EPCOR WATER SERVICES

2024 Operational Plan

January 8, 2024

Introduction

This document presents the 2024 Operational Plan for the Water Treatment, Distribution and Transmission, Wastewater Treatment and Collection Services collectively referred to as “EPCOR Water Services” or “EWS”. The purpose of this document is to provide an overview of EWS’ 2024 operational initiatives to Edmonton City Council, Utility Committee and stakeholders.

Vision

EWS’ vision is to be an industry leader in providing safe and reliable water and wastewater services, recognized as an environmental steward and trusted by our customers and stakeholders. The Operational Plan is updated on an annual basis to ensure work is prioritized in support of achieving this vision.

Focus Areas

The 2024 Operational Plan was developed through a process of identifying key deliverables over seven key focus areas. For each focus area, EWS has identified the objectives and initiatives to be achieved over the next five years. These focus areas are:

This report highlights the key initiatives EWS will work to advance over the coming year. A cross-section of objectives and initiatives for each focus area are included in Appendix I.

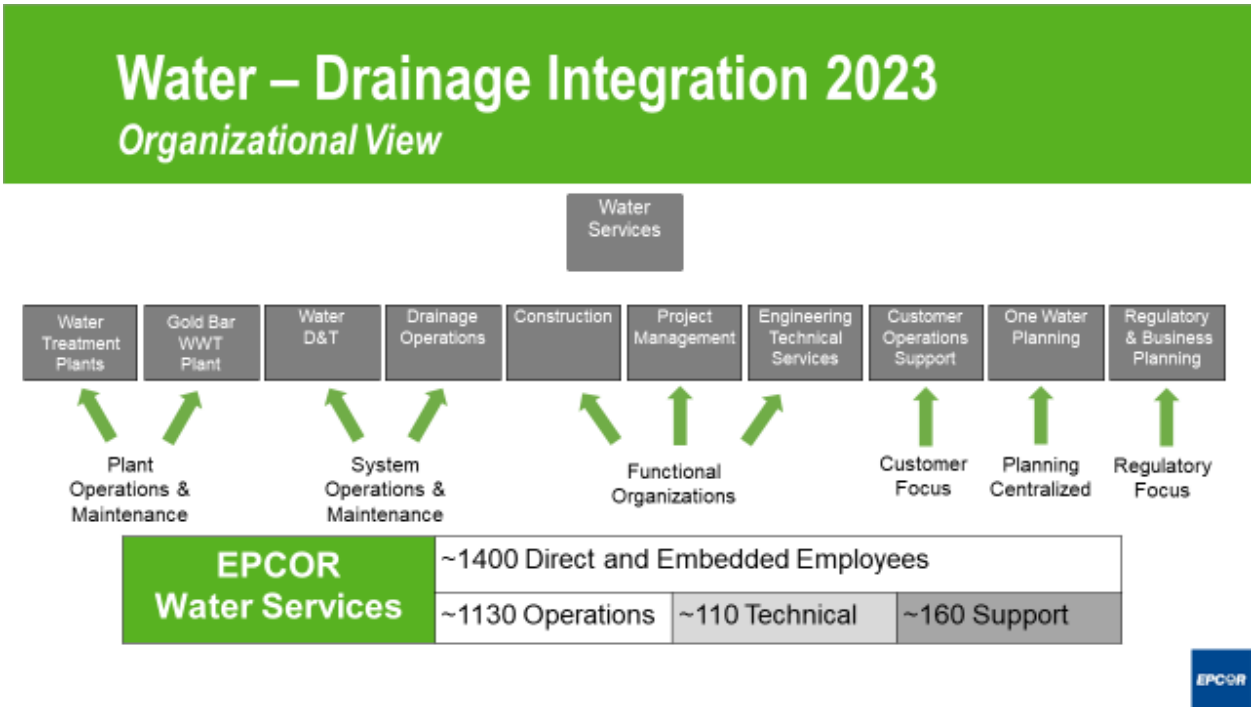
1. Highlights

This report highlights key initiatives and projects for EWS in 2024.

Water/Drainage Integration Update

A key aspect of the transfer of the City of Edmonton's drainage operations to EPCOR in 2017 was the plan to pursue a "One Water" approach to managing operations across the entire water cycle. In support of this goal, EPCOR underwent an overall organizational re-design in 2023, merging the former water and drainage business units into a single functional structure. To help realize operating and capital efficiencies, EWS will continue to focus on implementing improvements in 2024 by reviewing business processes throughout the entire water cycle – from planning to the execution.

