

Water Conservation Strategy

ISSUE

The City of Saskatoon (City) has identified water conservation as an important measure to defer infrastructure costs, reduce energy and greenhouse gases, and increase water system resiliency. There are many reasons to conserve water in Saskatoon, including:

- To reduce greenhouse gas emissions. Water and wastewater treatment accounted for a third of total municipal government emissions in 2019, an increase of 8.3% from the 2014 baseline. The [Low Emissions Community Plan \(LEC Plan\)](#) re-affirms City Council's commitments to reduce corporate emissions by 40% (relative to 2014) by 2023, and by 80% by 2050.
- Help manage water demand, especially during summer peak periods. This will ease strains on our capacity-limited water systems and create opportunities to better manage and schedule our capital expenditures and potentially defer or reduce spending.
- Increase system resilience and maximize capacities to deal with intensifying outcomes of climate change.
- Help all households and businesses better moderate their water use. This can relieve the utility burden to those most impacted by cost increases by placing equity and opportunity at the forefront of water conservation, making programs accessible for all residents.

To address these issues, a Water Conservation Strategy (WCS) has been developed which outlines a comprehensive and prioritized list of actions to reduce peak summer use, to ease demands on capacity-limited infrastructure, and to meet the community's many goals including water conservation, emission reduction, water affordability, and capital-cost management.

RECOMMENDATION

That the Standing Policy Committee on Environment, Utilities and Corporate Services recommend to City Council that the Water Conservation Strategy report be approved in principle.

BACKGROUND

In September 2019, the *LEC Plan* was completed which sets out 40 emission-reduction actions including two that would together reduce corporate and community water use. Action 25 in the plan is a 5% reduction in absolute water demand by 2026, through efficiency, monitoring, and leak reduction. Action 26 in the plan is a 20% outdoor and 30% indoor water use reduction by 2050, through residential and commercial education and water efficiency incentive programs.

In September 2021, the WCS Update report was received by the Standing Policy Committee on Environment, Utilities and Corporate Services Committee. The report

outlined the reasons to conserve water, the results of public engagement for the WCS and near-term priorities planned for implementation.

At its 2022/23 Preliminary Business Plan and Budget meeting, City Council approved the Environmental Health and Utility Business Lines, which included:

- A new water conservation operating budget of \$150,000 in 2022, to permanently manage and implement the Water Conservation Program; and
- Capital Funding of \$190,000 for water conservation initiatives to Capital Project P.02197 in 2022 and 2023.

The 2022-2025 Strategic Plan was approved by City Council on January 31, 2022. Environmental Sustainability includes a key action to implement innovative and efficient water conservation practises and programs for indoor and outdoor water uses.

DISCUSSION/ANALYSIS

Water conservation has been a priority in Saskatoon since 2009, when an assessment of the Water Treatment Plant concluded that water conservation will result in long-term savings from capital expansion deferral of water treatment infrastructure. The assessment recommended that the City initiate a peak demand reduction strategy to reduce pressure on the existing Water Treatment Plant. As a result, a Water Conservation Implementation Plan was produced with numerous initiatives aimed at reducing water use.

Saskatoon and the surrounding region's total water use has remained relatively constant despite a growing population and economy (figure 1), while per-capita consumption has trended consistently downward with per-capita use today just over half its 1980 value (figure 2). However, the most recent *Water Treatment Plant Long Term Capital Strategy* identifies that there is still a risk that capacity expansion will be required sooner if further water reduction measures are not implemented and recommends that peak demand reductions be initiated to reduce the pressure on the existing Water Treatment Plant.

