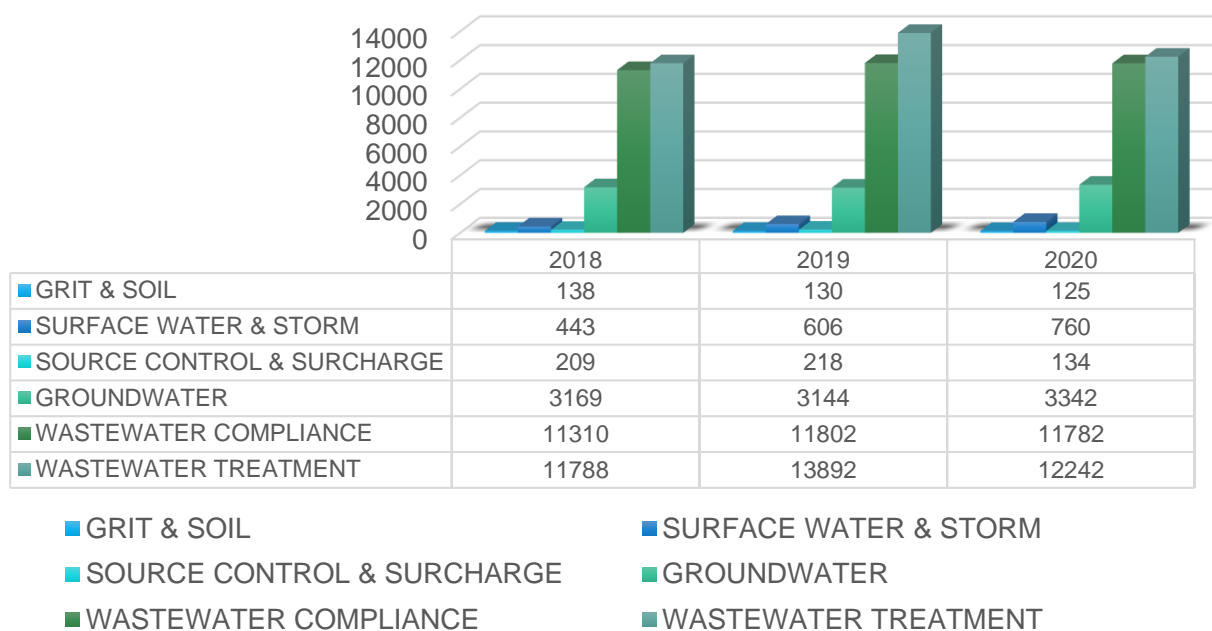
<sup>3</sup> Colony Forming Unit (CFU) is a measure of viable bacterial cells.



**Wastewater Quality:** 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 is further regulated by Saskatchewan Environment’s *Sewage Works Regulations, 2010*; *Saskatchewan Environmental Code, 2015*; and the *Federal Wastewater System Effluent Regulation, 2012*. Final effluent water quality is closely monitored 365 days a year along with South Saskatchewan River water quality upstream and downstream of the effluent discharge location.

The WWTP’s comprehensive Maintenance and Equipment Inspection Program meets the highest standard in North America. The WWTP Environmental Laboratory is a CALA accredited laboratory to ISO/IEC 17025:2017 standards. In 2020, a total of 11,782 tests were conducted by the Environmental Laboratory in relation to the WWTP Permit to Operate a Sewage Works and over 12,000 tests for the WWTP process control. The Environmental Laboratory also conducted over 4,300 water quality tests for other monitor and sampling programs, such as groundwater, ponds, storm water outfalls, bylaw compliance, industries, and the river. The Environmental Laboratory performed 6,606 additional tests through the third-party labs for the test that is currently in scope of the Environmental Laboratory activities.

## NUMBER OF WATER QUALITY TESTS



The following table shows the results of some of the many types of wastewater testing completed by Saskatoon Water, which are well below the maximum allowable values under the Permit to Operate a Sewage Works.

Wastewater Distribution System Values						
	2016	2017	2018	2019	2020	Wastewater Effluent Standard
Yearly Median CBOD <sup>4</sup>	3.4	3.5	4.0	3.0	2.0	<25 mg/L
Yearly Median TSS <sup>5</sup>	7.2	7.3	10	7.8	6.2	<25 mg/L
Yearly Median Total Phosphorous (TP)	0.247	0.31	0.425	0.364	0.0286	<0.75 mg/L
Yearly Median E.coli <sup>6</sup>	<10	<10	<10	<10	<10	<200 mpn/100mL

<sup>4</sup> Carbonaceous Biochemical Oxygen Demand (CBOD) Measures the oxidation of carbons in water

<sup>5</sup> Total Suspended Solids

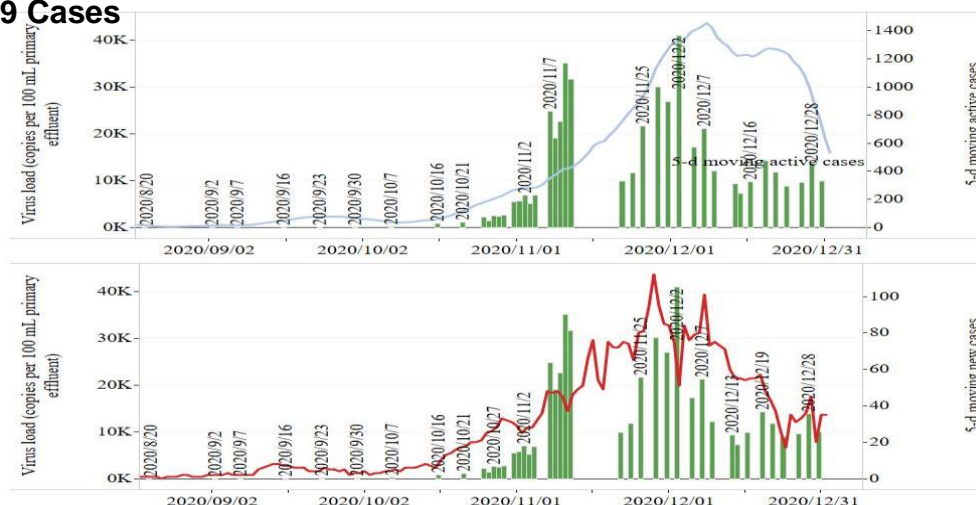
<sup>6</sup> E.coli is a common indicator of fecal contamination and is quantified using the Most Probable Number (MPN) method. MPN is a probabilistic test which assumes coliform bacteria meet certain criteria.

### 5.3 Wastewater COVID-19 Testing

In 2020, the Wastewater Treatment Plant (WWTP) collaborated with the University of Saskatchewan (U of S) and the Saskatchewan Health Authority (SHA) in a pilot project to test sewage samples for the virus that causes COVID-19. Infected people shed virus traces through their feces, often even before COVID-19 symptoms appear. The wastewater test results provided an early warning of trends in positive cases identified at COVID testing centres and were provided to health officials for consideration in resource allocation planning and decision making.

The chart below plots the sewage testing results against active cases and new cases of COVID-19 in the community. Results have shown that sewage results provide an accurate two week prediction of new cases in Saskatoon.

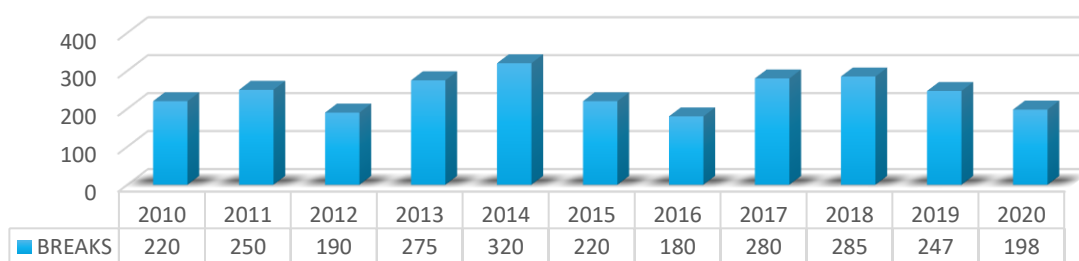
#### Virus Load in Wastewater Samples and Five-Day Moving Average for New and Active COVID-19 Cases



## 5.4 Water Main Operations

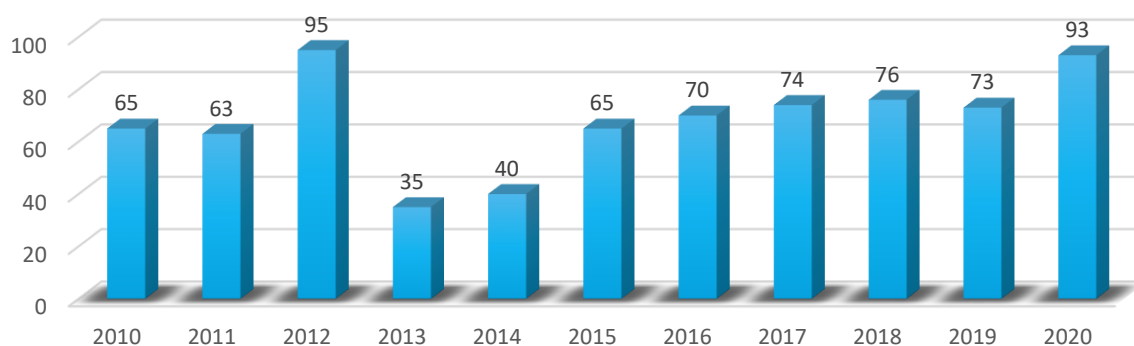
Maintaining utility service for residents is important so a high level of service has been established. Water main breaks are to be repaired within 48 hours. Maintenance crews repaired 1,079 locations in 2020, of which only 193 (18%) were water main breaks. In 2020, approximately 62% of water main breaks were repaired and water restored within 24 hours, the average repair time was 23.2 hours per break, and the service level time was exceeded on 12 occasions. The average water main break repair cost is approximately \$13,500.

**WATER MAIN BREAKS PER YEAR  
IN COMPARISON TO AVERAGE**



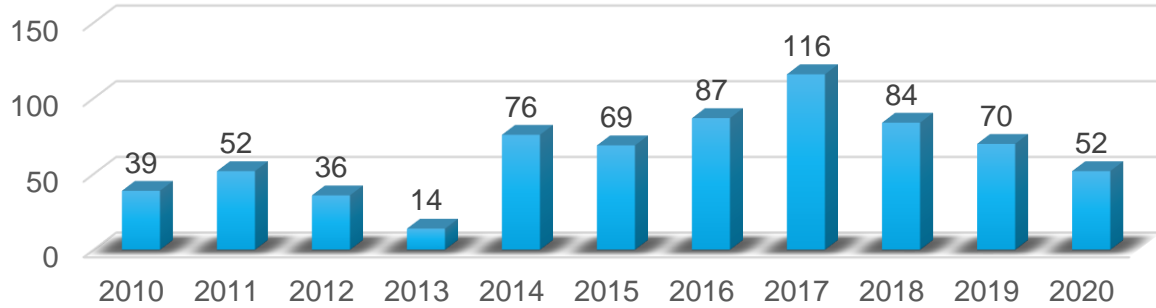
The chart above shows the number of water main breaks in each of the last 10 years. The number of breaks in 2020, 198, was lower than the ten-year average of 239. The number of breaks varies every year due to weather and frost depth; however, the trend of the average number is going down. While there are spikes in water main breaks, the Planned Maintenance Program and the Capital Rehabilitation Program, supported by Technical Services and Construction & Design, are having an overall positive impact on the reliability of the distribution system.

**WATER MAIN VALVE REPAIRS AND REPLACEMENTS**



The chart above shows the number of completed water main valve repairs and replacements throughout the system. These repairs are part of the over 1,000 locations maintained by Water & Sewer staff in 2020.

## HYDRO-VAC VALVE CASING AND SPINDLE

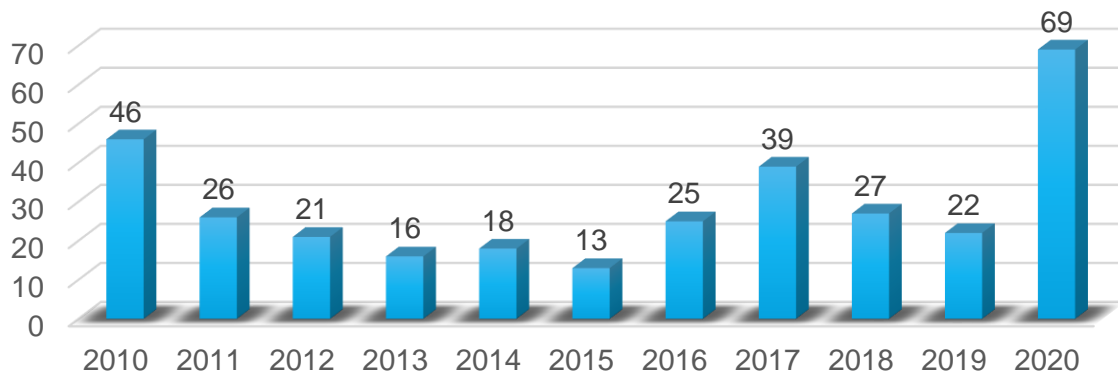


The chart above shows the number of locations in each year where valve casings or spindles were repaired using hydro-excavation. This method is less damaging to the road infrastructure and is used where possible.

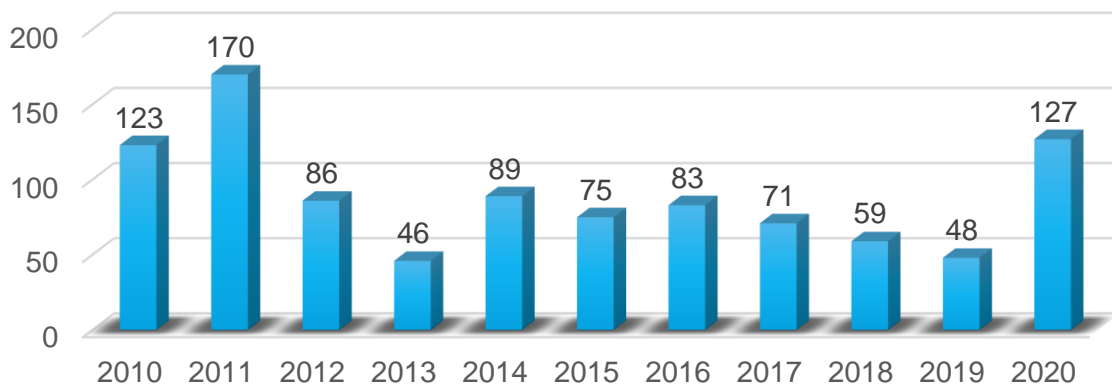


Water Main Break Repair Work

## REPLACE HYDRANTS



## REPAIR HYDRANTS



The two charts above show the number of fire hydrants replaced and repaired by Water & Sewer in 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.

## 5.5 Sanitary Sewer Operations

**Sewer Main Maintenance Operations:** The Sewer Operations workgroup is responsible for maintaining almost 12,000 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. Approximately 133 km of sanitary sewer mains were cleaned using flushing and 9.4 km of were brushed. The Closed Circuit Television (CCTV) crews televised 26.2 km of pipe.



Closed Circuit Television Work



## 5.6 Capital Projects

The Water and Wastewater Utilities funded 84 capital projects in 2020, budgeted at \$471.0 million, of which, \$137.0 million is unspent. The following table summarizes the active capital projects by three sections.

Active Capital Projects as of December 31, 2020			
Section	# of Active Projects	Approved Funding	Unspent Funding
Water Treatment	46	\$186,984,000	\$65,440,000
Wastewater Treatment	39	\$134,635,000	\$47,429,000
Technical Services	4	\$149,385,500	\$24,083,500
<b>Total</b>	<b>84</b>	<b>\$471,004,500</b>	<b>\$136,952,500</b>

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

### Water Treatment Plant

**Water Treatment North East Sector Reservoir:** This project includes the design and construction of a new 43 megalitre reservoir system complete with pump station in the Evergreen neighborhood. The design was awarded to AECOM in 2020 with construction completion expected in Spring 2024.

**Water Treatment Plant Enclosure and Security Upgrades:** This project includes the permanent closure of Spadina Crescent, 11<sup>th</sup> Street West, and Avenue H access points; construction of a perimeter security fence, including gates to enclose the plant; a guard house; and instrumentation and controls. Construction was awarded to Graham Construction and Engineering LP for \$3.1 million in June 2019. This project reached completion in winter of 2020.

**Water Treatment Plant Transfer Pumping and Electrical Upgrades:** This project will replace the short-term transfer pumping system, increase efficiency, and address single points of failure while replacing much of the electrical systems on site. Construction was awarded to Westridge Construction Ltd. for \$40.7 million in March 2019. Completion is expected in 2023.

**Water Treatment Plant Long-term Capital Development and Expansion Plan 2020:** A comprehensive long-term capital planning process was introduced for the City's WTP in 1980 and updated in 2009. The process identifies a tentative schedule for WTP development and modernization to meet the City demands and the Drinking Water Quality Standards. The plan is being reviewed and evaluated to determine the need for a second WTP. Engineering services were awarded to AECOM Canada Ltd. for \$329,000 with completion expected in Spring 2021.

**Water Treatment Plant Acadia Pump Replacement:** This project is for the manufacture and supply of three horizontal split case pumps and associated motors to be installed at the Acadia Drive Reservoir Pump Station. The new pumps will provide reliable pumping to meet the

current and future needs of the service area. The supply contract was awarded to Power and Mine Supply Co. Ltd. for \$442,000. At the end of 2020, two of the three pumps had been replaced using in-house services. Schedule delays were experienced due to COVID-19 pandemic restrictions. Completion is expected in the spring of 2021.

## **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. The water portion of the project is currently funded at \$14.9 million. The first wave of AMI installations by neighbourhood is now complete (76.3% of all meters). Installations will occur by zone neighbourhood groupings in 2021.

## **Wastewater Treatment Plant**

**Wastewater Treatment Plant Primary Effluent Pump (PEP) 6:** This project includes the installation of a sixth PEP and related ancillary works. Design was awarded to MPE Engineering in 2020 with construction expected to be completed in winter 2021.

**Wastewater Treatment Plant Long-term Capital Development Plan 2020:** This project includes an internal review and further development of the Long-term Capital Development Plan for the WWTP prepared in 2012. The review will consider current expansions, process modifications and technology options, with respect to population projections for Saskatoon's growth. The new plan, covering a 30-year period from 2020 to 2050, will provide a capital expenditures schedule and costing, which will align with expected capacity, redundancy, and regulatory treatment objectives. Completion is expected in summer 2021.

**Marquis Liquid Waste Haulers Station:** Commissioning work continued in 2020 on this \$8.5 million project. The work includes construction of a waste hauler receiving facility containing liquid and solids receiving bays, programmable logic controls (PLC), infrastructure and Heating, Ventilation, and Air Conditioning (HVAC) equipment. This project will be integrated with the existing Marquis Odour Control Facility. Project completion is expected in summer 2021.

**Wastewater Treatment Plant Digester and Heating Upgrade:** This project includes the design and construction of a fourth digester tank, as well as heating system upgrades at the WWTP. Construction was awarded to Graham Construction and Engineering LP for \$33.2 million in July 2019. Completion is expected in 2022.



**Wastewater Treatment New Spadina Lift Station and Force Main:** This project includes the construction of a new lift station and piping to maintain conveyance of more than 60% of the City's collected wastewater. The lift station design was awarded to Jacobs Engineering in 2020 with construction completion expected in Summer of 2022.



Spadina Lift Station

**Jasper Sanitary Lift Station Pilot Project:** Oxygen infused at the Jasper Sanitary Lift Station (Nutana) decreased odour in the area during the 2020 pilot. The results will be further assessed in 2021 for possible project expansion.

## Distribution and Collection System Monitoring and Modelling

**Water and Sewer Monitoring Program:** The Monitoring Group of Engineering & Planning develops, implements, and reports on environmental and hydraulic monitoring programs in five categories:

- Sanitary and Storm System
- Hydraulics
- Hydrology
- Water Distribution Hydraulics
- Water Quality

2020 Monitoring Locations	
Program	Number of Monitoring Locations
Sanitary System	39
Storm System	15
Sanitary Tank	6
Rain Gauge	11
Hydrant Pressure	90
Hydrant Flow	43
PWM Pressure and Flow	6
Water Quality	3



Fire Flow Testing



Rainfall and Wind Measurement Equipment

**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 2020.

**City-Wide Sanitary Collection System Model:** A new City-wide sanitary collection system model was developed using InfoSWMM and PCWMM software to include the latest sanitary system geometry and water consumption data. This model is the basis for sanitary collection system planning, design, system capacity checks, operational analysis, etc.