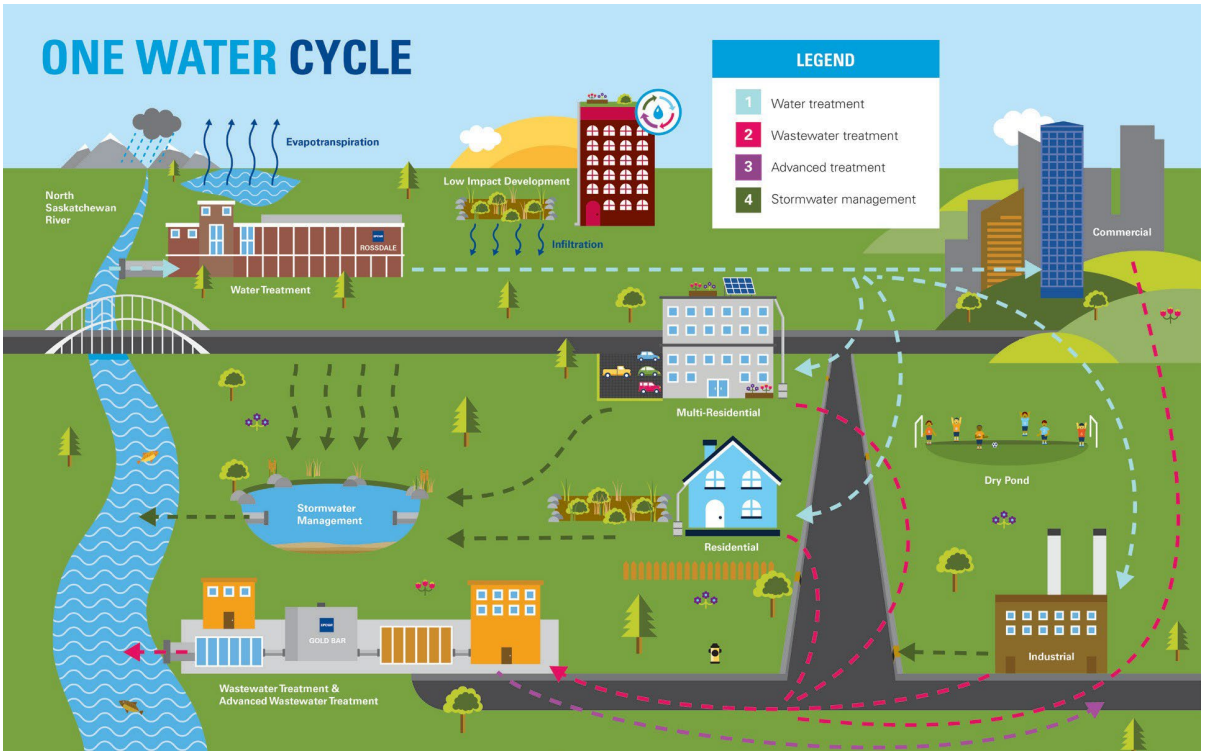
The functional structure of EWS is reflected in the figure below:



The new organizational structure is transformational and moves EWS towards a more efficient structure where most functions are centralized, providing greater opportunities to more closely align business processes across the former stand-alone water and drainage utilities. Operations and maintenance activities continue to be separated based on assets (water distribution and transmission, water treatment, wastewater treatment and collection services) due to the specialized skills and experience required to operate and maintain these assets. This organizational structure supports a "One Water" approach to managing the entire water cycle, and establishes a solid foundation for improving performance in the areas of employee health and safety, environmental protection, and safe and reliable delivery of services to EWS' customers.

What is One Water?

An integrated planning and implementation approach to manage finite water resources for long-term resilience and reliability meeting both community and ecosystem needs.



Flood Resiliency

In 2024, EWS will continue work to advance its flood resiliency plans to protect the water supply for Edmonton, and the more than 90 surrounding communities in the event of a major flood, while also partnering with local communities on flood resilience. The Edmonton Water Treatment Plants (WTP) Flood Mitigation Project was approved as part of Water Services' 2022-26 Performance Based Regulation (PBR) application and includes $22 million in federal and provincial grant funding.

The goal of the project is to manage the risks associated with flooding and ensure customers receive drinking water service as soon as possible following a flood event. The project will safeguard Edmonton's WTPs by:

- Developing flood barriers to protect water treatment equipment such as transformers and pumps from severe damage and/or contamination of below-grade treated water reservoirs.
- Preventing river water from backing-up into the plants through pipes used to return treated water to the river.
- Increasing protection of critical infrastructure and equipment assets, or relocating them to higher ground within plant grounds.