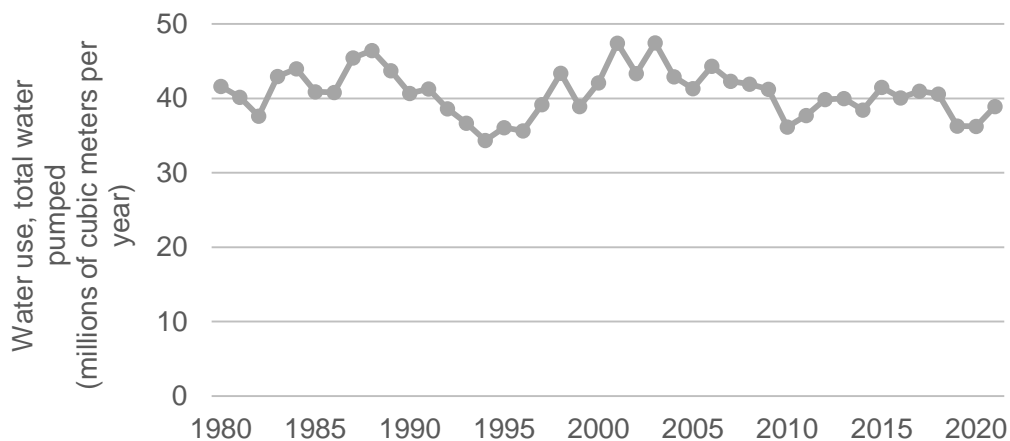


Figure 1. Total water production for use within Saskatoon, 1980-2021

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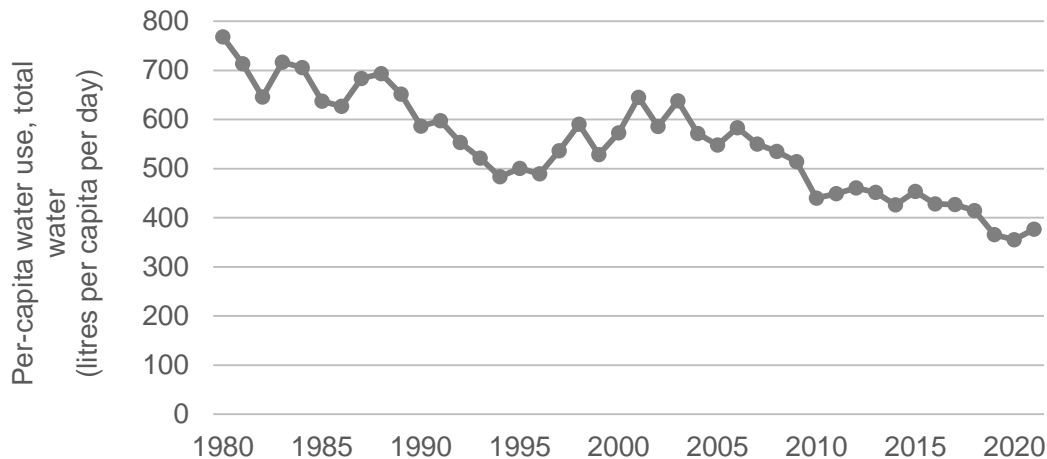


Figure 2. Per-capita water use, Saskatoon, all water used within the city, 1980-2021

The *LEC Plan* identifies that without emission reduction efforts, Saskatoon will not be able to meet the local and global commitments to reduce GHG emissions and build resiliency plans for infrastructure and services. Water and wastewater treatment account for a third of total municipal government emissions. Decreasing water use in buildings and outdoors will relieve demand on the water system resulting in lower energy use and fewer GHG emissions. The *LEC Plan* action 25 is a 5% reduction in absolute (i.e., not per capita) water demand by 2026, and Action 26 is a 20% outdoor and 30% indoor water use reduction by 2050.

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The WCS, Appendix 1, is an integrated strategy to reduce water use in all parts of the community and in the City's own operations. It provides a roadmap of actions founded upon the four main reasons for conserving water. It targets the water system – from Water Treatment Plant to Wastewater Treatment Plant. Actions include reducing peak summer use to ease demands on capacity-limited infrastructure and meeting our community's many goals including water conservation, emission reduction, water affordability, and capital-cost management.

The amount of water conservation needed to achieve the *LEC Plan* water-related targets will require the City to employ an “all of the above” approach—to target City and community use, indoor and outdoor, and overall demand as well as peak summer demand. The intent of the WCS is to prioritize the initiatives; then design additional program elements based on priorities; implement initiatives as funding becomes available; monitor progress; and refine assumptions to keep the WCS current.

