

EPCOR WATER SERVICES INC. - EDMONTON'S CHANGING WATER USE

RECOMMENDATION

That the May 20, 2022, Financial and Corporate Services report FCS01211, be received for information.

Report Purpose

Information only.

This report provides an update to Utility Committee on how EPCOR Water Services Inc. is modernizing its design standards to reflect its customers' declining water consumption and sanitary generation patterns.

Executive Summary

- This report provides an update from EPCOR Water Services Inc. (EWSI) on water consumption data and customer trends, and how EWSI is modernizing its design standards to reflect declining water consumption and sanitary generation patterns.
- Updated design standards will ensure prudent capital investment for water and sanitary infrastructure, prevent system overdesign, and minimize operational issues.
- Modernization of the design standards will support both greenfield and infill development within the City of Edmonton and also help communities in the Edmonton Metropolitan Region with their long range planning.
- Per capita water consumption for EWSI's residential, multi-residential and commercial customer classes has been declining over the last 20 years (due in part to more efficient fixtures and appliances), and EWSI expects that future per capita water consumption will continue to decline for all three of these customer groups.
- EWSI's analysis has recently led to updates to the City of Edmonton Design and Construction Standards for both drainage and water in February 2022.
- Based on the continuing trend in declining per capita water consumption, EWSI provides further recommendations for certain changes to its design standards. EWSI will continue to

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engage with Administration, developers and other stakeholders to discuss how these suggested changes would impact current and future planning.

REPORT

EWSI has prepared an overview (Attachment 1) along with a detailed report (Attachment 2) to provide Utility Committee with an update regarding Edmonton's changing water use. These information reports provide details on water consumption and sanitary generation patterns for EWSI's customer classes in Edmonton and the resulting effect of the changing patterns on EWSI's design standards to ensure prudent capital investment, prevent system overdesign and minimize operational issues.

With the transfer of Drainage Services to EWSI in 2017, EWSI has taken the opportunity to leverage "One Water" techniques to enhance the integrated resource plans that are in place in the different business units within EWSI. The "One Water" approach, applied by water and wastewater utilities around the world, is defined as a holistic strategy to sustainable water management that breaks down traditional silos within the water utility sector and encourages collaboration between water utilities and other sectors.

From the One Water planning perspective, EWSI has focused on the following areas:

1. Consumption patterns - modernizing the design standards for water and sanitary to reflect the changing water consumption patterns in Edmonton (detailed in Attachment 2).
2. Situational awareness - implementation of technology to improve real time knowledge of system conditions and improve responses to emerging events.
3. Sanitary Integrated Resource Plan (SanIRP) - implementation of the SanIRP to bring all parts of the water cycle into an integrated resource planning approach.
4. Growth strategies - working closely with the City of Edmonton growth management team in assessing infrastructure needs to support the nodes and corridors and in anticipation of land zoning updates as part of The City Plan and Zoning Bylaw Renewal.

In 2021, EWSI undertook a detailed review of urban water consumption to understand the changing water use patterns of Edmonton's customers and forecast future changes. The results of this review, provided in Attachment 2, includes a detailed analysis and a further breakdown of the up-to-date water consumption data and trends of water customers in Edmonton (including details for residential, multi-residential, commercial/industrial/institutional customers as well as regional customers). Key findings from the review include the following:

- Total in-city per capita water consumption (the total in-city water consumption divided by the City's population) has steadily declined since the mid 1970s with current total average in-city daily water demand roughly the same as it was in the early 1980s.
- Over the last twenty years, residential average per capita water consumption has fallen steadily from 241 litres/capita/day during the 2000-2004 five year interval, to 176 litres/capita/day in 2019 (the last full year pre COVID-19). Efficient water fixtures and

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appliances have contributed to the significant water reductions in indoor residential water usage. EWSI expects future per capita water consumption for the residential and multi-residential customer classes to continue to decline, due to increased efficiencies, and partially offset increases in total consumption resulting from new account growth for these customer classes.

- The commercial/industrial/institutional water customer group has a large consumption range, with monthly consumption ranging from less than 10m³/month to upwards of 5,000 m³/month. Average monthly consumption per service for this group has fallen by 48 percent since 2002 to just below 100 m³/month in 2019. EWSI projects that reductions in consumption for this group will continue into the future due to a number of factors including changes in technology and the financial incentive for customers in this class to reduce costs.

Drainage and Water Design Standards

EWSI's design standards for drainage and water infrastructure are included in the City of Edmonton's Design and Construction Standards. EWSI has the responsibility of updating the Drainage and Water Design Standards with input from stakeholders, including the City of Edmonton.

The design standards (provided on the City's website) are organized into eight volumes, one volume per discipline, with each volume containing a design section, specifications and drawings as required, plus any other guidelines or manuals appropriate to that discipline. The Drainage Design Standards are provided in Volume 3 and the Water Design Standards are provided in Volume 4.

EWSI's water use analysis has recently led to updates to the City of Edmonton's Design and Construction Standards for both water and drainage. The previous residential design standards were 250 Litres/capita/day for water consumption and 300 Litres/capita/day for sewage generation. In February 2022, both design standards were revised to 220 Litres/capita/day.

Next Steps

Based on the analysis of the water consumption data and trends presented in Attachment 2, EWSI has identified further potential revisions to the standards for the design of water and sanitary infrastructure in Edmonton (summarized on pages 51 and 52 of Attachment 2). EWSI recommends further lowering the residential and multi-residential design standard from 220 Litres/capita/day to 160 Litres/capita/day for large area/neighborhood-level planning estimates of water consumption and sewage generation. Attachment 2 also provides data to allow flexibility when designing water and sanitary infrastructure for commercial and industrial development, depending on factors including industry and zoning type. EWSI will continue to monitor consumption trends and engage with Administration, Urban Development Institute and other stakeholders to discuss these suggested design standard changes and how they may impact current and future planning.

EPCOR is seeking feedback on the water use discussion paper at the May 20, 2022 Utility Committee including any additional information or analysis that Utility Committee would like to

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see regarding changing water and sewer consumption patterns in Edmonton, or any other suggestions for outreach to the development community and the Edmonton Metropolitan region.

COMMUNITY INSIGHT

Since the completion of its urban water consumption analysis in 2021, EWSI has hosted a number of engagement sessions with various City of Edmonton departments and external stakeholders such as the Urban Development Institute, development organizations, Sanitary Servicing Strategy Fund Committees and the Regional Water Customer Group. These sessions were used to share the findings of the consumption analysis and obtain direction on how to apply the information to modernize the design standards. EWSI will continue to engage with the City of Edmonton and external stakeholders going forward in respect of the recommended changes to its design standards.

GBA+

GBA+ specific to this report was not conducted, as the information provided is from EWSI regarding changing water use among the various customer groups served by EWSI in Edmonton.

ATTACHMENTS

1. Edmonton's Changing Water Use - Overview
2. Edmonton's Changing Water Use - Discussion Paper