## Distribution and Collection System Planning

**Long Term Capital Development and Expansion Planning:** Master planning for the water distribution, and sanitary and storm sewer collection systems was updated in 2020 based on detailed planning for the Riel, University and Holmwood sectors. A servicing plan for inclusion in the North Concept Plan report was completed for the Saskatoon North Partnership for Growth (P4G) as an extension of the previous Green Network project. Similar work kicked off in November for South East Sector servicing.

**Saskatoon Freeway Planning Study:** Collaboration continued with internal and external stakeholders including the Saskatchewan Ministry of Highways through the Technical Working Group (TWG) for transportation and utilities. Information was provided about utility easements required for future servicing near the proposed freeway.

**The Willows Concept Plan Amendment:** A developer's proposed amendment to the Willows Concept Plan triggered a substantial review of water and sewer models and design calculations, system capacity investigation, surveys, hydraulic analysis, and assessment of servicing options for the area.

## Distribution and Collection System Servicing Designs

Saskatoon Water Engineering and Planning completes water, sanitary and storm water system design work for Saskatoon Land and for other major City capital projects. Highlights for their 2020 work include the following:



- **McOrmond Drive Extension:** Completed primary water main (1050 mm), sanitary trunk (1200 mm) and storm trunk (2100 mm) designs to service future Holmwood Sector land development phases.

- **Brighton Phases D1 & D2:** Completed designs for area grading, local water distribution, sanitary and storm sewer collection systems including storm water management ponds.

### *Brighton Storm Trunk Installation*

- **Aspen Ridge Phase C1:** Completed designs for area grading, local water distribution, and sanitary and storm sewer collection systems.
- **Evergreen Fill Main:** Completed fill main (1050 mm) design for sections along Garvie Road and McOrmond Drive, crossing at the future Evergreen reservoir site.

- **Faithfull Avenue Trunk Extension:** Started designs of a primary water main (750 mm), sanitary trunk (900 mm), and storm sewers (1500 mm to 1800 mm) in late 2020. The designs will be completed and tendered for construction in mid 2021.
- **Recovery Park:** Completed preliminary water & sewer and area grading designs including overland drainage conveyance and storm water management pond sizing and modelling.
- **Firehall #5 (Preston Avenue):** Developed a functional water and sewer servicing and storm water management strategy.
- **Montgomery Place:** Completed designs for water mains and storm drainage rehabilitation.
- **Spadina Lift Station/Forcemain:** Designed the force main and sanitary drop chamber to connect the new lift station to the existing sanitary trunk sewer network.
- **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.
- **Hampton Village Business Park:** Collaborated with other City stakeholders and Kahkewistahaw First Nation (KFN) consultants in planning, modelling and design work to advance the development of an area with significant servicing challenges.
- **Private Development Applications:** Reviewed 98 applications and advised on water or sewer servicing considerations for proposed rezoning, subdivisions, condo developments, discretionary use, utility installations, concept plan amendments, etc.

## Distribution and Collection System Preservation

**Water Distribution and Sewer Collection Assets:** Water & 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 & Sewer assets:

- Water Main Replacement: 4.6 km in 2020
  - 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 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: 13.2 km in 2020  
 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 that no excavation is 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 an extreme circumstance where a liner cannot be installed.
- Water and Sewer Service Line Replacements: 33 lines in 2020  
 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

At current funding levels, the remaining Lead Service Line (LSL) inventory in the city will be completely replaced by the end of 2026. In conjunction with the long-term strategy that is being developed for water main replacement, a strategy for all remaining lead line replacements is being developed so that residents will have information on when they can expect their lines to be replaced.

### 2019-2022 Projected Budgets – Technical Services

PROGRAM	2019 BUDGET (\$M)	2020 BUDGET (\$M)	2021 BUDGET (\$M)	2022 BUDGET (\$M)
WATER PRESERVATION	\$6.23	\$6.64	\$7.07	\$7.53
WATER CAPACITY	\$5.82	\$5.96	\$7.64	\$6.26
SEWER PRESERVATION	\$3.38	\$3.47	\$3.07	\$3.56
LSL REPLACEMENTS	\$3.71	\$4.92	\$3.90	\$4.57
SEWER SERVICE LINES	\$1.26	\$1.29	\$1.33	\$1.36
<b>TOTALS</b>	<b>\$20.40</b>	<b>\$22.28</b>	<b>\$23.01</b>	<b>\$23.28</b>

## 5.7 Continuous Improvement Initiatives

Saskatoon Water, Water & Sewer, 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:

**Saskatoon Water Energy Management Program:** In 2020, funding was obtained from Natural Resources Canada (NRCan) for an Energy Management Project involving the Water and Wastewater Treatment Plants. An Energy Manager was hired to work with all levels in Saskatoon Water to identify and take actions to systematically drive energy waste, variability, and use down. The project creates value by reducing costs as well as greenhouse gases. This project is expected to be completed in winter 2021.

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

**Water Treatment Plant Electrical Upgrades:** WTP electricians continue to work on electrical upgrade requirements throughout the WTP. Plant staff identified potential risks within the electrical system and have ensured the issues have been addressed in the Transfer Pumping and Electrical Upgrades Project.

**Water Treatment Plant Filter Plant Upgrades:** The WTP is upgrading the 1964 filter plant actuators to allow for enhanced control and feedback. The 1964 plant filters are also receiving upgraded turbidity meters with precision particle counters. A trial run of new media in one filter was initiated at the beginning of 2020 and will determine the potential increased capacity for the filters.

**Improved Sewer Operations & Procedures:** The Planning and Scheduling (P&S) Group was established in 2018 to support the Water & Waste Operations and Roadways & Fleet 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 Maintenance Backlog Restructure:** In 2020, the P&S Group continued to make improvements to reduce backlogs through implementing “Microsoft Planner” to schedule and confirm maintenance activities. The backlog list is continually reassessed and updated to remove items that are obsolete or have been completed, and prioritize preventative maintenance to prevent more costly failures.



**The Valve App Project:** The valve application, in use since 2018, has been used to record the on/off status of 31% of water valves (5,083 out of 16,581 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.

**New West Side Handling Site:** Water & Sewer uses handling sites to store operating equipment and process materials such as gravel. In late 2020, a new handling site west of Highway 7 came into full service to replace the Dundonald handling site which had been re-allocated for the Recovery Park expansion. The new west side handling site will augment the Nicholson Yards handling site on east 8<sup>th</sup> Street and is expected to significantly increase operating efficiency.

**Digital Application Reviews:** In 2020, digital applications from developers for proposed rezoning, subdivisions, condominiums, discretionary use, etc. were received and reviewed, saving time and costs compared to the previous paper-based process. Engineering and Planning implemented a new process to track all applications and summarize review responses in a single accessible digital file.

**Work from Home:** Office staff began working from home in March 2020. Best practices were quickly implemented to maintain and improve productivity. An employee survey also found that staff appreciated the savings in commuting time and expenses, and the increased flexibility that working from home provided. The reduced travel also was good for the environment, contributing to fewer greenhouse gases.

**Microsoft Teams Communication:** Online Teams meetings replaced in-person meetings, saving travel time and costs. Implementation of Microsoft Teams in 2020 also provided for document version control and sharing, and collaboration among divisions and in some cases with external stakeholders.

**Reduced Printing:** Printing expenses significantly decreased in 2020 with more digital versus printed communication. Employees were more likely to read materials on their computer screen rather than printing.

**Modelling Software:** An evaluation of modelling software was completed, resulting in acquiring PCSWMM and reducing the number of licences acquired, which is expected to save almost \$100K over next five years.



## 6.0 OUR ENVIRONMENT

### 6.1 Stewardship

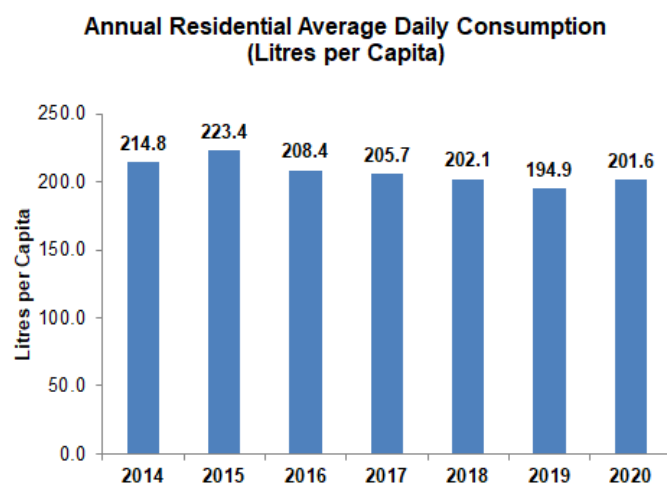
Protecting the river and its surrounding watershed is vital to the long-term sustainability of our water supply. The City is committed to responsible watershed management and stewardship that meet citizens' expectations. The City is a member of the South Saskatchewan River Watershed Stewards Incorporated, a community-based organization that was formed to implement the South Saskatchewan River Watershed Source Water Protection Plan.

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. When operational in 2021, the new Digester and Heating Upgrades Project will greatly increase the reliability of the solids treatment process, while also increasing the ability to utilize biogas from the digestion process. The WWTP is also currently studying technologies to improve the final effluent ammonia quality, with the goal of far exceeding current regulatory limits, and getting ahead of future regulations in alignment with the City's goal of being environmental leaders.

The WWTP and WTP are currently conducting an internal energy management study through the NRCan program to identify energy saving opportunities and benchmarking Saskatoon against similar facilities in Canada.

Saskatoon Water and Water & Sewer 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 Conservation



Saskatoon water rates are designed to encourage water conservation to defer the need for high capital intensive projects to increase capacity. Customer education to reduce the summer maximum day volume (peak demand management) can also assist in deferring some capital expenditures.

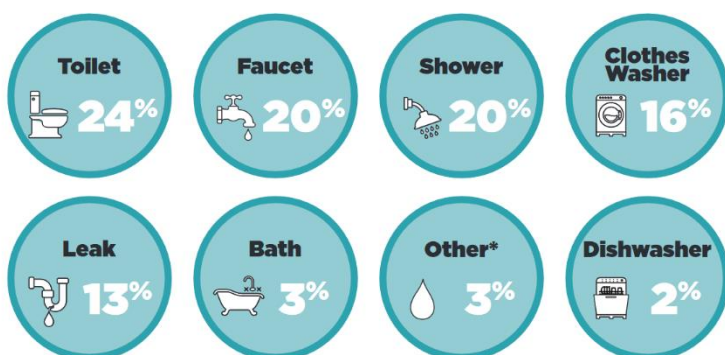
A long-term Water Conservation Strategy is under development to provide an action plan of water reduction initiatives in all sectors including City operations. Recommended initiatives will be based

on proven track records in other cities, feasibility, reduced demand on our water system, cost effectiveness, and what we heard from the public. In 2020, the City engaged stakeholders on preferred initiatives and potential impacts of water conservation options.

Over 550 respondents participated in industry and public surveys in December 2020. Among other results, the top reasons for conserving water were reducing unnecessary water usage, caring for the environment, and reducing water bills. For further information about the Water Conservation Strategy, please visit [www.saskatoon.ca/engage/water-conservation-strategy](http://www.saskatoon.ca/engage/water-conservation-strategy).

A study conducted by the Water Research Foundation shows that indoor household water use in a single family home has decreased by 22% from 1999 to 2016. The City has experienced a similar downward trend as citizens implement low-flow fixtures although yearly annual average residential consumption varies due to fluctuating seasonal irrigation demands. Annual residential water usage increased in 2020 as more people stayed at home rather than working or working outside the home, going to school, or travelling. However, total water and wastewater volumes in 2020 were the lowest they have been in the last decade because of less commercial and industrial demand as businesses curtailed their operations in response to COVID-19.

## Residential Indoor Water Use



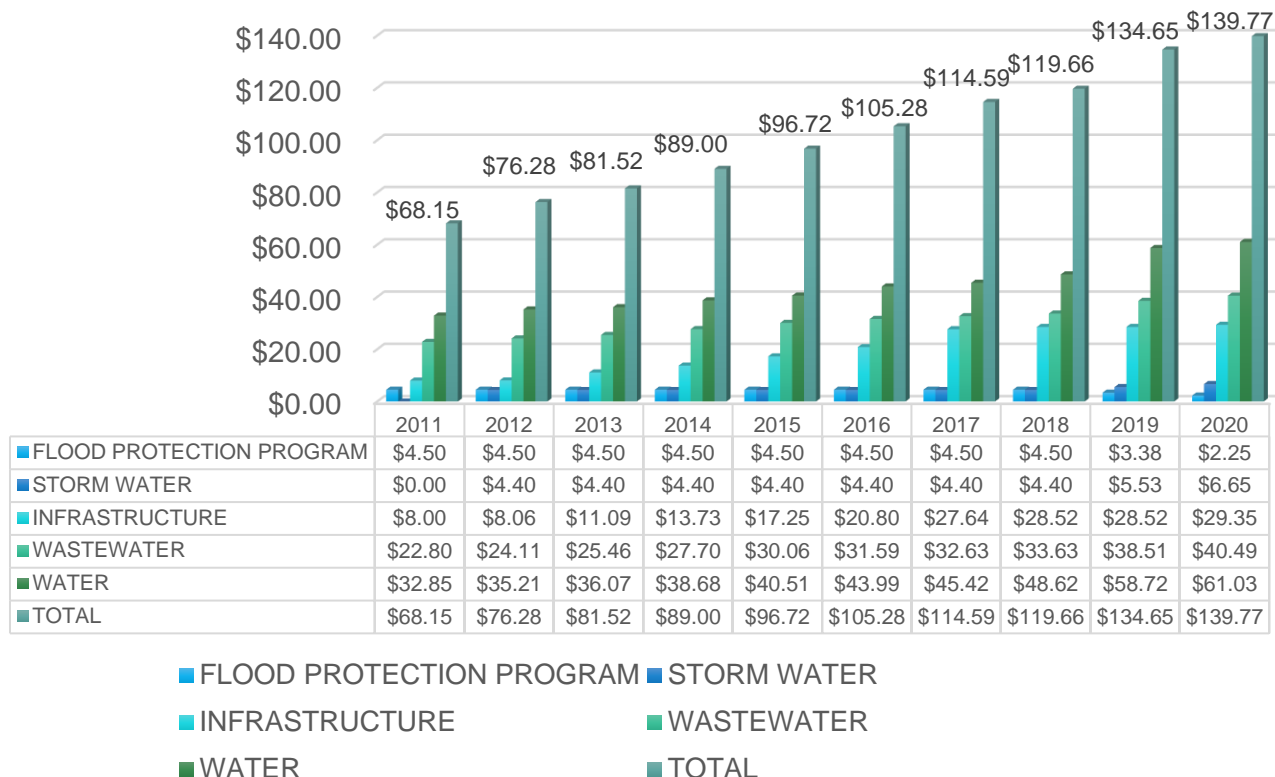
The Residential Indoor Water Use diagram provides an indication of how indoor water is consumed in average residential homes in Canada and the United States.

Source: Water Research Foundation, April 2016

## 7.0 OUR FINANCES

### AVERAGE RESIDENTIAL MONTHLY WATER-RELATED UTILITY CHARGES

(3/4 INCH METER AND VOLUME OF 900FT<sup>3</sup>/25.5M<sup>3</sup>)



### 7.1 Utility Bills

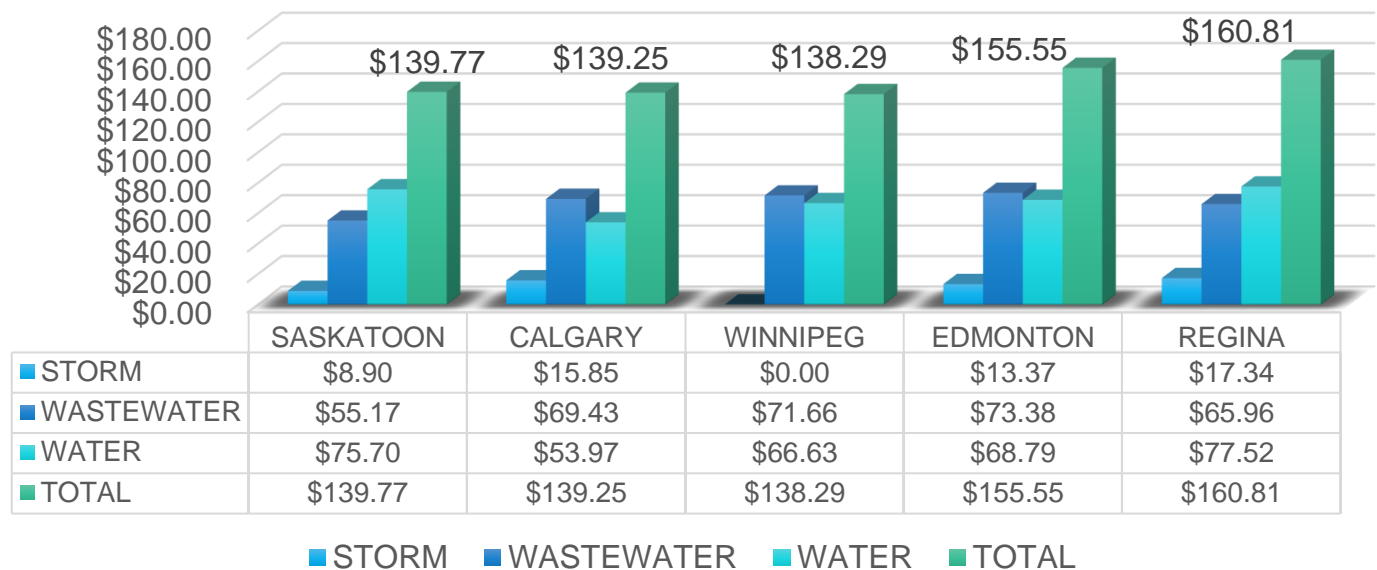
Residential water-related utility charges were \$139.77 per month in 2020, based on a standard 3/4 inch meter connection and a monthly water volume of 25.5 m<sup>3</sup>. Saskatoon residents with smaller 5/8 inch water meters, which are common in core neighbourhoods, pay \$12.30 less per month on the fixed portion of their utility bill. In 2020, 53% of meters for single residential homes were 5/8 inch and 47% were 3/4 inch. All new homes are fitted with 3/4 inch meters, which meet citizens expectations for water demand (e.g. for watering lawns).

Infrastructure Levies include the Roadway Levy and the Redevelopment Levy, which were phased in between 2014 and 2016. See Appendix Two for more information about utility bill charges. Saskatoon's total water, wastewater, and storm water<sup>1</sup> utility bill remains low at average residential water volumes compared to other cities in Alberta, Manitoba, and Saskatchewan. Based on the standard water meter size and monthly water volume of

<sup>1</sup> The 2020 Storm Water Utility Annual Report documents Saskatoon's storm water financial information and other highlights.

25.5 m<sup>3</sup>, the utility bill in Saskatoon was 1.1% higher than in Winnipeg, which has the lowest utility bill and no Stormwater charges. Saskatoon Flood Protection charge is included with Storm in the graph below.

### RESIDENTIAL WATER, WASTEWATER & STORMWATER MONTHLY CHARGES BY UTILITY (3/4 INCH METER AND VOLUME OF 900 FT<sup>3</sup>/ 25.5 M<sup>3</sup>)



Under Saskatoon's inclining block rate system, water and wastewater rates increase at volumes of 17 m<sup>3</sup> (600 ft<sup>3</sup>) and 34 m<sup>3</sup> (1,200 ft<sup>3</sup>). Of the western benchmark cities, only Calgary has lower charges for water volume of less than 17 m<sup>3</sup> (600 ft<sup>3</sup>) per month.

## 7.2 Financial Summary

The Water and Wastewater Utilities are based on a user-pay principal and are fully funded through their rates. In 2020, the two utilities collected \$169.1 million in total revenues and had \$164.6 million in total expenses for a positive variance of \$4.5 million.