Stakeholder Engagement

EPCOR is committed to high quality public engagement that result in critical infrastructure being built and operated in a way that aligns with the interests and priorities of the community, and ensures our decisions and actions are guided by the values we share. Our engagement practices include working directly with Indigenous Peoples, communities and rights-holders, as well as members of the communities surrounding the WTPs.

EWS has and will continue to, engage with community members and Indigenous Peoples throughout the duration of the Edmonton WTPs Flood Mitigation Project.

Phases 1 – 3 of our community and Indigenous engagement have substantially concluded as of winter 2023. As a result, the project team has an enhanced understanding of:

- Preferences for flood barrier type in each location around both water plants.
- Principles to consider during the detailed design phase.
- How Indigenous Peoples and other community members have perceived EPCOR's engagement efforts and flood mitigation plans to-date.

Feedback from stakeholders will be incorporated into refining the alternatives developed and sharing how their input influenced the project. Construction of the flood barriers is anticipated to begin in 2024.

The next phases of our engagement work will include the sharing of important stories that were identified through the consultation process. The intent is to celebrate and honour the traditional, historical and modern significance of the lands where our city's WTPs now reside, honour the dialogue that has occurred, and continue to have open and transparent conversations through to construction completion.

Protecting Wastewater Treatment Processes

In addition to flood protection work at both the Rossdale and E.L. Smith Water Treatment Plants, planning for flood protection has also commenced for the Gold Bar Wastewater Treatment Plant (GBWWTP). This flood protection project was awarded funding from the Federal Disaster Mitigation and Adaptation Fund in early 2023.

Flood inundation mapping, preliminary barrier wall design, and other flood mitigation upgrades, such as gates and valves on the outfalls to prevent river water from flowing back into the plant, have already started. More detailed risk-assessment and value engineering exercises will be undertaken in 2024 to refine the scope of the project. Detailed design, following community and Indigenous engagement will begin in the latter-half of 2024, with construction currently scheduled to begin in early 2025.

Advanced Metering Infrastructure

EWS has begun the installation phase of its Advanced Metering Infrastructure (AMI) project, which will see the replacement of the majority of Edmonton's existing water meters.

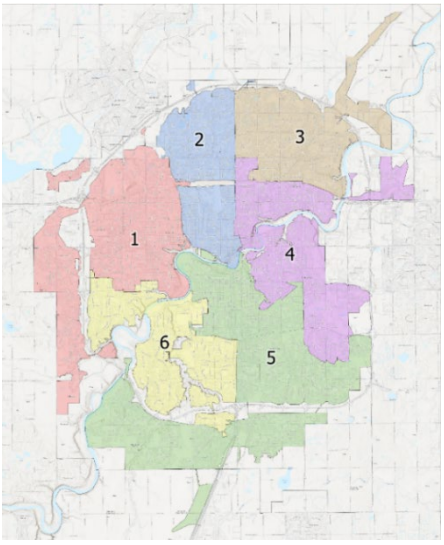
To facilitate the installation of the AMI devices, EWS has divided the city into six zones. We will be progressing from zone 1, which was started in November 2023, in a clockwise direction through the zones. 5000 AMI Meters have been installed as of the end of 2023. The installation phase will focus on the physical installation of the AMI devices, verification of device functionality for all installations, and verification of integration with EPCOR's billing system. All installations are planned to be completed by the end of 2025.

The zones and estimated start dates are pictured in the map below. This map also exists in an interactive version on epcor.com that allows customers to enter their address to know when their neighborhood is scheduled for installations.

Work is also set to commence on the development of automated software tools to identify and notify customers of higher than normal consumption. Given the complexity and size of the AMI installation, it is expected this additional functionality will be available for customer use in late 2025 or early 2026. This additional functionality will allow customers the opportunity to potentially identify and address high water consumption on a timelier basis. In the interim, EPCOR's current process of notifying customers when there higher than typical water consumption, which is based on monthly meter reads, will remain in place.