FINANCIAL IMPLICATIONS

Water conservation will have long term financial benefits to Saskatoon residents, resulting from lower overall costs for water service for business, residential, and community uses.

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With respect to City budget implications, although approval of the WCS has no financial implications itself, each initiative has its own financial impacts which will be assessed in the development of the respective project charters. Conservation projects will continue to be brought forward for funding approval through the regular business plan and budget process.

A new Water Conservation operating cost-centre was established with \$150,000 of annual funding for staff and program costs to permanently manage the Water Conservation program. In addition, City Council approved \$190,000 for Capital P.2197 in each of 2022 and 2023, to continue implementing the priorities in the Water Conservation Strategy.

Table 1 shows the anticipated costs for near-term initiatives that will be funded out of P.02197. Of the \$1.3 million in available capital, almost \$600,000 has been earmarked for two water conservation projects that are eligible for Natural Infrastructure Funding (see [Natural Infrastructure Fund](#) (NIF) report), anticipated to leverage over \$800,000 in additional funds.

Initiatives' scope and budgets will be adjusted if full grant funding is not approved, if new grant opportunities arise, and as project costs and scopes are refined. More details on the initiatives listed in Table 1 can be found in Appendix 3 - 2021 Evapotranspiration (ET-based) Irrigation Pilot.

Table 1. Water conservation P.02197 estimated costs and funding for 2022/2023.

COSTS	TOTAL
Project Management	\$250,000
Water Conservation Strategy	\$40,000
Spray Pad and Paddling Pool Water Re-Use	\$756,000
Irrigation Audit and Area Reduction	\$719,200
ET-Base Watering – Assessments & Commissioning	\$176,000
Affordable housing energy and water conservation	\$10,000
AMI Web Presentment Library	\$10,000
Water Loss Audit Project - Phase 2	\$21,500
Healthy Yards - Water Conservation	\$30,000
Energy Management - Water Conservation	\$146,700
Related Initiatives (enviro grant, enviro survey, etc.)	\$47,500
Total Costs	\$2,206,900
FUNDING	
Opening balance P.21097	(\$1,320,809)
Transfer from Utility (\$190K per year for 2 years)	(\$380,000)
NRCAN grant	(\$44,144)
CUSP LEAP grant	(\$15,000)
NIF Funding (if approved)	(\$800,600)
Total Funding	(\$2,560,553)
REMAINING FUNDS	(\$353,653)

TRIPLE BOTTOM LINE IMPLICATIONS

A Triple Bottom Line assessment was undertaken to identify opportunities to maximize benefits of the strategy. Details can be found in Appendix 2 - Triple Bottom Line Implications – Water Conservation Strategy.

PUBLIC ENGAGEMENT

[Public engagement](#) was conducted from February 2020 to June 2021, and results were shared in the [Water Conservation Strategy Update](#) report.

OTHER IMPLICATIONS

Privacy, legal, social, and environmental implications for water conservation initiatives identified as part of the WCS will be reviewed and addressed as initiatives are brought forward for implementation.

NEXT STEPS

Near-Term Priorities

Implementation of water conservation near-term priorities, identified in the Water Conservation Strategy Update report, September 2021, is beginning. The evapotranspiration (ET)-based irrigation pilot was completed in 2021, results are available in Appendix 3, and is expected to continue. Descriptions of near-term initiatives are provided in Appendix 4.

APPENDICES

1. Water Conservation Strategy
2. Triple Bottom Line implications – Water Conservation Strategy
3. 2021 Evapotranspiration-based (ET-based) Irrigation Pilot
4. Water Conservation Near-term Priority Initiatives

Report Approval

Written by: Genevieve Russell, Special Project Manager
Reviewed by: Amber Weckworth, Climate, Strategy and Data Manager
Jeanna South, Director of Sustainability
Approved by: Angela Gardiner, General Manager, Utilities and Environment

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