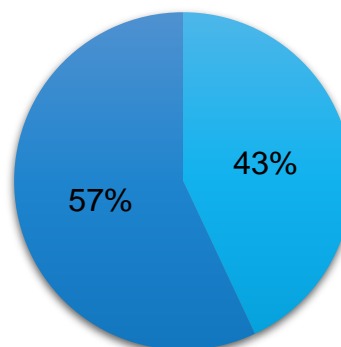
<b>Water, Wastewater and Storm Water Utilities</b> <b>Statement of Revenues and Expenditures</b> <b>(\$1000s)</b>				
	<b>Water Utility 2020</b>	<b>Wastewater Utility 2020</b>	<b>Consolidated 2020</b>	<b>Consolidated 2019</b>
<b>Total Revenues</b>	<b>96,602</b>	<b>72,520</b>	<b>169,122</b>	<b>161,595</b>
<b>Expenditures</b>				
Utility Operations	14,305	11,425	25,730	26,128
Public Works Operations	13,548	7,392	20,941	22,206
Administration & General	1,466	1,136	2,602	2,851
Corporate Services & Billing	3,109	2,089	5,198	5,701
Capital Charges	31,215	20,236	51,451	53,029
Infrastructure Services				
Capital Reserve	17,050	18,318	35,368	33,417
Grants-in-lieu of Taxes	7,307	4,853	12,160	11,928
Return on Investment	6,490	4,700	11,190	9,150
<b>Total Expenditures</b>	<b>94,491</b>	<b>70,149</b>	<b>164,640</b>	<b>164,410</b>
<b>Revenues less Expenditures</b>	<b>2,111</b>	<b>2,371</b>	<b>4,482</b>	<b>(2,815)</b>
<b>(To)/From Stabilization/ Capital Reserves</b>	<b>(2,111)</b>	<b>(2,371)</b>	<b>(4,482)</b>	<b>2,815</b>

<sup>1</sup> 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.

Total Utility revenues increased by 4.7% in 2020 as a result of the infrastructure levy and ROI phase-in, rate increases, and population growth, which offset the decrease in volumetric and fixed revenue.

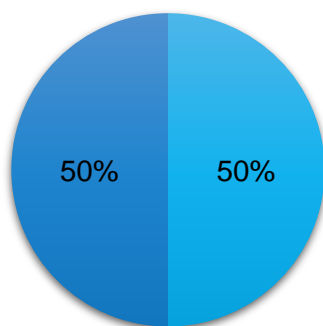
The Water Utility accounts for 57% and Wastewater for 43% of revenues.

## Total 2020 Revenues \$171.2 Million



■ Wastewater Utility ■ Water Utility

## Water and Wastewater Revenue by Customer Class



■ Commercial ■ Residential

Commercial customers account for half of Water and Wastewater's total revenues.

About 62% of revenues are based on volumetric charges and 38% are from fixed charges.

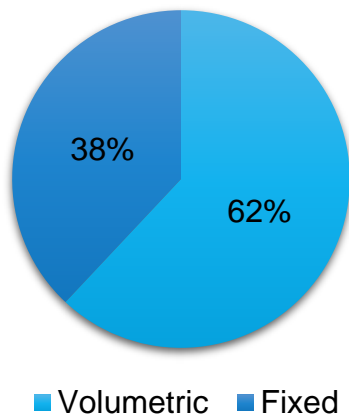
In 2020, total expenditures were 0.1% higher than 2019 as a result of increased contributions to Grants-in-Lieu of Taxes and ROI which were offset by decreased fixed asset purchases, maintenance work, training, travel, and less than anticipated chemical usage due to lower demand, which

were offset by inflation and resulting in actual expenses 6.0% less than budgeted. Total 2020 revenue was 3.6% less than budgeted, resulting in a positive balance of \$4.5 million, which was transferred to the Water and Wastewater Revenue Stabilization Reserve.

Funding to Roadways & Fleet Support and Water & Waste Operations to deliver the day-to-day operation and maintenance of the water distribution, collection, and drainage systems accounted for 13.2% of total expenditures. Funding for the Infrastructure Services Capital Reserve accounted for another 21.4% of expenditures.

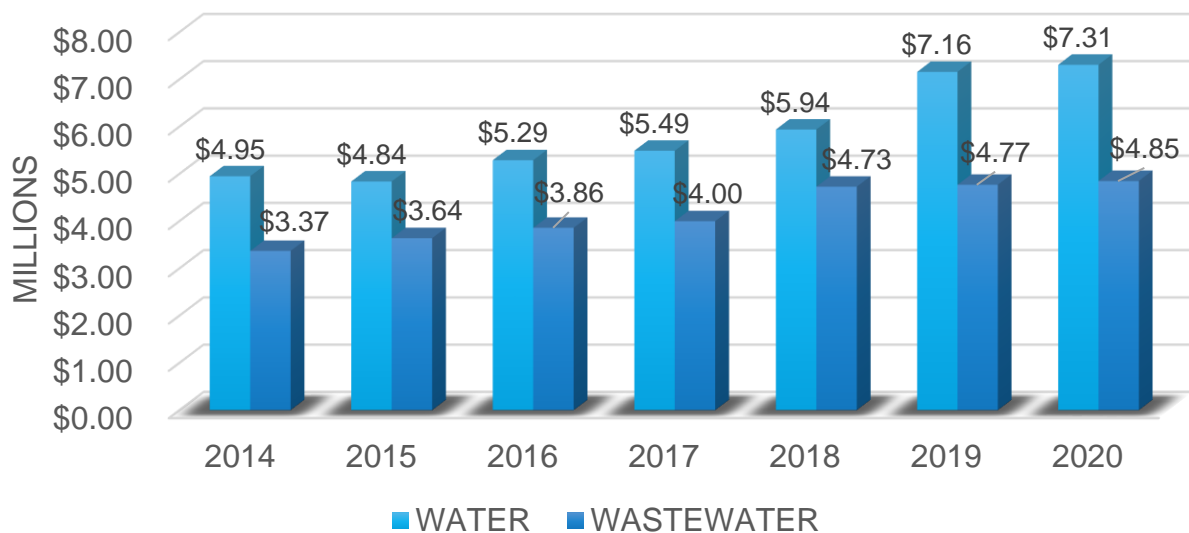


## Water and Wastewater Revenue by Rate Type



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. In 2013, a Redevelopment Levy was added and in 2014, a Roadway Levy was added, which respectively now generate \$4.0 million and \$6.0 million annually for a total of \$10.0 million in 2020.

## WATER AND WASTEWATER UTILITY GRANT-IN-LIEU OF TAXES (In \$ Millions)



In 2020, the Water and Wastewater Utilities paid \$11.2 million (5.4%) Return on Investment (ROI); 2020 was the final year of a five-year, phase-in plan for the ROI. The Utilities also paid \$12.2 million in 2020 to the City as Grants-in-Lieu of Taxes.

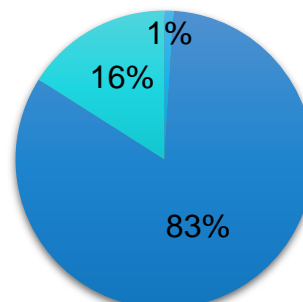
## 7.3 Water Utility

### Revenues

The Water Utility's 2020 total revenues of \$96.6 million were \$1.4 million or 1.43% less than budgeted. Total revenues increased by 4.3% from 2019, with Infrastructure Levy revenues, a volumetric charge, increasing by 18.1%.

Other revenues included the fire protection charge, late payment penalties, and some miscellaneous revenue.

### Water Utility 2019 Revenues \$90,859,000



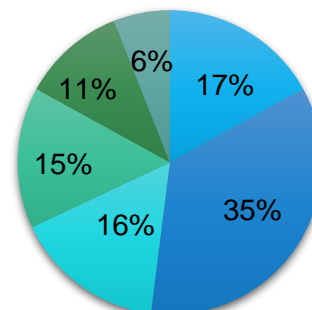
■ Other Revenue ■ Metered Revenue ■ Infrastructure Levy

### Expenses

The Water Utility's 2020 expenses of \$94.5 million included the following:

- Saskatoon Water Operating expenses, of \$15.8 million, include water treatment, pumping, storage, Meter Shop, administration, and general expenses incurred by Saskatoon Water.
- Water & Waste Operations operating expenses, of \$13.5 million, include funding to Water & Waste Operations to operate and maintain the water distribution system.
- Saskatoon Water Capital, of \$31.2 million, funds all capital work related to the WTP and reservoirs, including debt servicing costs.
- Infrastructure Replacement Reserve – Water and Wastewater, of \$17.1 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 \$10.4 million, include the Grants-in-Lieu of taxes, cross-charges for customer billing and collections, and corporate administration.
- ROI, of \$6.5 million. 2020 is the fifth year of a five-year phase-in plan to establish an ROI from the Water Utility based on 10% of metered and fixed revenue.

### Water Utility 2020 Operating Expenses \$94,154,000



■ Plant Operating  
■ Collection & Distribution Operating  
■ Plant Capital  
■ Collection & Distribution Capital  
■ Corporate Charges  
■ Return on Investment

The Water Utility's 2020 total expenses were 3.6% under budget due to deferred fixed asset purchases and maintenance work, less than anticipated chemical usage due to lower water demand, staffing vacancies, less overtime, and decreases in Water Meter Shop and public works activities related to the COVID-19 response. Expenses were 0.4% more than in 2019 due to inflation, increased maintenance, ROI and Grants-in-Lieu of Taxes increases, and an increased contribution to the Infrastructure Services Capital Reserve, which were offset by the decreases in expenses previously described.

## Financial Statement

<b>Water Utility Operating Revenues and Expenses (\$1000s)</b>			
	<b>2020 Budget</b>	<b>2020 Actual</b>	<b>2019 Actual</b>
<b>Revenues</b>			
Metered revenue	81,190	78,492	75,246
Infrastructure Levy	15,637	17,050	14,441
Other revenue	1,180	1,059	1,172
<b>Total Revenue</b>	<b>98,007</b>	<b>96,602</b>	<b>90,859</b>
<b>Expenses</b>			
Water Treatment, Pumping, Storage	15,096	12,955	12,795
Water Meters	2,071	1,350	1,796
Water Administration & General	1,910	1,466	1,700
Corporate Services	3,356	3,109	3,398
Distribution (Public Works)	14,846	13,548	14,772
Capital Charges	31,294	31,215	32,787
Provision to Infrastructure Services Capital	15,637	17,050	14,441
Grants-in-lieu of Taxes	7,307	7,307	7,159
Return on Investment	6,490	6,490	5,307
<b>Total Expenses</b>	<b>98,007</b>	<b>94,491</b>	<b>94,154</b>
<b>Revenues less Expenses</b>	<b>-</b>	<b>2,111</b>	<b>(3,296)</b>
<b>(To)/From Stabilization/Capital Reserves</b>	<b>-</b>	<b>(2,111)</b>	<b>3,296</b>

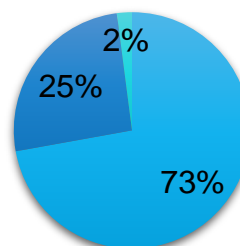
The positive balance of \$2.11 million was transferred to the Water and Wastewater Revenue Stabilization Reserve.

## 7.4 Wastewater Utility

### Revenues

The Wastewater Utility's Revenues decreased by 0.2% from 2019 due to less than anticipated growth in metered revenues and the Marquis Liquid Waste Hauler Facility was not operational, which was offset by rate increases.

### Wastewater Utility 2020 Revenues \$72,520,000



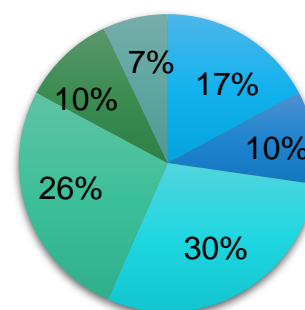
■ Metered Revenue ■ Infrastructure Levy ■ Other Revenue

### Expenses

The Wastewater Utility's 2020 expenses, of \$70.1 million, included the following:

- Saskatoon Water Operating expenses, of \$12.6 million, include wastewater treatment, pumping, sludge handling and disposal, administration, and general expenses incurred by Saskatoon Water.
- Water & Waste Operations operating expenses, of \$7.4 million, include funding to Water & Waste Operations to operate and maintain the wastewater collection system.
- Saskatoon Water Capital, of \$20.2 million, funds capital work related to the WWTP.
- Infrastructure Replacement Reserve – Water and Wastewater, of \$18.3 million, funds capital replacement of the wastewater collection systems, roadway damage associated with the utility, and wastewater upgrades for core areas.
- Corporate Charges, of \$6.9 million, include the Grants-in-Lieu of Taxes, cross-charges for customer billing and collections, and corporate administration.
- ROI, of \$4.7 million, is provided to the City for general operations. 2020 is the fifth year of a five-year, phase-in plan to establish an ROI from Wastewater and Water Utilities based on 10% of metered and fixed revenue.

### Wastewater Utility 2020 Operating Expenses \$70,149,000



■ Plant Operating  
■ Collection & Distribution Operating  
■ Plant Capital  
■ Collection & Distribution Capital  
■ Corporate Services  
■ Return on Investment

The Wastewater Utility's 2020 expenses were 9.4% less than budgeted and about 0.2% less than in 2019. This is due to COVID-19 related delayed capital and maintenance work, staffing vacancies, reduced overtime, and the Marquis Liquid Waste Hauler Facility was not operational as budgeted.

## Financial Statement

<b>Wastewater Utility Operating Revenues and Expenses (\$1000s)</b>			
	<b>2020 Budget</b>	<b>2020 Actual</b>	<b>2019 Actual</b>
<b>Revenues</b>			
Metered revenue	\$ 53,922	\$ 52,544	\$ 49,800
Infrastructure Levy	\$ 21,593	\$ 18,318	\$ 18,975
Other revenue	\$ 1,898	\$ 1,658	\$ 1,961
<b>Total Revenues</b>	<b>\$ 77,413</b>	<b>\$ 72,520</b>	<b>\$ 70,736</b>
<b>Expenses</b>			
Wastewater Treatment	\$ 9,797	\$ 8,050	\$ 7,967
Wastewater Lift Stations	\$ 2,078	1,888	\$ 1,892
Wastewater Sludge Handling & Disposal	\$ 1,864	1,488	\$ 1,678
Wastewater Administration & General	\$ 1,262	1,136	\$ 1,151
Corporate Services	\$ 2,261	2,089	\$ 2,303
Collection (Public Works)	\$ 8,690	7,392	\$ 7,434
Capital Charges	\$ 18,328	20,236	\$ 20,242
Provision to Infrastructure Services Capital	\$ 23,580	18,318	\$ 18,976
Grants-in-lieu of Taxes	\$ 4,853	4,853	\$ 4,770
Return on Investment	\$ 4,700	4,700	\$ 3,843
<b>Total Expenses</b>	<b>\$ 77,413</b>	<b>\$ 70,149</b>	<b>\$ 70,256</b>
<b>Revenues less Expenses</b>	<b>\$ -</b>	<b>\$ 2,371</b>	<b>\$ 480</b>
<b>(To)/From Stabilization/Capital Reserves</b>	<b>\$ -</b>	<b>\$ (2,371)</b>	<b>\$ (480)</b>

The positive balance of \$2.37 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, 2020, balances for Water and Wastewater Utility reserves were \$29.0 million. The Water and Wastewater Revenue Stabilization Reserve balance is \$7.3 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 citizens expect and regulatory requirements. End-of-year Capital and Replacement Reserve balances total \$16.7 million for Water, \$4.5 million for Wastewater and \$0.6 million for Water and Sewer infrastructure (e.g. manholes, pipes). See the table below for reserve details.

<b>Operating Stabilization and Capital Reserves</b> <b>Balances as of December 31, 2020</b> <b>(\$1,000s)</b>	
W/WW Revenue Stabilization Reserve	\$ 7,315
Waterworks Capital Projects Reserve	\$ 16,122
Water Replacement Reserve	\$ 535
Wastewater Capital Projects Reserve	\$ 2,476
Wastewater Replacement Reserve	\$ 2,008
Water and Sewer Infrastructure Replacement Reserve	\$ 587
<b>Total</b>	<b>\$ 29,043</b>

## 8.0 OUR CHALLENGES

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

**Adapting to COVID-19 Risks:** Maintaining reliable and quality water services is a high priority during a pandemic. Essential staff have responsibilities to follow all policies and procedures established to prevent the spread of COVID-19 and to reduce the risk of an outbreak at a plant.

**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 being updated for the water and wastewater 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. Adding water and sewer underground linear infrastructure in developed areas is more expensive, technically challenging and disruptive, than adding infrastructure in new greenfield areas.

**Growth Pays for Growth:** As Saskatoon continues to grow, Saskatoon Water continues to explore alternate sources of funding. The “Growth Pays for Growth” initiative assigns capital costs that can be directly attributed to the off-site levies paid by developers. Obtaining appropriate funding for infill development, where off-site levies do not apply, will be a challenge for future nodes and corridor growth.

**Condition and Capacity of Existing Infrastructure:** Some infrastructure has entered into a “replacement era” where asset sustainability and reliability will be at risk if not properly managed. Some of the infrastructure is over 100 years old and does not meet design modern standards for new development areas. Monitoring and assessing the physical condition and capacity of the infrastructure has been initiated as 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:** Steps are being taken to reduce greenhouse gases and optimize energy usage through the Energy Management Project initiated in 2020. Measures are also being undertaken to reduce water leakages and conserve water through the Water Conservation Strategy. Saskatoon Water is updating the Long-term Capital Development Plans to include the energy optimization goals while working towards better water efficiency.

**Regulatory Requirements:** The provincial Permit to Operate impacts the required processes and standards for the WTP and WWTP. Further evolving federal and provincial regulations have the potential to impact discharges to the river. Saskatoon Water and Water & 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:** Water & Waste Operations’ 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 & Sewer's employees are unionized by CUPE 859, which provides opportunity for movement and growth within the corporation. Management turnover also has been relatively high. 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 & 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 & Sewer's 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. Benchmarking data for Key Performance Indicators are expected to be defined to measure success. A funding plan will be identified to meet levels of service.

**Non-standard Equipment:** Water & Waste Operations 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:** Water & Waste Operations 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.

**Adapting to Fusion Enterprise Resource Planning:** All City departments have been using disjointed and outdated human resource, financial and asset management software. In 2020, preparation continued for the transition to the Fusion Enterprise Resource Planning program that will be fully implemented in 2021. The introduction of Fusion presents learning and other adaptation challenges but also provides opportunities for more integrated resource management with improved tracking and reporting.

## 9.0 CONCLUSION

The year 2020 was a transformational year for the Utilities, with a renewed management team building on the successes of previous leadership. Workplace policies and procedures were quickly adapted to provide reliable high quality essential water services during the ongoing pandemic. Significant progress was made on long-term capital projects that will be vital for future reliable water services for current and future citizens.

The Utilities' employees look forward to the challenges and the opportunities that the future presents, including the following areas of focus for 2021:

- Enhancing employee engagement and striving to meet all safety goals;
- Continuously improving operations to utilize resources as efficiently and effectively as possible to deliver the quality water and wastewater services that citizens expect;
- Completing long-term strategies with 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 and optimizing energy usage to reduce greenhouse gases; and
- Minimizing risks to reliable water services during a pandemic through continued adherence to policies, procedures and practices that reduce the spread of COVID-19.

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, chemists, and administrators play a crucial role. The continued guidance and support of the General Manager, City Manager, and City Council is appreciated.

## 10.0 APPENDICES

### Appendix One: 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

**IEC:** The International Electrotechnical Commission

**ISO:** The International Organization for Standardization

**MPN:** Most Probable Number

**NTU:** Nephelometric Turbidity Units

**ROI:** Return on Investment

**TP:** Total Phosphorous

**WSA:** Water Security Agency

**WTP:** Water Treatment Plant

**WWTP:** Wastewater Treatment Plant

**PSG:** Planning & Scheduling Group

## Appendix Two: Glossary

**Abatement:** To reduce the amount or lessen the effect of.

**Backflow Prevention Device:** 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 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.

**Injury Frequency Rate:** The number of injuries relative to the annual amount of time worked by 100 full time employees used to compare safety performance over time or between organizations. The formula is as follows:

(Number of lost time injuries x 200,000) divided by total hours worked)

**Injury Severity Rate:** The number of lost work days per 100 employees used as a proxy to measure the criticality of injuries and illnesses. The formula is as follows:

(Number of days off due to injury or illness x 200,000) divided by Total hours worked)

**Irrigation:** Artificial application of water 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.

**Potable:** Safe to drink.

**Procurement:** The process of obtaining or purchasing.

**Residual Handling Facility:** Removes chlorine and solids, mostly consisting of sand and inert ferric material, from the Water Treatment Plant effluent that is discharged to the South Saskatchewan River.