Anticipated AMI Schedule

Zone	Anticipated dates
1	November 2023 - July 2024
2	February 2024 - November 2024
3	March 2024 - November 2024
4	July 2024 - January 2025
5	August 2024 - March 2025
6	October 2024 - April 2025
All	Up to December 2025



Situational Awareness

EWS will continue its multi-year Situational Awareness initiative in 2024 to enhance visibility and insight into our operations. This initiative will update mature treatment and transmission systems by adding sensors, and increasing the monitoring and control of water distribution, sewage collection, and stormwater collection and management facilities. Through the use of asset and facility visualization, application of artificial intelligence, and improved access to data across the full water cycle, EWS plans to improve the operation of its facilities and reduce impacts to customers during abnormal events such as main breaks and sewer main blockages. The initiative will also support EPCOR's long-term greenhouse gas emission targets by reducing energy consumption through the optimization of chemical usage, reduction in water losses and enhancements to pumping operations.

To guide the multi-year initiative, a situational awareness roadmap will be developed in 2024. This will entail evaluating existing control and monitoring systems, identifying opportunities to improve and enhance those systems, researching opportunities for new systems, researching new technologies such as artificial intelligence, and identifying where and when improvements, additions, and new technologies can be introduced.

Standards Modernization

The city's Nodes and Corridors, District Planning, Zoning Bylaw Renewal and Greener as We Grow initiatives helped identify the need to modernize the water and drainage design and construction standards. Updates to these standards will help support the goals of the City Plan, including increasing economic development, non-residential growth, and residential density through infill developments.

The historical water, sanitary and stormwater design standards were solely based on land zoning. This has been identified by EWS and members of industry as resulting in overly conservative design assumptions and overbuilt infrastructure – particularly when applied at a neighbourhood or area planning scale, as it was previously assumed that the most intense development permitted in the zone would occur across all parcels being developed. These design standards were also developed when the predominant growth type was greenfield and did not reflect the fact that during infill development, additional information is known to the design engineer to allow optimization of infrastructure requirements to match the actual building structures being planned.

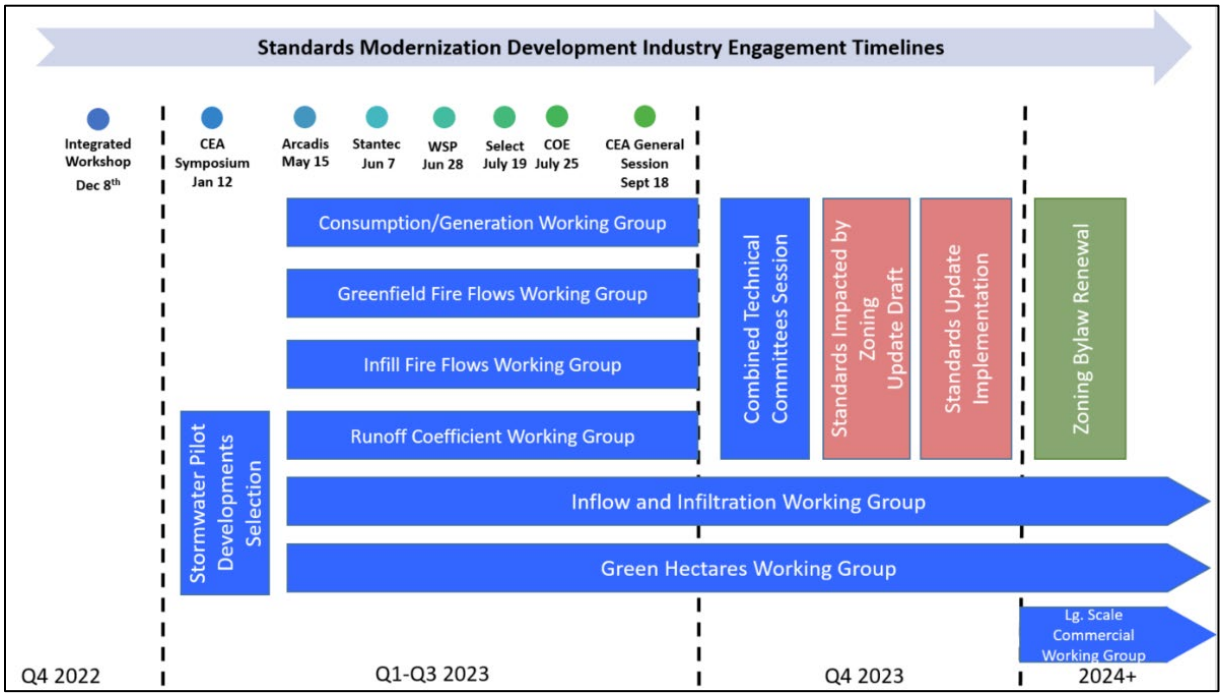
Throughout 2023, EPCOR hosted a series of consultation sessions, shown in the figure below, with the development community, which included industry associations, individual consultants, industry business leaders and City of Edmonton planners, fire rescue services and climate adaptation professionals. The sessions focused on how best to modernize the design standards and design approval processes for water consumption and sewer generation, fire flow requirements and stormwater and green infrastructure implementation. An open session, coordinated through Consulting Engineers of Alberta, was also held. It included representatives from many of the communities surrounding Edmonton that are now also reviewing their standards.