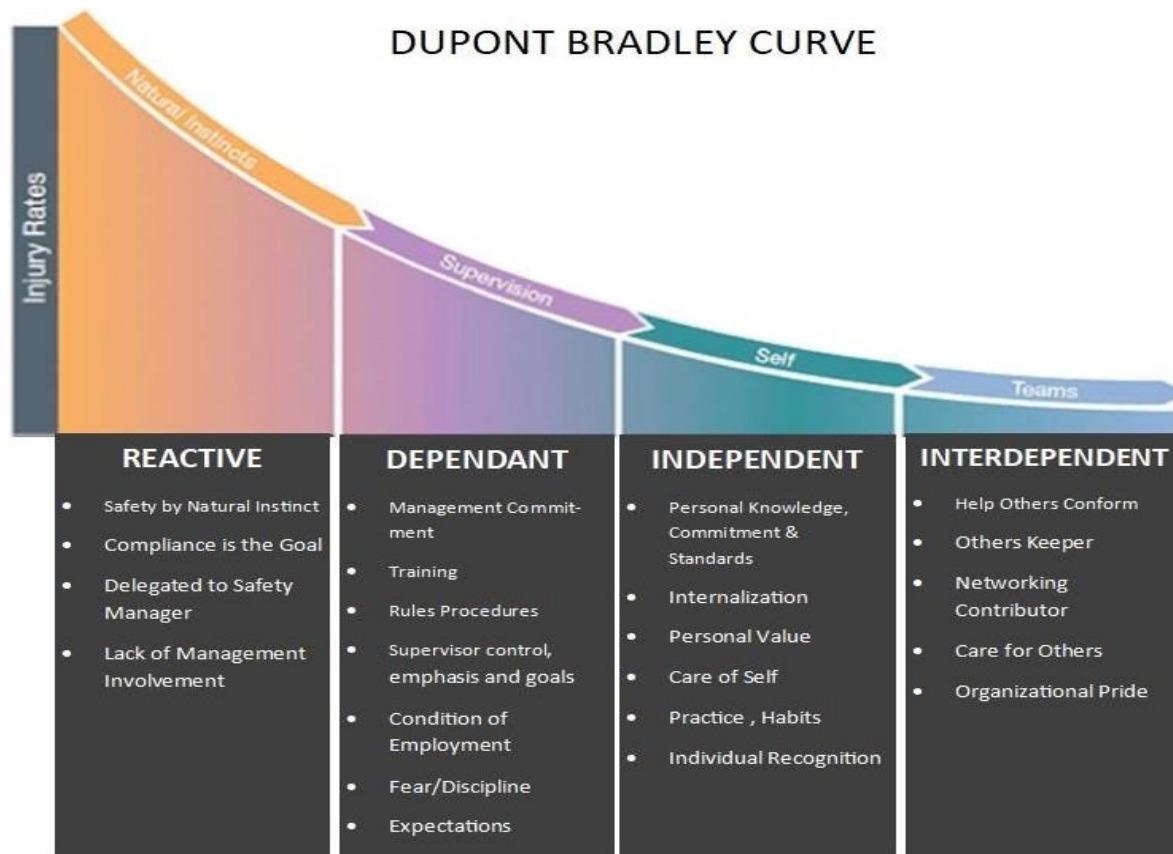


**Stabilization Reserve:** Water utility revenues fluctuate due to rainfall and demand for irrigation. Annual operating surpluses, which are more likely during drier years, are allocated to the Stabilization Reserve that can be used in years with an operating deficit. The Stabilization Reserve is capped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

**Surface Runoff:** Rainfall flowing overland and into the storm sewer without being absorbed into the ground.

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

## Appendix Three: Dupont Bradley Curve



## Appendix Four: 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 2020 rate structure remained the same.

WATER, SEWER & INFRASTRUCTURE			Billing Period May 18, 2020 - Jun 18, 2020
Meter No. 123456789			
<b>Current Billing Read</b>	<b>Previous Billed Read</b>	<b>Multiplier</b>	<b>Usage</b>
Jun 18	May 18		
Actual 1124.95	Actual 1121.05	35.315	137.73 ft <sup>3</sup>
			<b>Amount</b>
Water			\$6.25
Water Service Charge for 31 days			\$18.80
Sewer			\$3.24
Sewer Service Charge for 31 days			\$18.80
Infrastructure			\$4.49
			<b>\$51.58</b>
<b>TEMPORARY FLOOD PROTECTION CHARGE</b>			<b>\$2.29</b>
<b>STORM WATER MANAGEMENT CHARGE</b>			<b>\$6.78</b>
<b>RECYCLING CHARGE</b>			<b>\$7.52</b>

**Water Service Charge:** The fixed monthly charge for a 5/8 inch water meter is \$12.30, and for a 3/4 inch meter is \$18.45. The fee is prorated by the number of days in the month. A second water service charge is based on water usage (volumetric): \$4.539 per 100 ft<sup>3</sup> for the first 600 ft<sup>3</sup>, \$5.116 per 100 ft<sup>3</sup> for the second 600 ft<sup>3</sup> and \$6.736 per 100 ft<sup>3</sup> for over 1,200 ft<sup>3</sup>. 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 51.75% of the water volumetric charge. Rates are set on a cost recovery basis and recognize that not all water returns to the sanitary sewer: \$2.349 per 100 ft<sup>3</sup> for the first 600 ft<sup>3</sup>, \$2.648 per 100 ft<sup>3</sup> for the second 600 ft<sup>3</sup> and \$3.486 per 100 ft<sup>3</sup> for over 1,200 ft<sup>3</sup>. Sewer service charges fund wastewater operations and capital projects.

**Temporary Flood Protection Charge:** The charge is a fixed fee of \$2.250 per month, prorated by the number of days in the month. The fee is charged on each water meter and will be phased out by December 2021.. The charge is being used to reduce flooding in high risk areas during severe rain events.

**Residential Infrastructure:** The fee is \$3.261 per 100 ft<sup>3</sup> 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 \$6.650 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.



# STORM WATER UTILITY 2020 ANNUAL REPORT



# SASKATOON STORM WATER UTILITY 2020 ANNUAL REPORT

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## **SASKATOON STORM WATER UTILITY 2020 ANNUAL REPORT**

### **MESSAGE FROM THE DIRECTORS**

The Storm Water Utility funds the complex system of storm water infrastructure network which starts from the collection ditches, storm ponds and sewer infrastructure and ends at the South Saskatchewan River by discharge through the City's 114 outfalls. The storm utility is responsible for the planning and design, management, storage, operation and maintenance, and asset preservation, which is managed by the following departments:

- Saskatoon Water
- Water and Waste Stream – Water and Sewer Operations
- Technical Services

The storm utility also funds the drainage inspector and management of the Bylaw and Compliance Section (Community Standards) and the oversight of the riverbank stability by the Geotechnical Specialist (Saskatoon Water).

Management and staff from the responsible departments are committed to providing exceptional storm water management and flood protection services including operations and maintenance of assets in the most reliable and cost-efficient way for the citizens of Saskatoon. We are pleased to present our results in the Storm Water Utility 2020 Annual Report on behalf of our departments.

The report describes our contributions to achieving the City of Saskatoon's Strategic Plan. We take great pride in efficient storm water management and reducing the flood risk for the citizens of Saskatoon. Several initiatives have been completed and more are underway to further enhance service to the citizens, increase efficiencies, reduce costs, and strengthen our environmental leadership.

Our financials show responsible stewardship of the resources that Saskatoon citizens have entrusted to us. We continue to provide excellent value to our citizens as we undertake capital and continuous improvement projects that ensure asset and financial sustainability. Our utility rates are designed to fund the needed capital, asset preservation, operation and maintenance costs for current and future storm water management and flood protection considering climate change. The departments have been focusing on customer service, storm water management for current and new neighbourhoods, flood protection for the most at-risk areas, and addressing aging infrastructure for storm water related services.

We are proud to work with a dedicated group of professionals who demonstrate an ongoing commitment to storm water management and flood protection, as well as ensuring the storm water infrastructure is sustainable. The work of the Storm Water Utility departments is greatly appreciated.

Russ Munro – Director of Saskatoon Water

Dan Willems – Director of Technical Services

Brendan Lemke – Director of Water and Waste Operations

## SASKATOON STORM WATER UTILITY 2020 ANNUAL REPORT

### EXECUTIVE SUMMARY

The Saskatoon Storm Water Utility funds storm water management and flood protection services including ongoing operations and maintenance of assets with an estimated replacement value of \$2.6B. The Utility also monitors and stabilizes the East Riverbank to protect strategic public infrastructure. In 2020, the Storm Water Utility had revenues of \$12.2M, with \$11.8M for operating expenses which includes \$9.5M transferred to Capital and Infrastructures Reserves. Approximately \$0.3M was transferred to the Storm Water Stabilization Reserve which is available for future operating expenses.

In 2020 progress was made implementing the *Storm Water Utility Business Plan*, with the following highlights:

- Continued to progress the nine-project Flood Control Strategy which will reduce the flood risk for at least 10 top flood prone locations within the City before 2028. Detailed design and tendering for excavation and storm sewer infrastructure upgrades for the first project (W.W. Ashley District Park Dry Storm Pond) was completed. The feasibility assessment and preliminary design was completed for the second project (Churchill Neighborhood Park Dry Storm Pond).
- Presented options to City Council regarding the Montgomery Place Drainage Strategy. Reconstruction of overland drainage ditches was selected by Council to proceed in 2021. The detailed design for the first project was completed.
- Applied to the Investing in Canada Program (ICIP) for funding through the Provincial and Federal Government for future drainage improvement projects in Montgomery Place. This application included a Climate Change Resiliency Assessment that was completed by Saskatoon Water personnel.
- Completed construction of a concrete-grass drainage swale to resolve a long-standing flooding issue in Arbour Creek.
- Continued collaboration with the University of Saskatchewan, Meewasin, and others to monitor and research storm water quality and related concepts of the storm water system and South Saskatchewan River.
- Finalized the 2018-2019 State of Storm Water Infrastructure report which provides information regarding the storm systems inventory, replacement valuation, condition, and planned preservation.
- Continued collaboration with other City of Saskatoon Departments on safety and recreation uses of the storm pond system within the City. This included a pilot project of new welcome signage to be installed at each wet pond in the future.
- Completed a two-year research project on climate change risks for future intense rainfall events and implications for Saskatoon's storm water infrastructure system and design standards.
- Responded to 888 storm water and drainage inquiries through our Customer Care team. Bylaw and Compliance also responded to 158 drainage related complaint and the Storm Water team responded to 228 inquiries including 87 billings inquires and 44 site visits.

## **SASKATOON STORM WATER UTILITY 2020 ANNUAL REPORT**

- Roadways Fleet and Support completed the fall sweep which included 119 km of streets and 1,738 tonnes of debris collected. Water and Waste Operations flushed 3,154 m of storm sewers, cleaned 5,726 catch basins, and completed 46 repairs to storm outfalls and 23 repairs to storm ponds.
- Completed the annual Spring Reconnaissance for the first time internally. This comprises visual inspection of the slopes and monitoring of instrumentation to assess and rate specific sections of the East Riverbank. Annual monitoring programs were completed near 16<sup>th</sup> Street and 11<sup>th</sup> Street.
- A Crime Prevention Through Environmental Design (CPTED) review of the lane within the Nutana Slope Area was completed and resulting recommendations implemented.

In 2020, Saskatoon experienced two localized rainfall events with estimated return periods of “two to five years”. Rainfall on June 6<sup>th</sup> and 7<sup>th</sup> included a 1-in-2-year storm followed by a 1-in-2-year storm event on June 16<sup>th</sup> to 17<sup>th</sup>. The total rainfall accumulated for 2020 was 257 mm which was slightly less than the historical average of 264 mm.

# SASKATOON STORM WATER UTILITY 2020 ANNUAL REPORT

## 1.0 OVERVIEW

### 1.1 Introduction

The Saskatoon Storm Water Utility provides storm water management and flood protection through funding the storm water system's operations and maintenance, asset preservation, capacity enhancements, and drainage inspections. The Utility also monitors and mitigates damage to strategic public infrastructure along the riverbank.

Storm water services are provided to residential and industrial, commercial, and institutional (ICI) properties. In 2020, storm water charges were applied to approximately 66,193 single-family residential properties, 1,102 multi-family residential and 3,565 ICI properties including City-owned properties.

Saskatoon's storm water infrastructure includes over 23,066 manholes and catch basins, 956 km of linear infrastructure such as storm sewer pipes and culverts, 37 storm ponds, and other drainage infrastructure with a replacement value of approximately \$2.6B.

A list of key definitions for the report is provided in Appendix 1.

### 1.2 Strategic Linkages

The City's [Strategic Plan 2013-2023](#) provides the direction that guides Saskatoon Water's activities. The following section outlines our Vision, Mission, and linkages to the Corporate Strategic Goals, Leadership Commitments, and Values.

#### Our Vision

The City of Saskatoon (COS) is a leader in storm water design and asset management. We effectively collaborate with citizens and partners to utilize storm water as a resource and mitigate the risk of flooding.

#### Our Mission

The Storm Water Utility provides safe, efficient, and cost-effective storm water management to Saskatoon citizens through teamwork and innovation. We develop proactive strategies that ensure the effective long-term performance of our storm water systems, supported by sustainable, accountable, and responsive funding structures. Storm water management charges entrusted by citizens are used as effectively as possible to minimize storm water and snow melt impacts.

#### Our Strategic Goals

*Quality of Life:* Provide citizens with cost effective, reliable, and high-quality storm water management services.

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

## SASKATOON STORM WATER UTILITY 2020 ANNUAL REPORT

*Asset and Financial Sustainability:* Implement capital preservation and expansion plans that provide the most cost-effective, storm water-related infrastructure for current and future citizens and businesses.

*Environmental Leadership:* Implement leading-edge innovations for environmentally responsible storm water-related infrastructure and services.

*Sustainable Growth:* Work closely with other departments to provide efficient and resilient designs for storm water infrastructure for new developments.

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

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

### Our Leadership Commitments

Our employees support leadership commitments in our day-to-day work:

- Reliable and Responsible Service
- Strong Management and Fiscal Responsibility
- Effective Communication, Openness, and Accountability
- Innovation and Creativity

### Our Corporate Values

**Trust makes us Stronger:** We build trust with citizens and colleagues by providing accurate technical information, analysis, and responses in a timely manner.

**Act and Communicate with Integrity:** We lead by example, making the best decisions and striving to work beyond the scope of the position.

**Respect one Another:** We build on each other's strengths; respectfully acknowledging individual beliefs.

**People Matter:** In the storm water professions, we place the protection of the public and our staff as our highest priority.

**Courage to move Forward:** We take smart risks, thinking through challenges, suggesting new approaches, and embracing change to enhance our level of service.

**Safety in all we do:** We put safety at the forefront of all decision making and never compromise on the safety or well-being of ourselves, co-workers or the public.

## SASKATOON STORM WATER UTILITY 2020 ANNUAL REPORT

### 2.0 OUR STORM WATER UTILITY TEAM

The Storm Water Utility is part of Saskatoon Water in the Utilities and Environment Division. The Utility had two full-time employees and two engineering interns in 2020. The Utility also pays for services provided by the following departments:

**Saskatoon Water's Engineering and Planning** section is responsible for overseeing the Storm Water Utility and providing storm water engineering expertise. Saskatoon Water (SW) provides the following storm water management services:

- Flood Control Strategy
- Montgomery Place Drainage Strategy and Ditch Crossing Applications
- Rainfall monitoring and storm water quality monitoring
- Assessing runoff factors of multi-residential and ICI properties for billing purposes
- Engineering support for drainage projects
- Community liaison for storm water issues
- Modelling storm system capacity relative to rainfall volume and intensity
- Planning and design of storm water infrastructure for new land development

**Water & Waste Operations (WWO)** provides the ongoing day-to-day operations and maintenance of storm water ponds, outfalls, and below ground (sewer) storm water drainage infrastructure.

**Roadways, Fleet, & Support (RFS)** maintains above ground drainage, including culverts, and completes a fall street sweep.

**Technical Services (TS)** tracks the inventory, completes condition assessment, and oversees asset preservation for storm sewer infrastructure.

**Construction & Design (C&D)** operates the "Connection Desk" and provides project management services, including survey work and inspection, for storm water infrastructure construction projects.

**Community Standards** provides drainage inspections, drainage advice to residents and developers, [\*Drainage Bylaw\*](#) updates, and *Drainage Bylaw* enforcement.

**Sustainability** provides leadership in activities that contribute to storm water practices that protect our watershed and natural resources.

**Communications & Public Engagement (Communications)** assists in initiatives to enhance citizen awareness and engagement to improve flood resiliency.

**Corporate Revenue** provides storm water billing and collection services.

**Finance** provides accounting and administrative support.



# SASKATOON STORM WATER UTILITY 2020 ANNUAL REPORT

## 3.0 OUR INFRASTRUCTURE

Table 1 summarizes the City's storm water infrastructure with a replacement value of \$2.6B.

The Storm Water Utility's **minor system** consists of sewer pipes, manholes, catch basins, and outfall structures that convey runoff from more frequent, lower intensity storm events (up to a "1-in-2-year" storm). The system includes 956 km of linear infrastructure such as storm sewer pipes and culverts, 9,370 manholes, 13,696 catch basins, 2,930 service connections, 114 outfalls, and minor ditches.

The **major system** consists of overland street drainage, eight dry ponds, 29 wet ponds (including six naturalized ponds and two constructed wetlands), major ditches, swales, and any other land that is required to convey runoff from less frequent, higher intensity storms that produce runoff in excess of what the minor system typically handles.

Table 1: Storm Water Inventory

Asset	Type	2020 Inventory
Sewer Mains	Collectors	670 km
	Trunks	71 km
Manholes	Collectors	8,867 ea.
	Trunks	503 ea.
Force mains		4 km
Service Connections		2,930 ea.
Catch Basins	Collectors	13,204 ea.
	Trunks	492 ea.
Leads	Collectors	151 km
	Trunks	7 km
Dry Ponds		8 ea.
Wet Ponds		29 ea.
Culverts		9 km
Outfalls		114 ea.
Sub-drainage		44 km
Oil & Grit Separators		1 ea.
Lift Stations		2 ea.
Replacement value		\$2.6 B



Briarwood Wet Pond (2019)

# SASKATOON STORM WATER UTILITY 2020 ANNUAL REPORT

## 4.0 OUR RESULTS

### 4.1 Surface Flooding

#### **Annual Rainfall**

Eight rainfall gauges were regularly monitored between April 1, 2020 and September 30, 2020 with a summary of Saskatoon's 2020 rainfall season provided in the [2020 Annual Rainfall Report](#). Overall, Saskatoon had an average rainfall year with 257 mm of rainfall accumulating compared to the 264 mm historical average and 569 mm record high in 2010.

Two rainfall events with an estimated return period of two years or greater were recorded at City rain gauges in 2020. The greatest 2020 return rain event (1-in-2-year) was early in the morning on June 6 with 45 mm recorded by City Hall and Shaw Centre rain gauges. Table 2 provides the rain event details recorded by six rain gauges.

**Table 2: Rain Events in 2020**

Date	Rain Event Statistics	Acadia	City Hall	Shaw Centre	Wastewater Treatment Plant	Woodlawn	Aden Bowman
June 6-7 <sup>th</sup> , 2020	Accumulation (mm)	37	45	45	31	41	38
	Duration (minutes)	795	770	755	775	760	790
	Return Period (yr.)	< 2	2	2	<2	2	2
June 16-17 <sup>th</sup> , 2020	Accumulation (mm)	38	39	30	34	37	N/A
	Duration (minutes)	795	745	740	770	780	N/A
	Return Period (yr.)	2	2	<2	2	2	N/A

#### **Flood Control Strategy**

The \$54M Flood Control Strategy (FCS) includes nine projects to reduce the flood risk for at least 10 flood zones between 2019 and 2028. The FCS is funded by the Storm Water Utility (60%) and the Government of Canada (GoC) Disaster Mitigation and Adaptation Fund (DMAF) (40%). The GoC approved the FCS Greenhouse Gas Emissions assessment, completed internally by Saskatoon Water and Sustainability staff, that was required as part of the funding agreement.

In 2020, Saskatoon Water and Parks completed the detailed design including landscaping of the W.W. Ashley District Park dry storm pond which will reduce flood risk for the following intersections:

- Lansdowne Avenue/1<sup>st</sup> Street;
- Dufferin Avenue/1<sup>st</sup> Street; and
- Broadway Avenue/Taylor Street.