Through these consultation efforts, it was identified that a two-pronged approach would best meet the diverse needs of the development community. The first approach was a straight-forward update of the design standards based on the new zoning codes, recognizing that this would still be conservative, but could be updated to reflect modern water conservation and building materials, and on-site stormwater management opportunities. This approach supports developers that want to move quickly through the

approval process and reduce the engineering design costs.

The second approach included the development of a new process where the developer can engage with EPCOR earlier in their planning and work collaboratively through the design assumptions for the specific requirements of the development they are proposing. This process can include discussions on where best to orient buildings with higher water consumption or higher fire flow requirements to maximize the use of existing capacity for infill developments, or reduce pipe requirements in greenfield developments.

The consultation efforts also recommended a review of the processes for development of mega commercial blocks. EPCOR will initiate this review in 2024. The green infrastructure group and inflow infiltration reduction working groups will also continue to collaborate, as these standards are not driven by the zoning bylaw changes.



The City of Edmonton has also initiated a standards modernization initiative for the Area Structure Plan and Neighbourhood Structure plan process and has the review of the Complete Streets standards also underway and EPCOR is participating in these initiatives as well.

Wastewater Treatment and Collection PBR Applications

With the expiry of the EPCOR Drainage Services and Wastewater Treatment Bylaw (Bylaw 19627) on March 31, 2025, EWS intends to file its bylaw renewal application by June 2024, seeking City Council approval of new rates, terms, and conditions of service, to commence April 1, 2025.

EWS' rate application for its Wastewater Treatment and Wastewater Collection will reflect a PBR structure for a three-year term and retain the same general terms and conditions as the current applications (2022-2024 for Drainage and Wastewater Treatment and 2022-2026 for Water).

2025-2027 Drainage and Wastewater Treatment PBR – Application Timeline

Activity	Proposed Timing		Notes
	Start	Finish	
Rates Report – Application Submission	-	31-May-24	
Councillor Information Requests (IRs)	07-Jun-24	15-Jul-24	38 days for IRs
Administration and Utility Advisor Information Requests	07-Jun-24	15-Jul-24	38 days for IRs
Public Submissions – Information Requests	07-Jun-24	22-Jul-24	Open for 45 days
EWSI Response to Information Requests	22-Jul-24	05-Aug-24	14 days
Reports of Reasonableness by Administration and Utility Advisor	06-Jul-24	04-Sep-24	96 days to complete
EWSI Response to Reports of Reasonableness	04-Sep-24	04-Oct-24	30 days to complete
PBR Public Hearing (Non Regular Committee Meeting)	07-Oct-24	31-Oct-24	Within these dates
PBR Compliance Filing	01-Nov-24	01-Dec-24	30 days to complete
Contingency	01-Dec-24	1-Dec-24	
First, Second and Third Readings – Bylaw Approval	01-Jan-25	15-Feb-25	45 days for schedule
Rates Implemented	01-Apr-25	01-Apr-25	

As part of the development of its latest PBR Application, EWS will complete stakeholder consultation activities, as well as bring forward a number of discussion papers to Utility Committee in 2024 – allowing for a more detailed review of specific items and helping to facilitate discussions before they are reflected in the final applications. The proposed timeline for the PBR application and review are reflected in the table above.