Construction for the FCS started in 2019 with the sports field at Aden Bowman Collegiate (ABC) to replace the full-size multi-purpose field at W.W. Ashley District Park. The new field opened to the public in October 2020 under a joint use agreement between Saskatoon Public Schools and the City. The ABC field construction will cost less than reconstructing the full-size field at W.W. Ashley District Park and provides uninterrupted high quality space for sports field users.

## SASKATOON STORM WATER UTILITY 2020 ANNUAL REPORT



**Aden Bowman Sports Field**

Construction of the dry storm pond at W.W. Ashley District Park and associated sewer infrastructure work was tendered in December 2020 with construction scheduled for early 2021. All construction is expected to be completed in 2021.

*"The work has started in the Park. I keep walking by in amazement that it is really happening. I hope you know how grateful we are!"*

Ms. Bourgeois (resident near the W.W. Ashley Park project)



**W.W. Ashley Park Detailed Design Rendering**



## SASKATOON STORM WATER UTILITY 2020 ANNUAL REPORT



**W.W. Ashley Park Project Signage (November 2020)**

Saskatoon Water began preliminary design (technical feasibility study) of the second FCS project, a dry storm pond proposed within the north half of Churchill Neighbourhood Park to reduce the flood risk at the following intersections:

- Ruth Street/Cairns Avenue;
- Bute Street/Munroe Avenue;
- Ruth Street/York Avenue; and
- Bute Street/Albert Avenue.

This proposed project will be presented to City Council in early 2021 for approval to proceed to detailed design, public engagement, and construction. Pending approval, construction is scheduled to start in early 2022.

### **4.2 Maintenance and Operations**

#### **Citizen Inquiries**

In 2020, the Customer Care Centre responded to 888 inquiries (similar to 2019) from citizens regarding culvert, drainage, storm sewer, and storm water flooding issues. The Storm Water Utility group responded to 228 citizen inquiries (See Table 3), which included 39 internal inquiries and 44 required a site visit.

## SASKATOON STORM WATER UTILITY 2020 ANNUAL REPORT

**Table 3. 2020 Storm Water Group Customer Inquiries**

Summary of Inquiries	
Alley Drainage	8
Surface Drainage	15
Sewer Drainage	10
Montgomery General	14
Montgomery Drainage Strategy	13
Montgomery Ditch Crossings	13
Flooding	15
Storm Water Utility Billing	87
General	47
Bylaw	6
<b>Total</b>	<b>228</b>

### ***Roadways, Fleet, & Support Fall Sweep***

Similar to 2019, the 2020 fall Street Sweep program utilized a tree density and flood risk approach. A total of 119 km of streets were swept, with 1,738 tonnes of debris collected. From 2019 to 2020, sweeping efficiency went down from 19 to 15 tonnes per linear kilometer swept due to being cut short by an early snowfall. By designing the program based on higher tree density, increased debris captured during the sweep provides better flood risk reduction per kilometer swept.

### ***Water & Waste Operations Maintenance***

Water & Waste Operations operates and maintains below-ground storm water infrastructure including sewer mains, manholes, and connections. Table 4 below summarizes WWO's 2020 storm water related maintenance activities including flushing and televising storm water sewers, and cleaning and inspecting infrastructure.

**Table 4: WWO's Storm Water Infrastructure Maintenance**

Activity	2019	2020	Units
Flushing Storm Sewers	8,905	3,154	Meters
Storm Sewer Meters	1,861	1,549	Meters
# of passes	116	43	Each
Televising Storm Sewers	20,157	2,104	Meters
Catch Basin Leads	138	42	Each
Inspect Catch Basins	301	See Note 1	Each
Clean Catch Basins	25,380	5,726	Each
Repair Catch Basins	117	19	Each
Inspect Storm Manholes	582	80	Each
Repair Storm Manholes	116	41	Each
Grout MHs/CBs	1	0	Each
Outfalls	400	46	Each
Storm Ponds	69	23	Each

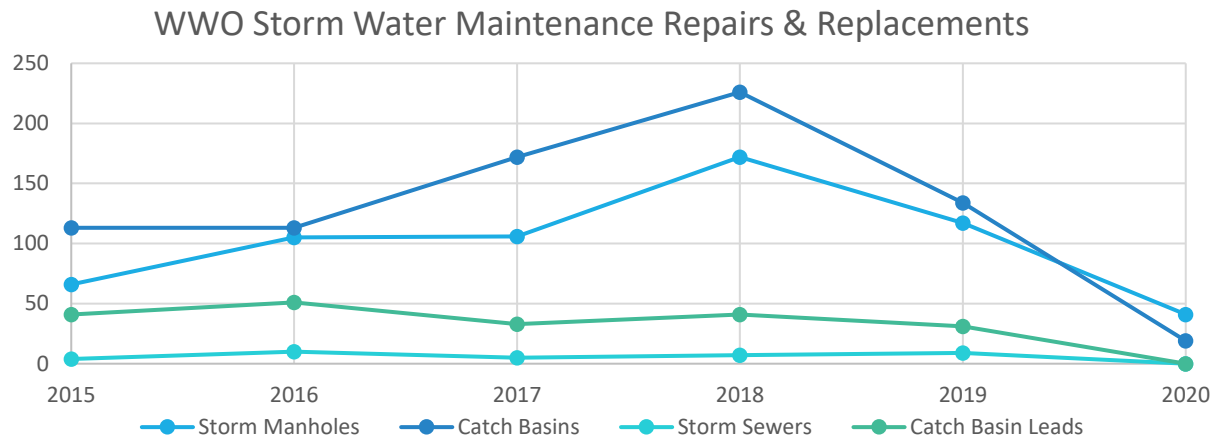
Note 1: CB inspections not recorded in 2020

#### **Table Definitions**

- “Storm Sewer Meters” refers to the storm segment meters flushed.
- “Flushing Storm Sewers” includes multiple passes by the flusher hose in the same segment.
- “Catch Basin Leads” is the number of leads flushed or cleaned.
- “Outfalls” is the number of total times outfalls inspected and/or cleaned.
- “Storm Ponds” is the number of trips made to maintain storm ponds.

## SASKATOON STORM WATER UTILITY 2020 ANNUAL REPORT

A total of 60 manholes and catch basins were repaired in 2020. Replacement work for catch basins and manholes were not tracked in 2020. Repair and replacements for both storm sewers and catch basin leads were also not recorded in 2020. Figure 1 below displays the 2020 WWO repairs and replacements of storm water infrastructure compared to the previous five years.



**Figure 1. Storm Water Maintenance Comparison for Five Years**

Less maintenance was completed in 2020 because of the response to COVID-19 with fewer than normal seasonal workers being hired and some that were hired started later in the summer. Physical distancing requirements and other COVID-response related procedures also impacted operating efficiencies.



## SASKATOON STORM WATER UTILITY 2020 ANNUAL REPORT

### 4.3 Storm Water Asset Management

#### **Storm Sewer Inspection, Cleaning and Lining**

In 2020, the Storm Water Utility funded the cleaning and inspection of approximately five km of storm sewers. Over 150 km of storm pipes in total have been inspected to date (20% of total system), and 120 km of these have been rated (16% of total system). The inspected storm sewers were rated using a three-point scale:

- A: No structural problem evident
- C: Sewer main showing deterioration
- F: Physical condition has failed



The rating for 120 km of inspected sewer mains is provided in Figure 2 below:

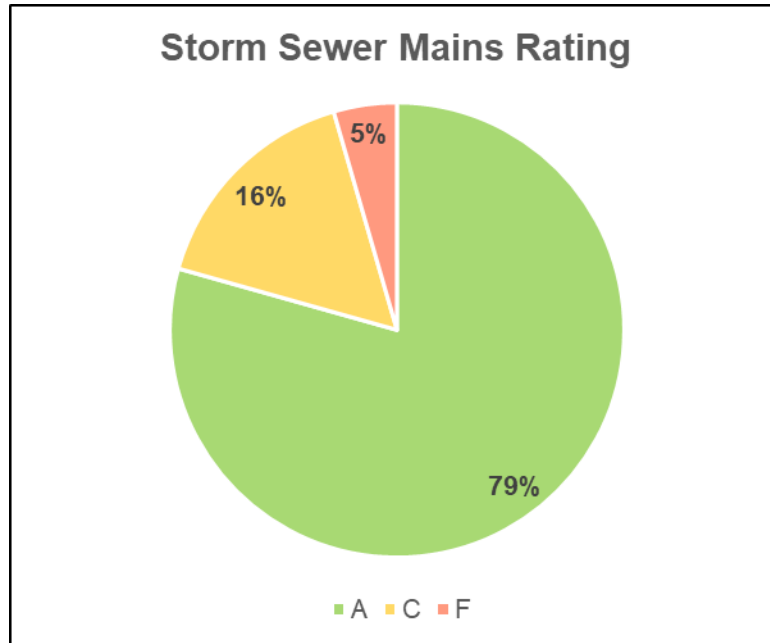


Figure 2. Storm Sewer Mains Rating

#### **State of Storm Water Infrastructure Report**

Saskatoon Water finalized the 2018-2019 State of Storm Water Infrastructure report in 2020. This report provides the inventory of the storm water infrastructure assets (Table 1), provides a replacement valuation for each asset, and documents next steps to improve overall storm water asset management. The Storm Water group plans to work with the City's Corporate Asset Management Manager to align our future report with other City Asset Management Plans.

#### **Brand Road Storm Dredging**

Construction of the dredging project for Brand Road Pond commenced in December 2020 to improve the drainage flow path for the storm water management network.

## SASKATOON STORM WATER UTILITY 2020 ANNUAL REPORT

### **Storm Pond Sedimentation Pilot Project**

In 2020, a pilot project was conducted to investigate sediment buildup in four wet ponds. Bathymetric surveys concluded that two ponds had sedimentation build-up equivalent to over 50% of the ponds' dead storage. Sediment samples from each pond also were tested by the U of S to determine potential contaminants. A cost-benefit analysis will be conducted to determine whether to proceed with dredging the ponds to restore original capacity.

### **Drainage Projects**

- **Melville Street (Stonebridge)**

In 2018, the Utility assessed design options for improving drainage near Melville Street/Portage Avenue. In 2019, four options were reviewed in detail and a preferred option determined. The preferred option of extending the existing storm pipe under the CN rail tracks and discharging into the Cartwright Storm Pond was progressed during 2020.

However due to the complexity of access, boring under the CN tracks and requirement for an easement agreement for the existing storm pipe, the design process has taken longer than expected. Due to these complexities, which are difficult to foresee and account for during the conceptual design stage, the estimated budget to complete the work has substantially increased. A cost value analysis review is considered necessary to continue this project and will be completed in 2021.

If approved, the final design will be completed in early 2021 with construction of the storm sewer extension to be completed in winter of 2021/2022. The remaining drainage upgrades can then be completed in coordination with roadway reconstruction projects in 2022.

- **Lashyn Cove (Arbour Creek)**

Flooding has occurred several times at the drainage low point within Lashyn Cove causing significant basement flood damage. A concrete-grass combination side-yard drainage swale was designed in late 2019 and the concrete portion of the swale was constructed in October and November of 2019 on the right-of-way.

The contractor returned in early summer 2020 to complete the side-yard swale.

*"I want to thank you for all your hard work regarding the installation of the swale at our residence. I feel confident this swale will keep the water out of our basement and I can't begin to tell you how much stress this will remove from our lives!"*

Mr. and Mrs. Chouinard

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Lashyn Cove side-yard swale (May 2020)

- **Montgomery Place Drainage Strategy**

Frozen culverts and other drainage issues resulted in ponding during spring snow melt. In 2020, 17 work requests were made to the Customer Care Centre regarding culverts and drainage in Montgomery Place, which was down from 26 in 2019.

Saskatoon Water held an open house attended by 60 residents in Montgomery Place on February 13, 2020 to discuss several drainage related items:

- Present design of drainage improvements on Caen St, Lancaster Blvd, and Dundonald Ave.
- Review costs and impacts on driveway crossings of the proposed construction
- Review the current ditch crossing standard and review possible alternatives for the neighbourhood with unique rural setting lots

Results of a survey completed by 62 Montgomery Place residents about the above items also was compiled. The public engagement results were incorporated in the Montgomery Place Drainage Strategy with three options presented to City Council in June 2020. City Council approved the option of proceeding with drainage improvements, restoring existing crossings to current width during construction and cost sharing driveway material and culvert construction with private property owners. Drainage improvement construction is expected to occur in 2021 (Figure 3).

A cost savings strategy to include water main replacement, lead-line and fiber connection replacement, and road reconstruction with the ditch reconstruction and shallow storm sewer installation is planned to be completed as a coordinated large-scale project.

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Saskatoon Water applied to the Investing in Canada Infrastructure Program (ICIP) for funding (approximately \$6.4M) through the Provincial and Federal Governments for future drainage improvement projects in Montgomery Place. The decision on the application is expected in early 2021.

*“On behalf of Montgomery Place residents, I would like to thank Angela Schmidt and her team of engineers for the extensive work of assessing the drainage issues and continued consultation with residents.”*

Ms. Barb Biddle (Montgomery Place Community Association)



**Figure 3. 2021 Proposed Construction Map**

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### 4.4 Bylaws and Enforcement

The Storm Water Utility funds a dedicated drainage inspector position and partially funds three other positions in the Community Standards Bylaw Compliance Section. The drainage inspector helps citizens and developers ensure compliance to Saskatoon's [Drainage Bylaw](#) through a model of education and enforcement. In 2020, Community Standard's Bylaw Enforcement Network software tracked 158 property drainage-related complaints, up from 117 in 2019. Table 5 displays the number of drainage related complaints in 2020 compared to 2019.

**Table 5. Drainage Complaint Numbers**

Complaint Type	2019	2020
Lot Grading Concern	24	25
Sump Pump Discharge	23	6
Sump Pump Winter Bypass	-	11
Drainage Advice & Education	19	64
Lot Grading Plan Requests & Questions	12	8
Rear Property Line Drainage	9	15
Eaves Trough & Downspouts	9	11
ROW Closure Approvals	6	-
Side Yard Drainage Concerns	3	1
Garden/Garage Suite Plan Approvals	3	1
Commercial Property Development	3	1
Retaining Wall Concerns	2	1
Groundwater Issues	2	1
Infill Development	1	8
Condo Development	-	1
Detached Garage Flooding	-	1
Garage Pad Elevations	1	3
<b>Total</b>	<b>117</b>	<b>158</b>

The Storm Water Utility provided funding for a capital project led by Community Standards to improve Drainage Bylaw compliance. Completed and in-progress initiatives under this project are described below.

#### 4.4.1 Drainage Regulation Completed Initiatives

- Residential Property Lot Grading Guidelines – This document was completed in August of 2020 and is available on the [City's Lot Drainage webpage](#). A comprehensive set of guidelines assist property owners in ensuring proper storm water management on their lot. A Communications Plan has been developed for this information which includes social media posts, public service announcements (PSAs), targeted emails to stakeholders, and printed hard copies that will be available from City Hall.
- Lot Drainage Webpage – The City's Lot Drainage webpage was revised to provide property owners more detailed information on lot grading. Four new webpages were added that contain information on residential lot grading styles and lot grading



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requirements. The webpages also provide access to the Residential Property Lot Grading Guidelines and City's Lot Grading Plans database.

- **Infill Lot Grading Regulation** – An Infill Lot Grading Plan review and approval process has been developed. The process includes the required submission of an Infill Lot Grading Plan at the Building Permit Application stage with an optional inspection at the 'rough grade' stage and a mandatory inspection at the 'final grade' stage. Plan review, approval, and inspections will be completed by Community Standards. Timing for this item is dependent on timing associated with implementation of the revised Drainage Bylaw. Educational material for external stakeholders regarding this process has been developed in anticipation of the revised Drainage Bylaw.
- **Commercial & Multi-Family Site Grading Regulation** – A Site Grading Plan review and approval process has been developed. The process includes the current requirement of submitting a Site Grading Plan to Saskatoon Water for approval prior to development and submitting an as-built drawing upon completion of the development. The process also involves an optional inspection at the 'rough grade' stage and a mandatory inspection at the 'final grade' stage. Site inspections will be performed by Community Standards. The timeline for this process is dependent on timing associated with the implementation of the revised Drainage Bylaw and the development of internal workflow procedures. Educational material for external stakeholders regarding this process has been developed in anticipation of the revised Drainage Bylaw.

### **4.4.2 Current Initiatives**

- **Drainage Bylaw Amendments** – A draft of proposed Drainage Bylaw amendments has been prepared and Council consideration of the proposed bylaw amendments is anticipated in early 2021.
- **Rear Property Line Elevation Control** – Revisions to the Design and Development Standards Manual have been proposed which provide administration with additional regulatory tools respecting drainage and lot grading matters. This includes requirements that compel a more extensive use of rear property line concrete swales. These swales provide a visual benchmark to help assist builders and homeowners in establishing proper lot grades while also facilitating the conveyance of overland storm water flows.
- **Park Development Guidelines** – Stakeholder engagement will continue through spring of 2021 regarding potential park infrastructure improvements to better accommodate drainage from lots adjacent to parks. This serves to address situations where parks are frequently damaged due to high amounts of storm water runoff.



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- Garage Pad Elevations – Stakeholder engagement will continue through spring of 2021 on methods to regulate the elevations of garage pads. This serves to eliminate drainage issues caused by differing garage pad elevations on side-by-side lots.

### ***4.4.3 The Private Crossings Over Ditches Bylaw, 2020***

Saskatoon Water, in collaboration with City Solicitors, drafted a new bylaw for the City to cost share Montgomery Place driveway reconstruction and culvert installations with private property owners. Bylaw No. 9730, [\*The Private Crossings Over Ditches Bylaw\*](#) was approved by Council in December 2020.

### ***4.5 Riverbank Slope Stability***

The Storm Water Utility funds riverbank slope stability monitoring due to the impact of snow melt and rainfall on groundwater levels and erosion. The City's goal is to manage the East Riverbank slope stability more proactively for increased efficiency and lower long-term costs.

#### ***East Riverbank Spring Reconnaissance***

Since 2009 an annual Spring Reconnaissance has been completed on the East Riverbank, for areas considered most susceptible to slope instability, between the North and South Railway Bridges. This reconnaissance comprises visual inspections of the slopes and monitoring of slope inclinometers and standpipe and vibrating wire piezometers. The reconnaissance aims to provide a yearly review of the riverbank status from a geotechnical and risk of slope instability perspective.

The Spring Reconnaissance has previously been completed by an external geotechnical consultant, but in 2020 following the purchase of instrumentation equipment and the hire of an internal geotechnical engineer in 2018, the Reconnaissance was successfully completed by Saskatoon Water staff. Completion of this report internally will enable the City to have a more detailed understanding of the East Riverbank and to provide a higher level of maintenance where required.

In addition to the monitoring completed as part of the Spring Reconnaissance, Saskatoon Water staff visually monitored East Riverbank sites near 16<sup>th</sup> Street and 11<sup>th</sup> Street, with monitoring being more frequent when risk of slope movement was higher.

#### ***Nutana Slope Area***

In June 2020, a Crime Prevention Through Environmental Design (CPTED) review of the lane within the Nutana Slope Area was completed by the City. To improve the area's aesthetics and reduce littering in the area, the following items were completed in 2020:

- vegetation cutback to provide sightlines through the lane;
- installation of lockable gates to replace the road closed barricades and signs and to stop vehicle traffic through the lane; and
- painting of the overland storm water pipe to camouflage the pipe into the surrounding environment and reduce graffiti.

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Gate at West End of Nutana Lane installed October 2020



Drainage Pipe after Painting (October 2020)

In spring 2021, a creeper will be planted at the base of each wooden crib supporting the storm pipe to aid pipe camouflaging.

In 2020, the contract with Golder and Associates for instrumentation monitoring in the Nutana Slope Area was renewed for 2021-2023 to maintain consistency due to specific instrumentation requirements.

### ***Saskatoon Riverbank Stability Modeling:***

The 3D model, created in 2018, continued to be updated with new and revised information in 2020 and was utilized to review ground and ground water conditions and their impacts on slope stability along the East Riverbank. The model has been successfully used to

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demonstrate how proposed construction by the City to maintain level of service for residents will impact the stability of adjacent riverbank slopes.

### ***Riverbank Development Regulations***

In December 2019, City Council approved the bylaw amendment which included the Riverbank Slope Overlay District and applies appropriate development standards and regulations. The bylaw helps to avoid or minimize potential impacts of slope instability and subsidence on development, and to prevent injury and minimize property damage related to public and private properties adjacent to the South Saskatchewan River.

In 2020 three applications were received and approved for development in Zone 1. The regulations have been well received by the local residents and developer community as development is now able to proceed within this area. Six applications were approved in Zone 2.

### ***Geotechnical Support***

In addition to managing the riverbank, the City Geotechnical Engineering Specialist is a resource for all City departments and in 2020 was involved in several projects, providing geotechnical support. Some of these projects included the following:

- McOrmond Drive Trunks & Primary Water Main
- Recovery Park
- Faithful Avenue Area Grading, Trunks & Primary Water Main
- W.W. Ashley District Park Dry Storm Pond
- West Compost Depot
- Landfill Monitoring

## ***4.6 Community Awareness and Engagement***

### ***Montgomery Place Drainage***

Saskatoon Water updates Montgomery Place residents annually regarding spring melt, ongoing drainage issues with the rural drainage path, and expectations of the City and property owners. The 2020 spring update delivered to the Montgomery Place neighbourhood in 2020 is provided in Appendix 2. In addition to the annual spring update, residents of Montgomery Place received a notification flyer before the February 2020 public engagement event and residents in the proposed 2021 project construction footprint received a letter to set up virtual meetings for a project update in September 2020.

The virtual meetings between the City and property owners were to review ROW and driveway impacts during construction. Saskatoon Water received feedback from approximately 40 of the 60 property owners within the construction footprint.

### ***Flood Control Strategy***

Communications and engagement for the Flood Control Strategy is a priority for the Storm Water Team. The following communications were mailed to area residents:

- W.W. Ashley Storm Pond Construction Delay (Spring 2020)
- W.W. Ashley Storm Pond Construction Update (Fall 2020)

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A general FCS email to the subscriber list was also completed in the fall of 2020. Communication and public engagement for the second FCS Project (Churchill Park) is expected to occur in early 2021. The FCS communication documents are provided in Appendix 3.

### ***Nutana Slope***

Two flyers were distributed to residents near the Nutana Slope to inform them of instrumentation monitoring results. A “Notice to Residents” was also delivered in the spring, to provide information on what to expect from the City and what citizens can do to reduce risk from slumping. A “Lane Update” was delivered in the fall detailing the modifications made in the back alley.

### ***Yellow Fish Road™ Program***

The Storm Water Utility, in collaboration with Sustainability and WWO, supported the Partners for the Saskatchewan River Basin (PFSRB) and Meewasin Valley Authority in delivering the “Yellow Fish Road™ Program” to make students and citizens aware that water goes through the storm water system untreated to the South Saskatchewan River. In 2020, six schools/groups and 165 students and teachers participated in Yellow Fish Road™. Yellow fish were painted on 131 storm drains in three neighbourhoods, and 593 door hangers were distributed.

### ***Storm Water Charges***

Bill inserts were prepared to provide information to ICI property owners about the storm water management charges including information about changes to rates from 2020 to 2022 and the Storm Water Management Credit Program.

### ***Saskatoon.ca Website Updates***

The Storm Water website is reviewed bi-annually and as needed to ensure up-to-date information is provided to Saskatoon residents.

## ***4.7 Storm Water Ponds***

### ***Storm Water Ponds***

The City currently has 29 wet ponds and eight dry ponds within the storm water management network. The Storm Water Team formally inspects the storm water management ponds every three years, with new ponds inspected the year they are in-service, as part of the Asset Management Plan.

### ***Storm Water Ponds and Recreational Use***

The City permits use of storm water ponds for recreational use through Policy C10-024. A storm pond recreational use committee that meets bi-annually includes members from Saskatoon Fire, Recreational & Community Development, Communications, Water and Waste Operations, Technical Services, and Saskatoon Water to discuss safety of the storm pond system. Saskatoon Fire completes ice thickness testing in the winter to permit recreational use of the storm ponds for the season. Additional seasonal testing is completed by Saskatoon Fire as required based on weather conditions.



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### ***Signage Pilot Project***

A pilot project was completed for the new welcome sign at Bev M. Dyck Park in Kensington. The sign received some damage after installation which prompted further investigation into the sign material by the Storm Water Team. A second 10 sign pilot project is expected to occur in mid 2021 to select a final sign material for installation of all welcome signs in the city.



**Welcome Sign at Bev M Dyck Wet Pond**

### ***4.8 Storm Water and the Environment***

#### ***Storm Water Quality Monitoring***

Saskatoon Water monitors 12 major outfalls for storm water quality. These outfalls are sampled and tested for temperature, chlorine, E.coli, and total coliforms every alternate week.

The Storm Water Utility continued its partnership with the University of Saskatchewan (U of S) for storm water quality testing and analysis. In 2020, the City completed the remediation that was required to address a water quality issue at a storm water outfall identified previously through the partnership. Additional smoke testing also was completed in 2020 by WWO to identify the source of contamination contributing to water quality issues for two other outfalls.

The monitoring program also tracks changes in water quality and quantity for the Northeast Swale. The monitoring measures basic water quality parameters, and monthly water samples provide for more detailed analysis. Annual reporting includes trend analysis of samples, and comparisons to guidelines and historical data.

#### ***Green Infrastructure Strategy***

The Storm Water Utility participated in and contributed funding for the Green Infrastructure Strategy (Strategy) with Sustainability, Planning and Development, other departments, and Meewasin Valley Authority. The Strategy includes actions that support

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managing rain where it falls and recognizes storm water as an important resource. An implementation plan is being developed in alignment with the Strategy's priorities presented to Council in February 2020. Green storm water infrastructure, such as swales and storm water ponds, are an important part of Saskatoon's green network. Green storm water infrastructure will be incorporated in future neighbourhood planning to contribute to the green network and to improve storm water quality entering the South Saskatchewan River.

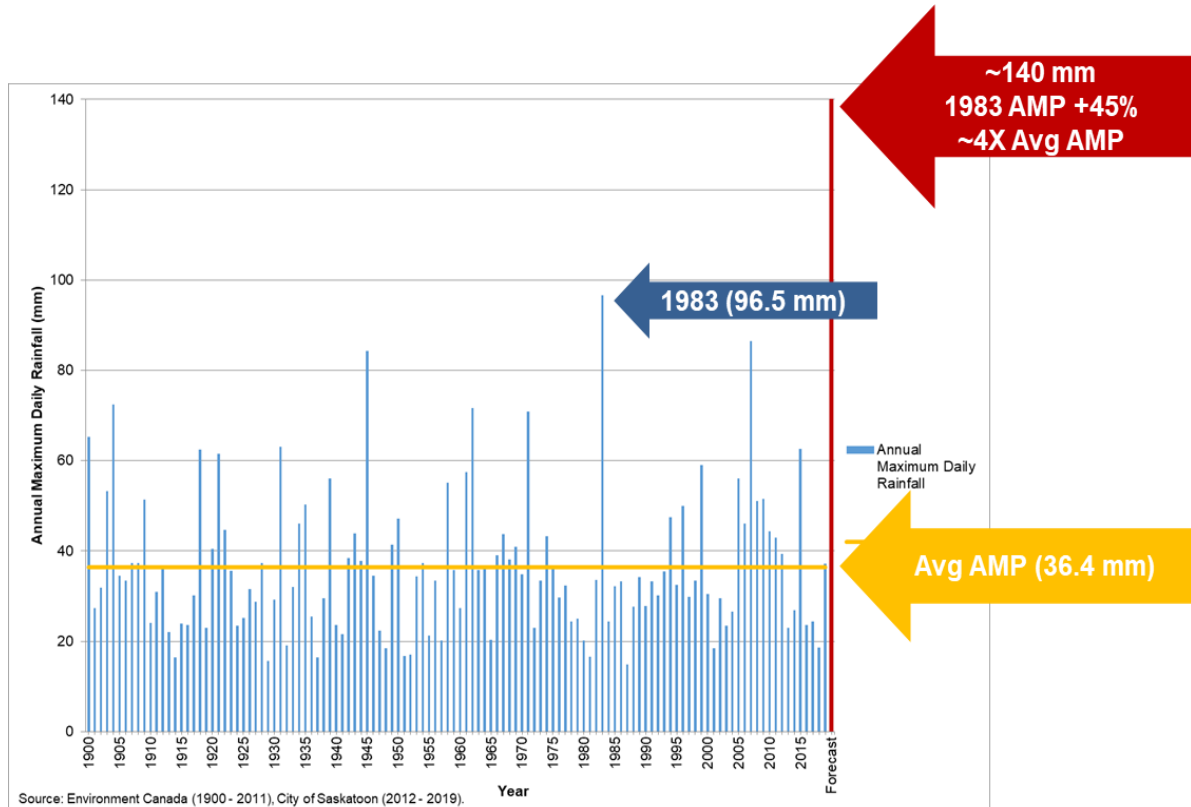
### ***Climate Change***

In 2020, a two-year research project was completed on climate change risks for future intense rainfall events and implications for Saskatoon's storm water infrastructure standards. The project was done in partnership with the U of S and Concordia University with partial funding from the Government of Canada's National Disaster Mitigation Program. Historical intense rainfall data shows increasing and decreasing trends, depending on rain gauge, time frame considered, rainfall timing (sub-hourly, hourly, daily), and the methodology used to assess the trends. The future holds much uncertainty for rain events, with risk of higher intensity extreme rainfalls.

Saskatoon's current **minor system** design standards for a 1-in-2-year rainfall (16.5 mm/hour) appear to be adequate. More risk exists that a 1-in-100-year future rainfall will exceed current **major system** design standards (96.5 mm/24 hours). About 10% of climate change models forecast a 1-in-100-year rainfall that exceeds 140 mm/24 hours. The study concluded that a change in major system design standards to convey 45% more rainfall would approximately double construction costs. The study results will be further considered in 2021 in making recommendations for changes to the City's storm water infrastructure standards.



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**Figure 4. Annual Maximum Daily Precipitation for Saskatoon (1900-2019)**

### ***Climate Change Resiliency Assessment***

As part of the application for the Montgomery Place Drainage Strategy funding through the ICIP (Section 4.3), Saskatoon Water completed a Climate Change Resiliency Assessment in December of 2020. This report will be submitted to the Provincial and Federal Governments in early 2021.

### ***Sediment Sampling – Pilot Project***

Saskatoon Water completed the bathymetric survey and sediment sampling pilot project in Fall 2020, as mentioned in Section 4.3, to provide a better understanding of the water and sediment in our storm water management ponds. Through an ongoing partnership, the U of S completed in-kind laboratory testing of the sediment samples. The U of S analysis confirmed that the samples contained contaminants and metals expected to be observed in municipal storm water ponds throughout North America.

### ***Floating Treatment Wetland Pilot Project***

The Storm Water Utility collaborated with the Sustainability Division, the South Saskatchewan River Watershed Stewards (SSRWs), and Meewasin on a Floating Treatment Wetland Pilot Project for the Evergreen Storm Water Pond. The project will test the platform design, the robustness of various native plant species, and the soil used for plant growth, and impact on pond water quality, with a new monitoring program established in 2020. The project is expected to attract students on educational field trips. The floating wetland was expanded from 2 to 13 units in September 2020 through an RBC Grant championed by Meewasin. In 2020, the City worked with project partners to install informative signage about the floating wetland project.

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**Floating Wetland Sign installed in September 2020**

## SASKATOON STORM WATER UTILITY 2020 ANNUAL REPORT

### 4.9 Utility Billing

#### **ERU Assessment Updates**

In 2020, the Storm Water team reassessed 76 ICI and multi-residential properties due to recent construction or customer inquiries. In addition, 33 new assessments were completed on new ICI or multi-residential properties within the City.

#### **Storm Water Management Credit Program**

The [Storm Water Management Credit Program](#) took effect January 1, 2019, providing the opportunity for a reduction in Storm Water Management Charges for ICI and multi-residential property owners who have implemented onsite storm water management measures. Properties are eligible for a credit in the three categories up to a maximum total combined credit of 50%. The details of the three categories are provided in Table 6 below.

**Table 6: Storm Water Management Credit Categories**

Category	Evaluation Criteria	Total Credit (50% Maximum)
Water Quality Improvements	Based on the percentage of storm water directed through a quality control infrastructure that meets the minimum standard of 80% total suspended solids (TSS) removal for particles sizes 50 micron or larger.	Up to 20%
Peak Flow Reduction	Based on the proportion of storm water for a standard 1-in-2 year rain event held onsite and released slowly to the City's storm water system. The credit is equal to 0.4 multiplied by the peak flow reduction percentage up to 75%.	Up to 30%
Onsite Retention (Runoff Volume Reduction)	Based on 2% per millimeter of storm water up to 25 mm that is retained onsite and not released to the City's storm water system.	Up to 50%

The Storm Water website includes Frequently Asked Questions, a fillable application form, a user-friendly credit calculation calculator, an inspection and maintenance template, and a comprehensive guidance manual. Information about the credit program was sent with all 2020 ICI Storm Water Utility bills. The City received 10 inquiries and follow-up questions regarding the storm water credit program but did not receive any formal applications. A communication plan will be implemented in 2021 to increase awareness of the credit program for ICI and Multi-residential property owners.

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### 4.10 Continuous Improvement Highlights

The Storm Water Utility has undertaken Continuous Improvement to increase service levels, improve efficiencies, and reduce costs in 2020:

- The Flood Control Strategy, cost-shared with the Government of Canada, will help the City adapt to the risk of more intense storms associated with climate change. Detailed design of Project 1 (W.W. Ashley Park Dry Pond) and preliminary design of Project 2 (Churchill Neighbourhood Park Dry Pond) were completed in 2020.
- The new multi-purpose field at Aden Bowman Collegiate, constructed through a City partnership with the Saskatoon School Board, opened to the public in the fall of 2020. The field was funded by the Storm Water Utility to provide soccer teams and other sport field users with continued access to a high-quality field when a new dry pond is constructed in W.W. Ashley District Park to reduce the risk of neighbourhood flooding.
- Cost-effective research was leveraged through a partnership with the U of S to identify the water quality of storm water run-off in outfalls. The results were used to remediate a source of contamination. The U of S also completed analysis of storm pond sedimentation and water quality in 2020 in partnership with the Utility.
- An application was made to the Government of Canada to cost share the Montgomery Place Drainage Strategy, with construction to restore drainage expected to start in 2021.
- Participation in the National Water and Wastewater Benchmarking Initiative provided access to best practices and lessons learned from other Canadian municipalities regarding storm water management.
- The 2018-2019 State of Storm Infrastructure Report was finalized in 2020. A formal Asset Management Plan for the storm infrastructure system was initiated in collaboration with Water and Waste Operations and Technical Services.
- Sedimentation levels at four storm water ponds were assessed as the first step in developing a long-term plan to maintain pond performance through a dredging program.
- *Bylaw 9730, Private Crossings over Ditches*, was completed in collaboration with Solicitors to further improve and control drainage within Montgomery Place.
- The riverbank slope stability 3D model was used to demonstrate how proposed construction by the City to maintain level of service for residents will impact the stability of adjacent riverbank slopes.
- The Storm Water team began working from home full-time (besides field work) in March 2020 in response to the COVID-19 pandemic. Work and project management best practices were quickly implemented to maintain and improve productivity.

## SASKATOON STORM WATER UTILITY 2020 ANNUAL REPORT

### 5.0 OUR FINANCES

The Storm Water Utility is funded through a user-pay principle with charges reasonably proportional to storm water runoff generated according to property size and surface imperviousness (green space is charged less than buildings and pavement). A single-family residential dwelling is deemed to produce one Equivalent Runoff Unit (ERU) of storm water which forms the unit for charging other property types. The Storm Water Management Charge for single residential properties in 2020 was \$6.65 per month (\$79.80 annually).

Commercial properties can generate significantly more storm water than residential properties; therefore, they are charged multiple ERUs from a minimum of two annual ERUs (\$159.60) to a maximum of 100 ERUs (\$7,980) in 2020. In 2020, the Storm Water Utility billed 4,667 ICI (3,565) and multi-residential (1,102) properties.

After intense rain events caused sanitary sewer backups in 2005, a temporary Flood Protection Program (FPP) was established with a \$36.00 annual (\$3.00 monthly) charge on all water meters. The charge was increased to \$54.00 annually (\$4.50 monthly) in 2009. In 2018, City Council approved the phase out of the FPP charge by \$13.50 per year from 2019 to 2022, in conjunction with an increase to the ERU rate of \$13.50 per year. Figure 5 below displays the ERU and FPP rates for single family residential properties from 2018 to 2022, with the total charges not changing.

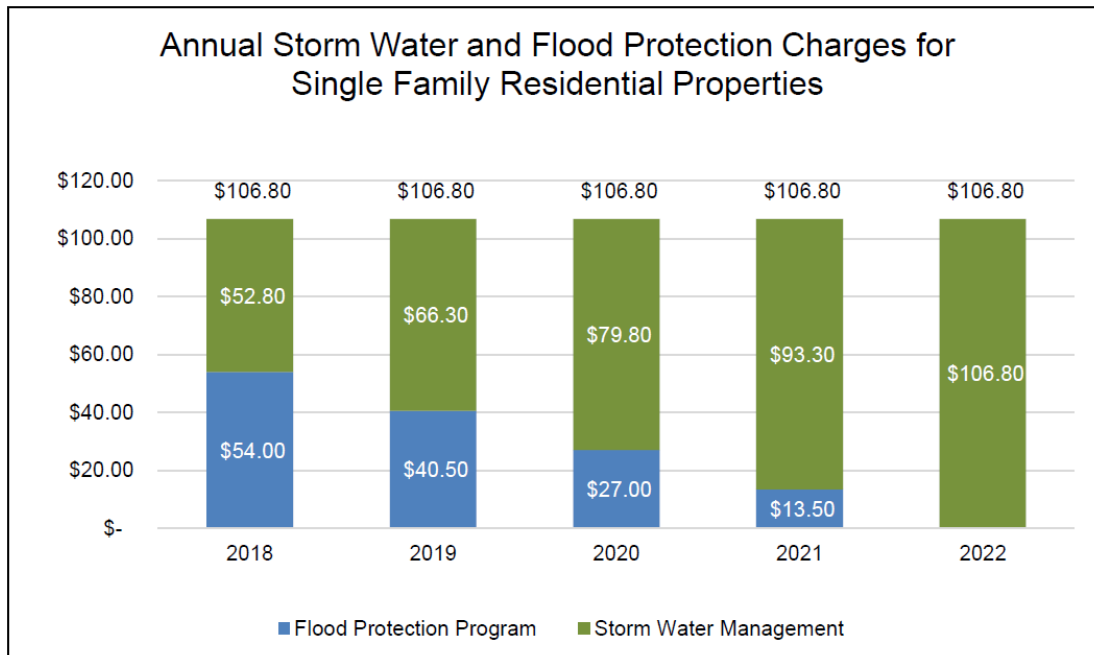


Figure 5. Annual Storm Water and Flood Protection Charges per Year

## SASKATOON STORM WATER UTILITY 2020 ANNUAL REPORT

### 5.1 Revenues

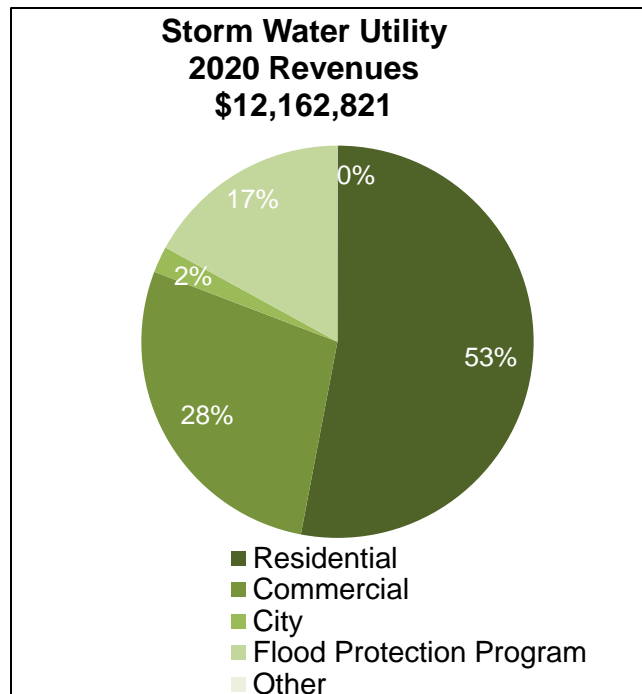


Figure 6. 2020 Revenues by Category

In 2020, total Storm Water Utility revenues including the temporary FPP were \$12.2M, an increase of 7.7% from 2019. Storm Water Management revenues of \$10.1M based on ERUs included \$3.4M from ICI properties (28% of total revenues and 5% of customers of the storm water management charge), and \$6.4M from residential properties (53% of total revenues and 95% of customers of the storm water management charge). Revenue from City-owned properties was \$263K. Figure 6 displays the revenues in percentage by category.