Appendix I – EWS 2024 Operational Objectives & Initiatives

	OBJECTIVES	INITIATIVES
HEALTH AND SAFETY	**Employee Health & Safety** Develop and implement an employee health and safety operational plan aligned with the corporate vision including: • SOPs for all high hazard activities • Maintain focus on proactively managing incidents and injuries and high-risk safety issues • Ensure rigorous EOC and emergency response processes • Explore technology and alternate work methods to eliminate or mitigate high risk activities • Align Physical Security of Plants and Facilities with Corporate requirements	• Identify 2 new technologies to reduce safety risk for high risk activities • Complete SOP / ERP review • Update Wastewater Collection and Construction safety risk register • Entrench use of Causal Investigations to identify learnings from significant events • Review and implement the Safe Work Planning tool set
	Contractor Health & Safety • Implement the contractor safety improvement plan	• Ensure all contractors have a subcontractor safety management plan
	Customer/Community Health and Safety • Ensure public safety through communication and damage prevention strategies	• Ensure public safety protection planning is included for construction at Water Treatment Plants (bike paths and walking path) • Improve focus on customer safety barricading for projects within road right of ways (bike paths, people paths, and vehicles pathways)
PUBLIC HEALTH AND ENVIRONMENT	**Sustainability and Resource Efficiency** • Develop and implement a GHG mitigation plan	• Determine feasible GHG reduction projects that support EPCOR's goal of achieving 85% reduction in Scope 1 and 2 GHGs by 2035 • Develop a coordinated process for identification and application for grant opportunities
	Public Health • Proactively address anticipated changes to drinking water quality guidelines	• Assess the effectiveness of the Lead Management Program in Edmonton • Reduce wastewater collection system odour hotspots
	Watershed Management • Implement an Integrated Watershed Management Strategy, with a long term plan for managing WTP residuals • Improve load quantification and watershed protection for Edmonton operations	• Update the Total Loadings Strategy, including load quantification
	Management Systems • Conform to ISO 14001/17025 standards across all sites and continue to improve performance	• Review and redefine the Integrated Management System structure
	Operating Approvals • Achieve all required approvals to operate and prepare for next Wastewater approval • Develop strategy for 2025 AEPA Wastewater Approval to Operate in partnership with the Arrow Utilities (formerly the Alberta Capital Region Wastewater Commission)	• Put a team in place to obtain approval from AEPA for Edmonton Wastewater system for 2025-2035

	OBJECTIVES	INITIATIVES
PEOPLE	**Professional Growth and Development** • Focused development of new and existing leaders to develop courage, resiliency, capability, and collaboration • Ensure that Wellness and Resiliency Programs are available and accessible to employees to support their mental health and well-being	• Develop and implement a strategy for updating the AEPA Operator Certification program • Implement Wellness and Resiliency Programs which support EWS employee needs
CULTURE	**Engagement and Cultural Alignment** • Develop a long term plan for facilities that delivers engaging workspaces to support employee effectiveness in the office and hybrid work environments • Optimize the hybrid work program	• Drive improvements to the employee experience for women in the field • Leverage the EWS DEI Committee to support and operationalize DEI initiatives in EWS • Evaluate the hybrid work program to ensure that it is meeting the needs of the business while still allowing flexibility for employees
CUSTOMER AND STAKEHOLDERS	**Customer Experience** • Build systems, processes and training to provide consistently good service • Through development of relationships, understand customers and stakeholder needs and develop initiatives to meet their expectations and minimize escalations • Improve the customer's experience with EWS • Strive to be viewed as an anchor institution	• Develop measures for overall customer experience
	Customer Experience Technology • Leverage advances in technology to improve service • Optimize meter reading and simplify billing through AMI • Utilize data and information to be proactive with Customers and Stakeholders	• Assess technology requirements for customer experience improvement and include this in IT capital plan and Situational Awareness Roadmap • Commence AMI rollout and execute effective change management plans for customers • Reduce complexity of billing resulting from AMI related changes
	City of Edmonton Stakeholder Relations • Build and maintain strong relationships with key City of Edmonton departments at all levels • Actively engage with City to support City's Growth and Development plans including the City Plan	• Link EWS projects and PBR initiatives to the City Plan
	Operational Stakeholder Relations • Improve operational coordination, relationship with Regional Customers, and look for opportunities to partner • Foster relationship with indigenous partners	• Support Progressive Aboriginal Relations certification including implementation of Indigenous Procurement Strategy • Renew RWCG Wholesale Water Supply Agreement • Initiate Arrow Utilities Swap Agreement review
	Developer Relations • Improve development processes and communications with the City and Developers	• Optimize integrated portal for Developers • Collaborate with the City of Edmonton on the SSSF Transformation project • Complete standards modernization work
	Customer Billing Accuracy Ensure robust billing processes are in place for utility services provided to maintain customer trust	• Participate in the end-to-end review of water customer billing to capture operational impacts