The 2020 revenue from the temporary FPP of \$2.1M was directed to the Infrastructure Reserve for future Flood Control Strategy projects.

**Variances:** Actual total Storm Water Utility revenues were \$189K (1.6%) higher than budgeted in 2020 because of ERU reassessments completed, new sites, and higher than budgeted FPP revenues.

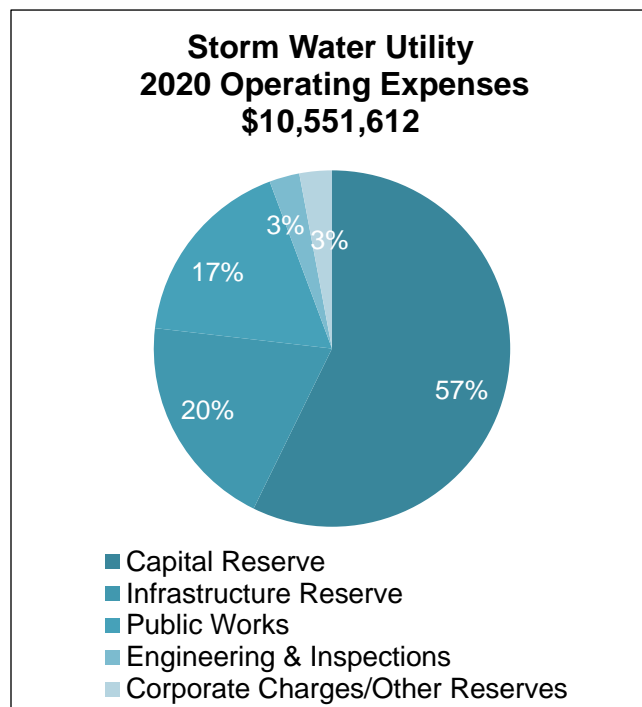


Figure 7. 2020 Operating Expenditures by Category

### 5.2 Operating Expenditures

The Storm Water Utility's 2020 operating expenditures were \$10.6M, including \$8.2M (78%) allocated to Capital and Infrastructure reserves.

WWO and RFS (Public Works) expended \$1.8M (16% of total operating expenses) to operate and maintain the storm water system including handling citizen drainage calls, keeping storm drains clear, replacing and repairing the infrastructure, and sweeping streets in the fall. Of the \$1.8M spent by Public Works, \$1.2M was spent on sewer maintenance by WWO, which was a \$0.7M (38%) decrease from 2019. The drainage (RFS) component of Public Works spent \$0.7M in 2020 which was down from \$0.8M (10%) spent in 2019.



## SASKATOON STORM WATER UTILITY 2020 ANNUAL REPORT

Administration costs (corporate charges) of \$0.25M included billing services by the Revenue Branch, financial and administration services from Finance, and insurance.

Engineering and inspections, including overall utility management, accounted for \$0.29M. Figure 7 displays the operating expenses in percentage by category.

*Variances:* Operating expenditures in 2020 were \$1.42M (11.9%) below budget. Public Works (RFS drainage and WWO maintenance) actuals for 2020 were \$1.3M (41%) below budget. This reduced spending was due to staff vacancies, rain events were less widespread than average years, COVID-related delays in hiring seasonal staff and new processes delaying the start of the busy operation and maintenance season. Expenses also included a \$114K transfer to a capital reserve for the City's enterprise resource program (Fusion).

Table 7 displays the actual 2020 Operating Revenues and Expenditures compared to the 2020 budgeted and 2019 actual amounts.

**Table 7: 2020 Storm Water Operating Revenues and Expenditures**

Storm Water Utility Operating Revenues and Expenses (\$1000s)			
	2020 Actual	2020 Budget	2019 Actual
<b>Revenues</b>			
Storm Water Charges	\$ 10,092	\$ 9,975	\$ 8,269
Flood Protection Program	\$ 2,066	3,026	\$ 3,008
Late Charges	\$ 5	12	\$ 11
<b>Total Revenues</b>	<b>\$ 12,163</b>	<b>\$ 11,147</b>	<b>\$ 10,520</b>
<b>Expenses</b>			
Engineering & Inspections Operations	\$ 289	\$ 580	\$ 313
Maintenance (Public Works)	\$ 1,168	\$ 2,126	2,306
Drainage (Public Works)	\$ 677	\$ 1,018	693
Customer Billing	\$ 117	\$ 136	123
Corporate Services	\$ 52	\$ 58	52
Licenses & Insurance	\$ 82	\$ 82	68
Interest Expense/(Revenue)	\$ (54)	\$ (54)	(23)
Provision to Capital Reserve	\$ 6,041	\$ 6,041	2,728
Provision to Other Reserves	\$ 114	-	-
Provision to Infrastructure Reserve	\$ 2,066	\$ 1,987	3,974
<b>Total Operating Expenses</b>	<b>\$ 10,552</b>	<b>\$ 11,974</b>	<b>\$ 10,234</b>
<b>Revenues Less Expenses</b>	<b>\$ 1,611</b>	<b>\$ -</b>	<b>\$ 747</b>
<b>(To)/From Stabilization/Capital Reserves</b>	<b>\$ (1,611)</b>	<b>\$ -</b>	<b>\$ (747)</b>

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### 5.3 Storm Water Stabilization Reserve

The Storm Water Stabilization Reserve has been established to provide for normal fluctuations in storm water expenses because of differences in weather conditions, such as widespread severe rain events, that impact requirements for storm water maintenance services. The Stabilization Reserve reached the maximum cap in 2020, which is the one-year operating budget for WWO and RFS, resulting in the difference of \$1.27M being transferred to the Capital Reserve. The \$3.14M balance at the end of 2020 was \$341K more than in 2019.

**Table 8: 2020 Change in Stabilization Reserves**

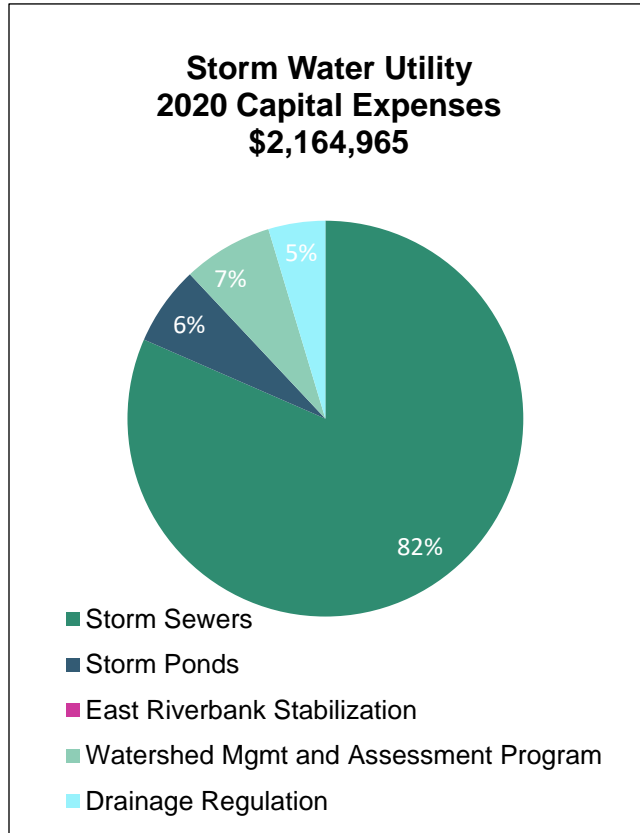
Change in Storm Water Stabilization Reserve (\$1000s)			
Description/Year	2020	2019	2018
Stabilization Reserve Beginning of Year	\$ 2,803	\$ 2,056	\$ 1,753
Balance From Year	\$ 1,611	\$ 747	\$ 303
Transfer Out to Capital Reserve	\$ (1,270)	\$ -	\$ -
<b>Storm Stabilization Reserve End of Year</b>	<b>\$ 3,144</b>	<b>\$ 2,803</b>	<b>\$ 2,056</b>

### 5.4 Capital Funding

In 2020, \$7.3M was allocated to the Storm Water Capital Reserve (including the \$6.0M budget provision and \$1.3M from the Stabilization Reserve) and \$2.1M from FPP revenue was allocated to the Infrastructure Reserve. In addition to revenue allocated to capital from the Storm Water operations, \$5K was received from the GoC's National Disaster Mitigation Program (NDMP) for the climate change project and \$19K from the GoC's Disaster Mitigation and Adaptation Fund (DMAF) for the Flood Control Strategy (W.W. Ashley Storm Pond eligible expenditures).

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### 5.5 Capital Expenditures



In 2020, Storm Water Utility capital expenditures were approximately \$2.2M (Figure 8). Approximately 82% of capital expenditures were for storm sewer network management, asset preservation, and capacity building (\$1.8M).

East Riverbank Stabilization expenditures of \$159K primarily included the in-house geotechnical engineer salary, the 3D slope stability modelling, and other riverbank monitoring costs.

Storm pond preservation expenditures were \$140K, and included inspections, monitoring, asset management and reporting, and planning and initial costs of the Brand Road Pond dredging.

**Figure 8. 2020 Capital Expenditures by Category**

*Variances:* Actual 2020 capital expenditures were \$8.6M less than budgeted with the following significant contributing factors:

- Actual expenditures for the East Riverbank Stabilization project were \$944K less than budget because no slope remediation projects were completed in 2020. A balance of up to \$3.0M will be maintained in the East Riverbank Stabilization Capital Project to ensure funding is available if there is an emergency slope failure which impacts strategic public infrastructure. The unexpended balance at the end of 2020 was \$3.1M.
- Storm Water Sewer expenditures were \$7.2M less than the budget because of delays in the Flood Control Strategy projects. The remaining budget will be used in future years before 2028.
- Storm Water Pond preservation expenditures were \$466K less than budgeted because the Brand Road dredging project was not completed in 2020.

Table 9 displays the actual 2020 Storm Water Capital Expenditures compared to the 2020 budgeted and 2019 actual amounts.

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**Table 9: 2020 Storm Water Capital Expenditures from Capital Reserve Fund**

<b>Storm Water Capital Expenditures (\$1000s)</b>			
	<b>2020 Actuals</b>	<b>2020 Budget</b>	<b>2019 Actual</b>
Storm Trunk and Collection Sewers	\$ 1,765	\$ 8,955	\$ 2,573
Storm Sewer Pond Preservation	\$ 140	\$ 606	\$ 110
Utility Billing Management	\$ -	\$ -	\$ 3
East Riverbank Stabilization	\$ 159	\$ 1,103	\$ 183
Drainage Regulation	\$ 101	\$ -	\$ 1
Watershed Mgmt and Assessment Program	\$ 22	\$ 75	\$ -
<b>Total Capital Expenditures</b>	<b>\$ 2,186</b>	<b>\$ 10,739</b>	<b>\$ 2,870</b>

Note: The 2020 Capital Budget includes allocations of \$8.9M from the Storm Water Capital Reserve and an additional \$2.4 from the Redevelopment Levy fund (Flood Protection Program revenues are included in the Storm Trunk and Collection Sewers).

The drainage regulation project spending of \$101K in 2020 was from annual budgets prior to 2020. The watershed management assessment program are expenses for a Sustainability Department project that was not previously budgeted.

At the end of 2020, ongoing capital projects extending over more than one year had unspent capital balances of \$15.0M. This does not include \$1.9M in funding from the Government of Canada for the Flood Control Strategy that was allocated in the 2020 budget but was not received in 2020.

### 5.6 Storm Water Capital Reserves

The Storm Water Capital Reserve provides funding for future large-scale capital projects. The capital reserve at the end of 2020 was \$2.6M. No capital closures occurred in 2020 with adjustments yielding a net addition of \$0.6M. Table 10 displays the comparison of 2020 Capital Reserves End of Year to those of 2018 and 2019.

**Table 10: 2020 Change in Storm Water Capital Reserve**

<b>Change in Storm Water Capital Reserve (\$1000s)</b>			
<b>Description/Year</b>	<b>2020</b>	<b>2019</b>	<b>2018</b>
Capital Reserve Beginning of Year	\$ 1,052	\$ 1,857	\$ 2,008
Provision to Capital Reserve	\$ 6,041	\$ 4,253	\$ 2,728
Capital Budget	\$ (8,793)	\$ (5,065)	\$ (2,989)
Redevelopment Levy Adjustment	\$ 2,402	\$ -	\$ -
Transfer in from Stabilization	\$ 1,270	\$ -	\$ -
Closures and Adjustments Returned to Capital Reserve	\$ 585	\$ 8	\$ 109
<b>Capital Reserve End of Year</b>	<b>\$ 2,557</b>	<b>\$ 1,052</b>	<b>\$ 1,857</b>

## SASKATOON STORM WATER UTILITY 2020 ANNUAL REPORT

Since inception, FPP funding has been paid into the “Infrastructure Reserve”. Table 11 shows changes in the component of the Infrastructure Reserve funding from FPP revenue for capital projects to reduce risks of sanitary sewer back-ups and overland flooding. At the end of 2020, \$1.97M was available in the Infrastructure Reserve for future Flood Control Strategy projects.

**Table 11: 2020 Change in Infrastructure Reserve from Flood Protection Program Funding**

<b>Change in Infrastructure Reserve from Flood Protection Program Revenues (\$1000s)</b>			
<b>Description/Year</b>	<b>2020</b>	<b>2019</b>	<b>2018</b>
Infrastructure Reserve Beginning of Year	\$ (90)	\$ (439)	\$ (5,612)
Provision to Infrastructure Reserve	\$ 2,059	\$ 3,008	\$ 3,975
Infrastructure Capital Budget - Sanitary Sewer Project (1678)	\$ -	\$ -	\$ 1,197
Infrastructure Capital Budget - Flood Control Project (1619)	\$ -	\$ (2,658)	\$ -
Closures and Adjustments Returned to Infrastructure Reserve	\$ -	\$ (1)	\$ -
<b>Infrastructure Reserve End of Year</b>	<b>\$ 1,969</b>	<b>\$ (90)</b>	<b>\$ (439)</b>

At the end of 2020, the total balance of all three storm water related reserves (Storm Water Stabilization, Capital, and Infrastructure Reserves) was \$7.7M.

## SASKATOON STORM WATER UTILITY 2020 ANNUAL REPORT

### 5.7 Storm Water Utility Benchmarking

In 2020, the Storm Water Utility compared its utility rates to 11 other cities with utilities across Canada using publicly available information on the cities' websites. For single residential properties, Saskatoon's overall charges including Storm Water Management (\$79.80) and Flood Protection<sup>1</sup> (\$27.00) were \$106.80, which is the fifth lowest compared to the 11 other comparison cities. The combined Storm Water Management and Flood Protection charge compared to fees in other prairie cities is shown in Figure 9 (Winnipeg has no storm water utility fees).

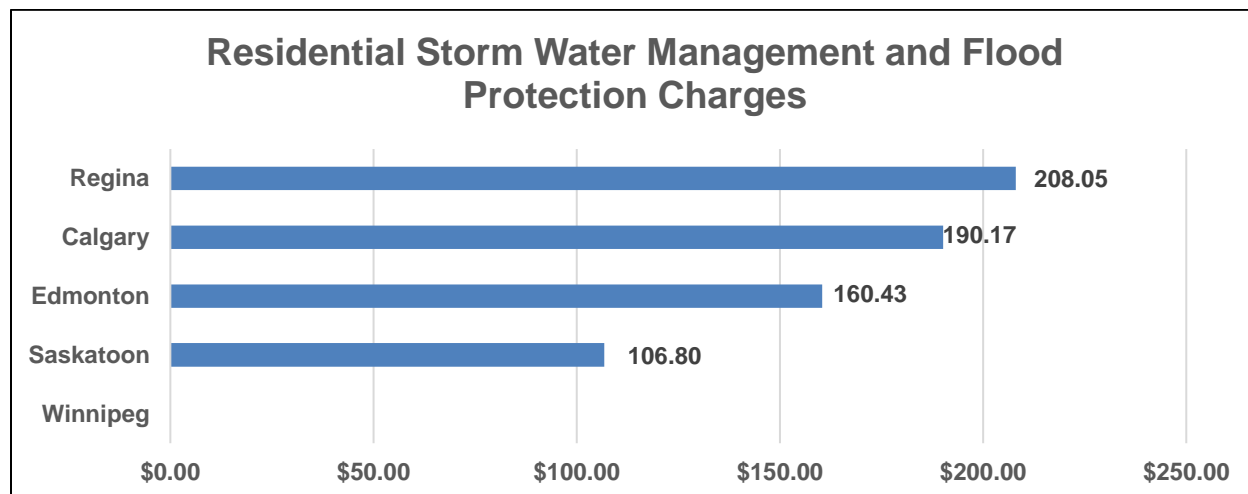


Figure 9. 2020 Residential Storm Water Management and Flood Protection Charges<sup>2</sup>

Non-residential properties are more difficult to compare as storm water utility programs ranged from flat rates for all customers to charges based on area size and imperviousness. Saskatoon's maximum annual storm water charge was \$7,980 in 2020 for non-residential properties which was the fourth highest charge out of 11 cities surveyed.

- For a typical restaurant (4,515 m<sup>2</sup>) that is all hard surface, municipality storm water charges range from \$94 (Sherwood Park) to \$2,481 (Kitchener), with Saskatoon charging \$1,240.
- For a large shopping center (37,200 m<sup>2</sup>) that is all hard surface, municipality storm water charges range from \$94 (Sherwood Park) to \$19,961 (Edmonton), with Saskatoon charging \$7,980.

The comparison 2020 annual minimum and maximum Storm Water Management charge for the prairie cities are shown in Figure 10. The rates illustrated in the graph are based on a property equivalent to 100 ERU in Saskatoon (30,000 m<sup>2</sup>). Note the FPP charges for each water meter were not included for Saskatoon in Figure 10.

<sup>1</sup> Prior to 2019, the "Flood Protection Program" levy was charged to fund projects that mitigate damage from sanitary sewer backups during intense rain events.

<sup>2</sup> Sources: Rates from websites of Cities of Regina, Calgary, Edmonton, and Winnipeg



## SASKATOON STORM WATER UTILITY 2020 ANNUAL REPORT

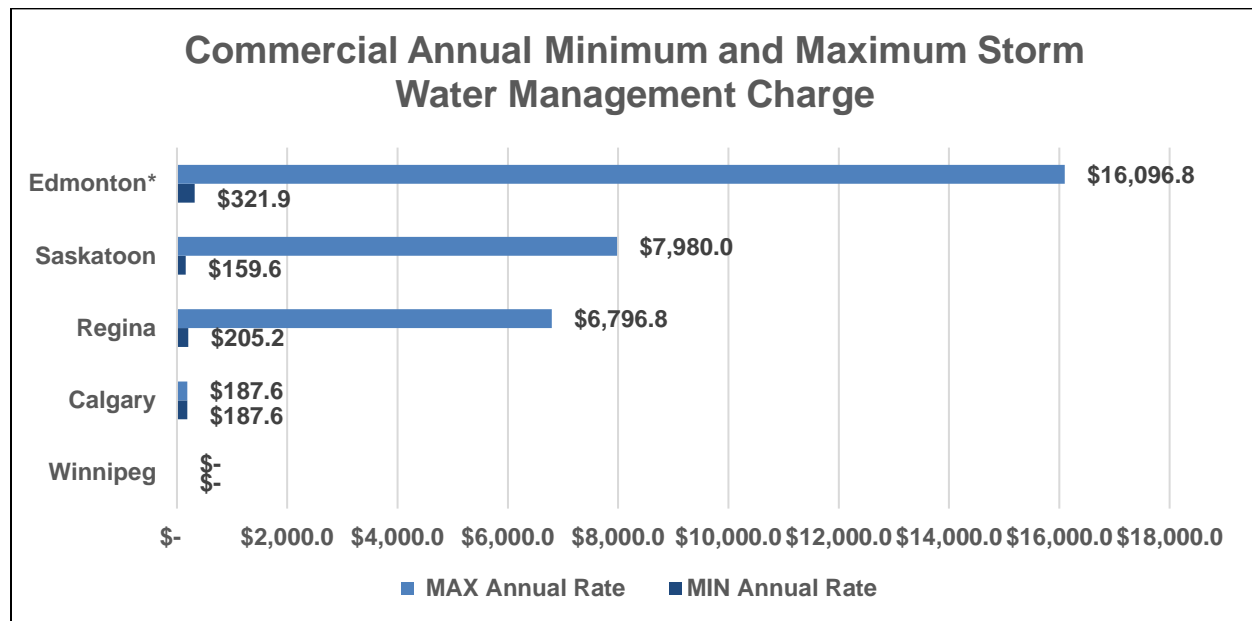


Figure 10. 2020 Commercial Annual Minimum and Maximum Storm Water Charges<sup>3</sup>

## 6.0 OUR CHALLENGES

### 6.1 Ongoing Challenges

Storm water management has continuing and expected future challenges which are summarized below.