OPERATTIONAL EXCELLENCE	**Situational Awareness** • Leverage data to manage the water and wastewater system, improve performance, drive operational efficiencies and improve customer experience • Develop a data management, governance and utilization roadmap • Gain an understanding of utility best practices and understanding of trends through relationships with other utilities and contractors • Create visualization tools and operationalize new situational awareness systems	• Complete EWS Situational Awareness Roadmap • Implement a Situational Awareness Governance Structure aligned with strategic cross-business initiatives • Complete at least two pilot projects - Water Distribution Break Detection and Storm Sewer Flow Monitoring • Align IT Roadmap and IT Initiatives to Situational Awareness road map • Develop efficiency and customer experience metrics related to situational awareness initiatives • Explore centralized monitoring and control of the water and wastewater system
	One Water Approach • Develop and refine integrated planning and implementation approach • Develop growth scenarios based on the City's growth plan with requirements built into the capital plan	• Sanitary IRP completed • Gold Bar IRP updated • Sanitary IRP integrated into capital planning processes
	Efficiency and Process Improvement • Identify, prioritize and realize process improvement opportunities across all areas • Develop and implement a biosolids management strategy	• Define end to end process from project initiation to execution, including cross-functional accountabilities and boundaries • Operationalize the alternative procurement initiative • Streamline the Accept for Delivery stage gate process
	Climate Change Adaptation Implement Climate Change Adaptation Plans including: • River flooding resiliency plan • Flood mitigation and SIRP Strategy • Other Identified adaptation plans in response to heat waves, ice storms, droughts and urban wildfires	• Complete flood project design work at both WTPs • Develop flood hardening preliminary design work at Gold Bar WWTP • Identify and propose mitigation measures for urban wildfire and ice accumulation
	Asset Management / Reliability • Develop an asset management vision to support long-term system reliability • Leverage the asset management framework to drive capital planning and operational decision making	• Complete and document asset management Roadmaps in all areas • Build an asset management dashboard to visualize metrics and improvements
SHAREHOLDER VALUE	**Financial Performance** • Meet operational and capital budget targets • Meet financial, reliability and ESG commitments by process improvements and innovation • Optimize Investment Prioritization to manage risk within PBR revenue requirement	• Develop tools to help managers manage costs • Assess of software tools to aid in capital investment prioritization / optimization across the entire capital portfolio
	Regulatory • Streamline internal regulatory application development processes • Align the PBR plan with long term EWS objectives • Ensure financial sustainability for the utility while maintaining fair and reasonable rates • Ensure the PBR meets customer and stakeholder expectations	• File and receive approval for 2025-27 Wastewater Treatment and Wastewater Collection PBR Application

Appendix II – Design Standards Update

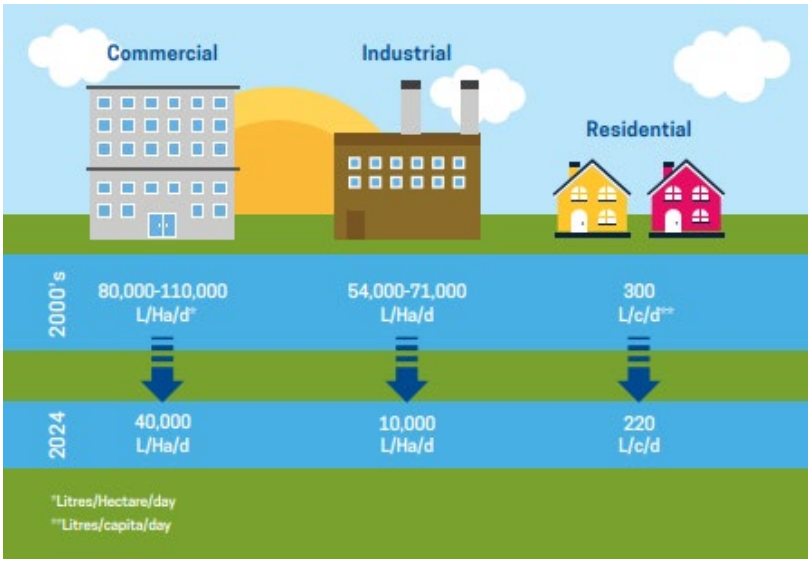
The January 2024 Addendum to the City of Edmonton's Design and Construction Standards aligns the design standards with the new zoning types introduced in the renewal of the city's Zoning Bylaw. It also reflects current flow generation metrics based on the most recent water use trends observed in Edmonton.