**Climate Change:** Climate change adds to the potential of more frequent, higher intensity rain events, and increased demands on the storm water infrastructure.

**Condition of Existing Infrastructure:** Water infrastructure has a limited life expectancy and over time the pipes, culverts and other infrastructure must be repaired or replaced. Some of Saskatoon's storm water infrastructure dates back to the early 1900s.

**Historical Design Standards:** Limited standards for storm water infrastructure were in place when Saskatoon neighbourhoods began to develop. In 1989, new storm water standards for new neighbourhoods were established to handle "1 in 100 year" storms. Surface flooding during high intensity storms continues to be an issue for many low-lying areas in older areas of the City.

**Fluctuating Groundwater Levels:** Higher groundwater levels have changed drainage patterns as water is unable to seep into the ground. The groundwater levels impact neighbourhood drainage and contribute to East Riverbank slumping and slope failure.

<sup>3</sup> Sources: Rates from websites of Cities of Regina, Calgary, Edmonton, and Winnipeg

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**Infill Development:** Cumulative impacts of infill development are placing higher demands on our storm water-related infrastructure. Infill reduces greenspace and increases surface runoff.

**Citizen Expectations:** Citizens have high expectations for storm water drainage that minimizes ponding on their streets and on properties. Flooding happens relatively rarely, but when it does happen, it can impact many properties at once. Citizens expect quick reactions by the City to their areas.

**Drainage Bylaw Enforcement:** Neighbourhood storm water drainage is negatively impacted by properties developed contrary to approved design standards or drainage paths that are not maintained. Inspections when development occurs are necessary to minimize future problems.

**Regulatory Requirements:** Evolving federal and provincial regulations have the potential to impact discharges to the river and may require future investments to improve the quality of storm water runoff.

**Inflow & Infiltration to the Sanitary Sewer:** Extraneous inflow and infiltration of snowmelt and rainfall to the sanitary system increases risk of sanitary sewer back-up during rain events and creates unnecessary costs for treatment and capacity upgrades for the Wastewater Treatment Plant.

**Costs for Businesses:** Storm water charges for some businesses will more than double between 2018 and 2022, which may generate negative feedback. Actions that businesses can take to reduce their storm water run-off generally have high capital costs relative to the annual reduction in storm water management charges.

### 6.2 Pandemic Challenges

The Storm Water team experienced the following challenges in 2020 that were unique due to the pandemic which impacted work processes starting in March. Some of the challenges are included below.

- Roadways, Fleets and Support and Water and Waste Operations were delayed on increasing seasonal staff in the spring.
- Collaboration and design meetings changed from in-person to virtual meetings.
- Coordination of field work included additional planning and scheduling time for equipment retrieval and on-site meetings.
- Standard work procedures were updated due to changes in safety and process protocols.
- Working alone procedures were updated to reflect working from home requirements and additional safety procedures.
- Site meetings between the public and internal colleagues were completed based on current safety protocols and procedures.

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### 7.0 CONCLUSION

Several initiatives that the Storm Water Utility undertook in 2020 will be further developed in 2021 and future years including the following:

- Furthering the nine-year Flood Control Strategy to reduce flood risk in areas that have a long history of frequent flooding. The W.W. Ashley Dry Storm Pond will be constructed in 2021. The detailed design and public engagement for the Churchill Park Dry Storm Pond will be completed in 2021 with construction scheduled for early 2022 (pending Council approval).
- The first project of the Montgomery Place Drainage Strategy will be constructed in 2021 along Caen St., Dundonald Ave, Lancaster Blvd, and Ortona St. The ICIP funding application for future projects to improve surface drainage for this neighbourhood will be further investigated in 2021.
- Further the design and cost-benefit analysis for the Melville Drainage improvement project.
- Continuing the storm water pipe lining program to extend the life of storm water infrastructure and improving drainage for two areas with ongoing drainage issues in collaboration with Technical Services.
- Developing the storm water system asset management plan in collaboration with the City's Corporate Asset Manager, Technical Services, and Water and Waste Operations.
- Completing the formal Storm Pond system assessment and report in 2021 which is completed every three years.
- Further leveraging resources through partnerships with the U of S for research about storm water quality and the impact of climate change risks on storm water.
- Reassessing ICI and Multi-residential properties storm water utility ERU assessment through the 2021 aerial photo.
- Promoting the Storm Water Management Credit Program.
- Participating in the National Water and Wastewater Benchmarking Initiative management by AECOM.

The Storm Water Team is committed to working collaboratively with other divisions towards making Saskatoon a more flood resilient City.

## SASKATOON STORM WATER UTILITY 2020 ANNUAL REPORT

### 8.0 Appendices

#### *Appendix 1: Definitions*

**Catch Basins:** Used to convey storm water from the ground surface, usually on a street or parking lot, to the storm water collection system. Collector catch basins are located on collector mains and trunk catch basins are located on trunk manholes.

**Culverts:** Used to channel water under roads, railways, or embankments. Culverts have open inlets and outlets, usually transporting water from one ditch to another.

**Dredging:** The process of removing sedimentation (mud), weeds, and rubbish from pond bottoms.

**Equivalent Runoff Unit (ERU):** A measurement unit for runoff that is used for storm water management fees. One ERU is based on an average single-family residential property's areas and types of surfaces (i.e. amount of grass, hard surface, etc.).

**Floating Treatment Wetland:** Floating treatment wetlands (FTWs) or islands are artificial platforms that allow aquatic plants to grow in water that is typically too deep for them. Their roots spread through the floating islands and down into the water creating dense columns of roots with lots of surface area.

**Force Mains:** Pressurized mains from 100 mm to 900 mm in diameter which connect storm water pumping stations and lift stations to the gravity collection system.

**Leads:** Pipes connecting catch basins to the storm collection system which range in diameter from 100 mm to 900 mm. Collector leads are located on collector storm mains. Trunk leads are located on trunk storm mains.

**Lift Stations:** Move storm water from lower to higher elevations, particularly where the elevation of the source is not sufficient for gravity flow and/or when the use of gravity conveyance will result in excessive excavation depths and high sewer construction costs.

**Lining:** A layer of material installed in a sewer main to improve performance and extend the lifespan.

**Manholes:** Chambers used to access sewer mains for maintenance and inspection purposes.

**Oil and Grit Separators (OGS):** A variation of the traditional settling tanks designed to capture sediments and trapped hydrocarbons (oils) in storm water runoff. OGS replace conventional manholes.

**Outfalls:** Are the discharge point of the storm sewer system to the river, and include the following three categories:

- Local – Expel water from relatively smaller local areas than the collector or trunk outfalls
- Collector – Connect to the storm sewer system through collector mains

## SASKATOON STORM WATER UTILITY 2020 ANNUAL REPORT

- **Trunk** – Connect to the storm sewer system through trunk mains

**Piezometers:** Devices used to measure pressure or depth of groundwater at a specific point.

**Return Period:** The estimated average time between equivalent rain events based on rainfall intensity and duration. A rain event with a 2-year return period has a 50% probability of occurring in any year. A rain event with a 100-year return period has a 1% probability of occurring in any year.

**Runoff:** Rain and snowmelt draining from land, buildings, or other surfaces.

**Service Connections:** Connect drainage systems from customer properties to storm mains in the street.

**Sewer Mains:** Principal pipes in a system that distribute water or collect storm water and waste water, and include the following two categories:

- **Collector** – Sewer mains that are less than 1350 mm in diameter
- **Trunk** – Sewer mains that are more than 1350 mm in diameter

**Slope Inclinator:** Geotechnical instruments used to measure horizontal displacements along various points on a borehole to detect slope movement.

**Standpipes:** Plastic pipes with perforated holes at the base used to measure groundwater level.

**Storm Water Ponds:** Manmade basins that control excess storm water during and after heavy rainfall events and provide water quality improvement for runoff. **Dry Ponds** normally do not have water - they detain runoff during intense rain events and then gradually release the water back into the storm sewer system. **Wet ponds** permanently retain water throughout the year.

**Sub-Drainage:** Perforated pipes located in the slope along the riverbank used to collect ground water and remove it from the slope. This decreases the groundwater level in the slope and helps to stabilize the slope.

**Sump Pumps:** Remove water that has accumulated in a water-collecting sump basin, commonly found in the basements of homes

**Vibrating Wire Piezometers:** Used to provide accurate pore-water pressure readings in soils to measure groundwater levels.

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## Appendix 2: Montgomery Place Drainage Strategy Communication



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222 3<sup>rd</sup> Avenue North  
Saskatoon SK S7K 0J5

[www.saskatoon.ca](http://www.saskatoon.ca)  
tel 306-975-2476  
fax 306-975-2971

September 4, 2020

Dear Resident / Property Owner:

### Re: Montgomery Place Drainage Strategy – Planning Meeting for Property Owners

Your property will be impacted by the reconstruction of drainage ditches scheduled for 2021 construction season. A map of the 2021 construction area is included with this letter to help you understand the scope of the project, which will be coordinated with road and water infrastructure work.

A project team member will meet with each property owner by phone to review the following elements for your property and answer any questions you have:

- Driveway crossing alignment and material type,
- Existing culverts (if any),
- Right of way (ROW) distance from road to your property line, and
- Existing landscaping or irrigation features that will need to be removed prior to construction commencement.

To book this planning meeting, please email [stormwater@saskatoon.ca](mailto:stormwater@saskatoon.ca) with your name and phone number, along with your preferred meeting timeframe:

1. Tuesday September 15, 2020 between 9:00 AM – 12:00 PM
2. Wednesday September 16, 2020 between 8:30 AM – 11:30 AM
3. Thursday September 17, 2020 between 9:00 AM – 12:00 PM or 2:30 PM – 5:00 PM
4. Friday September 18, 2020 between 9:00 AM to 12:00 PM or 1:00 PM – 4:30 PM

A City project representative will phone you within the timeframe selected. If you are not available for the above times, please indicate an alternative time.

Watch for more 2021 construction work communication in the coming months. To subscribe to project updates, send an email to [constructionupdates@saskatoon.ca](mailto:constructionupdates@saskatoon.ca) with your name and property address.

Sincerely,

Saskatoon Water (Storm Water)



# SASKATOON STORM WATER UTILITY 2020 ANNUAL REPORT

## Drainage

When it rains or melts, help maintain ditch drainage to reduce flooding in Montgomery Place

### How you can help:

- › Do not fill in ditches within City of Saskatoon Right-of-Way (ROW). A permit to alter the ROW is required (the same as for a driveway crossing).
- › Keep culverts (pipe under your driveway) clear.
- › Work with neighbours to resolve ditch drainage issues.
- › Obtain a Driveway Crossing Permit from the City for new or modified driveway crossings to ensure culverts meet the proper standards.

### What you can expect from us:

- › City crews will clear major drainage paths and culverts each spring.
- › The City will assist homeowners through the Private Driveway Crossing Permit application process.
- › City staff will follow up on ditch drainage complaints regarding new driveway crossings.

## Contact Us

### Maintenance Requests:

#### Customer Care Centre

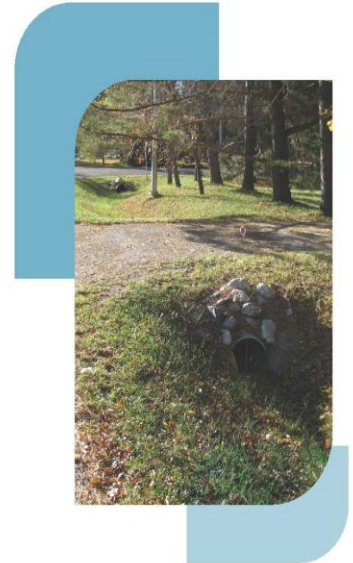
Email: [customercare@saskatoon.ca](mailto:customercare@saskatoon.ca)  
Phone: 306-975-2476

### Driveway Crossing Permits (Montgomery Place Only) and General Drainage Questions:

#### Storm Water

Email: [stormwater@saskatoon.ca](mailto:stormwater@saskatoon.ca)  
Phone: 306-986-0914

Driveway application process for Montgomery Place:  
[saskatoon.ca/ditchcrossing](https://saskatoon.ca/ditchcrossing)



## Spring 2020 Update Montgomery Place



# SASKATOON STORM WATER UTILITY 2020 ANNUAL REPORT

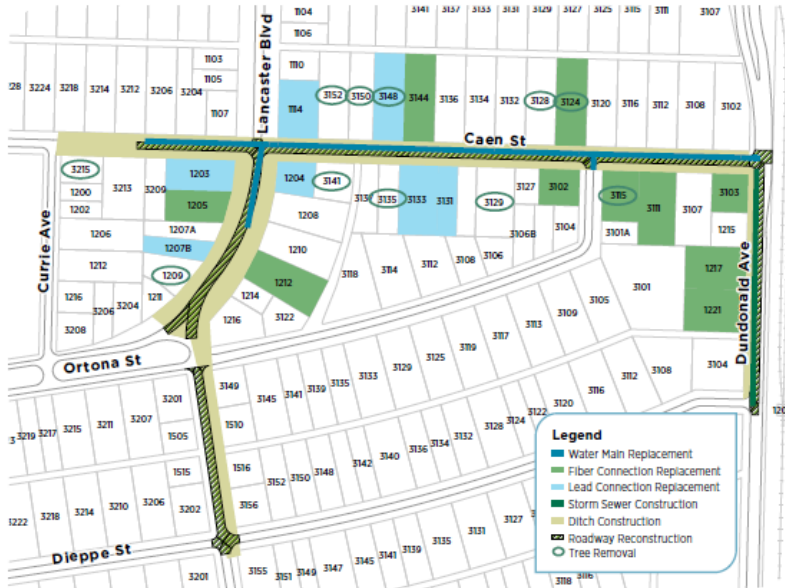
## Drainage Improvement Project

The City presented a drainage improvement plan with new ditches and portion of underground storm sewer for Montgomery Place for the following:

- **Dundonald Ave**  
from Dieppe St. to Caen St.
- **Caen Street**  
from Dundonald Ave. to Currie Ave.
- **Lancaster Blvd**  
from Caen St. to Dieppe St.

Drainage improvements are being coordinated with water main and lead line replacements, and road reconstruction.

This project and other work shown will be scheduled to begin in spring/summer 2021, pending City Council approval this summer. Affected residents will be notified ahead of construction with the final project plan.



### What you said:

The City presented the drainage improvement project and collected your feedback on cost sharing, driveway standards, and other general project information at an open house in February 2020. Montgomery Place residents were also encouraged to complete an online survey. The results are summarized below:

- About 80% support ditch reconstruction to improve drainage.
- More than half (61%) indicated damage or ponding on their property.
- About 47% support maintaining short steep ditch sections to preserve trees.
- About 46% believe maximum crossing width should be based on lot size.
- The majority (58%) said that driveways should be rebuilt to their existing width, compared to about a third (35%) said they should be the new standard.
- Responses about cost sharing for non-compliant crossings varied.

The community feedback will be incorporated in a report to City Council on cost-sharing options.

See the project Engage Page for more engagement and online survey results: [saskatoon.ca/engage/montgomery-place-drainage-improvements](https://saskatoon.ca/engage/montgomery-place-drainage-improvements)

# SASKATOON STORM WATER UTILITY 2020 ANNUAL REPORT

## Appendix 3: Flood Control Strategy Communication



### Flood Protection Plan

The nine-year Flood Protection Plan, approved by City Council in December 2018, will improve storm water drainage to reduce flood risk in up to ten flood prone areas, including a combination of storm water pipes, dry storage ponds in parks and underground storage.

#### Project Update: W.W. Ashley Park

A new dry pond in W.W. Ashley Park will be the first project to be constructed under the Flood Protection Plan. The new dry pond will detain the storm water that pools in the Dufferin Ave/1st St E and Broadway Ave/Taylor St areas during intense rain events.

The City is pleased to report that the new sports field at Aden Bowman Collegiate will be ready for the start of the fall school year. It was important to have this new full-sized field available for students and community sports teams who have relied on the W.W. Ashley District Park sport field.

Unfortunately, the final storm pond design was not ready in time to tender the construction for this spring and summer, as communicated at the open house in June 2019. The new expectation is that everything will be in place for construction to begin by spring 2021.

We recognize residents and business in the area who experience flooding may be concerned about this delay. We want to reassure you that this project remains a high priority and will proceed as soon as possible. Please check in on the project page for ongoing updates and sign up for Flood Protection Plan email updates at [saskatoon.ca/floodplan](https://saskatoon.ca/floodplan).

#### Protect Your Property

Please ensure you are taking all precautionary measures to protect your home from flood damage this spring and summer. Find a home flood protection checklist and other resources at [saskatoon.ca/floodprotect](https://saskatoon.ca/floodprotect).

If you have any questions, please contact us by [email](#) or call our Customer Care Centre at 306-975-2476. Learn about the [City's storm water management programs](#).

 SEND TO A FRIEND  WEBSITE   

Copyright © 2020 City of Saskatoon, All rights reserved.  
You requested email updates about flood prevention in Saskatoon.

[Add us to your address book](#)

# SASKATOON STORM WATER UTILITY 2020 ANNUAL REPORT

## W.W. Ashley Park Dry Storm Pond Project Update

### BACKGROUND

The City of Saskatoon is upgrading the storm water system to reduce flood risk for residential and business properties near the 1st Street/Dufferin Avenue and Taylor Street/Broadway Avenue intersections.

When intense rainfall occurs, storm water will drain into a newly constructed dry storm pond in the nearby W.W. Ashley District Park rather than flood intersections. It will then slowly drain into the storm water system and to the river.

### SCHEDULE

Construction of the dry storm pond at W.W. Ashley District Park begins with the excavation of the dry pond in early 2021. The remaining phases (storm sewer pipes, outlet-inlet structure and landscape construction) will be scheduled between May and November 2021.

A full-sized sports field was developed last summer at Aden Bowman Collegiate to replace the existing field in W.W. Ashley District Park, with brand new terrain, trees, seating and irrigation—ready for public use in May 2021.

### PROJECT FUNDING

W.W. Ashley Park Dry Storm Pond is the first of nine projects that will address flooding at Saskatoon's most flood-prone areas through the nine-year \$54 million Flood Control Strategy. The Government of Canada is contributing 40% of the eligible construction costs up to a maximum of \$21.6 million.

### ENGAGEMENT & COMMUNICATIONS

Learn more about the W.W. Ashley Park Dry Storm Pond at [saskatoon.ca/engage](https://saskatoon.ca/engage). Properties adjacent to the park will receive a construction notice with important information prior to the excavation work planned for early 2021.

In the meantime, we ask that residents sign up to receive project updates. To sign up, please email us at [constructionupdates@saskatoon.ca](mailto:constructionupdates@saskatoon.ca) from your preferred email address with "W.W. Ashley District Park" as the subject to provide your name and address.

### DESIGN

#### Feedback Included

Your feedback at the summer 2019 open house was incorporated in the design of the storm pond:

- Pathway around the top of the storm pond (above the slope crest) allows for direct access through the site.
- Walking paths and wheelchair accessibility were incorporated with two ramps connecting to a common sitting area.
- Existing fences along Lansdowne Avenue and Albert Avenue will be removed.
- Side slopes of the pond were optimized and softened, to contain the required storm water volume for a 1-in-10-year storm and incorporate green space use.
- Green space is large enough for dog walking, kite flying, and regular family park uses.
- Pond base is large enough for a sports field and other informal recreational activities.
- Pond features terraces with seating, planting areas, trash receptacles and other amenities.



Customer Care Centre | 306-975-2476 | [stormwater@saskatoon.ca](mailto:stormwater@saskatoon.ca)



[saskatoon.ca/engage](https://saskatoon.ca/engage)