Water Consumption and Sewer Generation Rates

Residential water consumption per customer is decreasing city-wide as existing residences retrofit and refurbish aging appliances and as new, more water efficient residential homes are built in the city's developing and mature neighbourhoods. On average, residential water use is at 176 L/capita/day (L/c/d) across the city, however in new homes the average water use is 160 L/c/d thanks to modern water efficient appliances.

Commercial and Industrial standards were also reduced to reflect actual flows seen from these industries in Edmonton. These areas now use between four to eight times less water, depending on industry type. If a major water-user approaches EWS for services, a separate customer-specific process to undertaken to assess actual needs.

Flow Generation Design Metrics



The flow generation metrics used to inform design and construction planning were published in January 2024 to reflect the decrease in water use by commercial, industrial, and residential customers.

Fire Flows

Previous Fire Flows were 100 L/s for Residential, 180 L/s for low density multifamily and 300 L/s for everything else.

New standards result in lower fire flows for most multifamily and commercial developments and introduces new lower standard for natural areas (NA zone).

Fire Flow for	Rate
RS, RSF, RR	100 L/s
RSM, MUN, CN, CG, CB, IM, A, PS, PSN, PU, UF	180 L/s
RM, RL, MU, BE, IH, UI, AJ	300 L/s
NA	33 L/s

***1.12.4.5** - For any zone note included in Table 1.3 above, the required fire flow shall be determined by calculation adhering to Fire Underwriters Survey "Water Supply for Public Fire Protection, A Guide to Recommended Practice in Canada, 2020" Part 2.

1.7.1.5 - The maximum allowable spacing between fire hydrants shall be 150 m where the required fire flow prescribed by Table 1.3 is not more than 100 L/s, and 90 m in all other areas.

Stormwater Runoff Co-efficients

Reviewed based on new zoning codes and actual parcel development seen in Edmonton.

Proposed:

Zoning or Classification Designation Per Bylaw # 20001[1]	Zoning Category/Description Per Bylaw # 20001	Runoff[2] Coefficient " C "
RVSA, NA	River Valley	0.2
PS, PSN	Open Spaces/Civic Services	0.3[3]
AG, FD, RR	Agricultural/Rural Residential	0.3
UF	Urban Facilities	0.6
RS, RSF	Residential (Low Density)	0.65 or 0.7[4]
RSM, RM, RL	Residential (High Density)	0.7 or 0.75[4]
CN, MUN	Neighbourhood Commercial/Mixed Use	0.8 to 0.9[5]
CB, CG, MU	Commercial/Mixed Use	0.85 to 0.95[5]
BE, IH, IM	Industrial	0.85 to 0.95[5]
AJ, PU	Open Spaces/Civic Services	*[6]
DC1, DC2, UI	Direct Control/Urban Institutions	*[6]

[1] For zonings not shown in this table, the runoff coefficient "C" and the percentage of imperviousness area shall be estimated by the designer.

[2] Minimum design values to be used without specific area analysis. To be used only for calculation of peak runoff rates by the rational method.

[3] Runoff coefficient is valid for Open Spaces with minimal hard surfacing. Open Spaces that will have plaza areas or significant allocations for hard-surfaced sports fields must have a runoff coefficient assigned based on a percentage of impervious area estimated by the designer.

[4] Lower value may be used when the catchment area considers the lot only. Higher value must be used when the calculation includes the road ROW frontage and backage.

[5] Lower value may be used for developments incorporating landscaped areas (boulevards, islands, etc.) into the parking lot design.

[6] For Open Space, Direct Control and Urban Institution zonings the percentage of imperviousness area must be estimated by the designer and runoff coefficient determined in consultation with EPCOR.

Appendix III – List of Acronyms

AEPA	Alberta Environment and Protected Areas
AMI	Advance Metering Infrastructure
ASP	Area Structure Plan
DEI	Diversity, Equity and Inclusion
EOC	Emergency Operations Centre
ERP	Emergency Response Plans
ESG	Environmental, Social and Governance
EWS	EPCOR Water Services
GHG	Greenhouse Gas
IRP	Integrated Resource Plan
ISO	International Organization for Standardization
IT	Information Technology
NSP	Neighbourhood Structure Plan
PFAS	Per- and polyfluoroalkyl substances
PBR	Performance Based Regulation
RWCG	Regional Water Customer Group
SIRP	Stormwater Integrated Resource Plan
SLA	Service Level Agreement
SOP	Standard Operating Procedure
SSSF	Sanitary Servicing Strategy Fund
WTP	Water Treatment Plant
WWTP	Wastewater Treatment Plant