

Home Adaptation Strategies and Programs

Update and Analysis

Recommendation

That the August 27, 2021 Urban Planning and Economy report CR_8090 be received for information.

Previous Council/Committee Action

At the February 14, 2020 Utility Committee meeting the following motion was passed:

That Administration work with EPCOR to provide a more detailed update to Utility Committee on Home Adaptation strategies and programs as part of the SECURE theme in the Stormwater Integrated Resource Plan, along with some analysis that these strategies and programs may have on insurance rates for Edmonton homeowners.

Executive Summary

Climate Resilient Edmonton: Adaptation Strategy and Action Plan outlines key pathways, goals and actions to help Edmonton adapt to a changing climate. This is an important aspect of ConnectEdmonton's Climate Resilience goal.

One key goal of the Climate Resilient Edmonton strategy is for Edmonton to be a flood resilient community. EPCOR, as the drainage utility owner/operator, is leading the overall approach for flood resilience through the Stormwater Integrated Resource Plan (SIRP). The City of Edmonton also offers complementary community adaptation programming and materials to support homeowners in their efforts to prepare for and adapt to various impacts of a changing climate including flooding.

EPCOR's report in Attachment 2 provides an overview of the various home adaptation strategies and programs currently being implemented as part of the "Secure" theme of the Stormwater Integrated Resource Plan. This includes work to help secure individual properties in higher risk areas against sewer backups, inflow infiltration, overland flooding and river flooding. The report also provides an update on discussions and collaboration with the insurance industry to better understand how flood mitigation actions impact insurance. Details of those implications are currently not fully known.

Report

ConnectEdmonton sets the direction for our future and outlines where we need to change today to realize our vision for Edmonton in 2050. ConnectEdmonton's goal of Climate Resilience envisions a city adapting to a changing climate. Adapting to a changing climate means taking actions to be prepared for and respond to anticipated climate change impacts related to changing precipitation, temperatures, weather extremes and ecosystems. The City Plan's vision for our future city outlines Big City Moves that provide direction to deliberately change our city to welcome one million more people here. This includes supporting Edmontonians in building individual and community capacity to take action on climate change. The Climate Resilient Edmonton: Adaptation Strategy and Action Plan is a key city building initiative that supports The City Plan implementation and supports achieving the community's vision for Edmonton in 2050.

City of Edmonton Climate Adaptation Initiatives

Climate Resilient Edmonton: Adaptation Strategy and Action Plan outlines how the city can achieve the transformational change of becoming a climate adapted city, including the goal that Edmonton is a flood resilient community to both urban and river flooding. EPCOR as the utility owner/ operator is leading the overall approach to urban flood resilience, through the Stormwater Integrated Resource Plan (SIRP). The City of Edmonton also offers complementary community adaptation programming and materials to support homeowners in their efforts to prepare for and adapt to various impacts of a changing climate, including flooding (Attachment 1). The City's materials amplify EPCOR content and link to their programs. The City also partners with EPCOR in installing Low Impact Development features as part of our Building Great Neighbourhoods projects within existing neighbourhoods. The City is also working to continually improve our understanding of how a changing climate will impact flooding risk for City assets and within the community, including:

- Partnering with national experts in academic climate science research to conduct innovative and unprecedented climate modelling. This modelling can support future technical work to ensure Edmonton's new stormwater infrastructure is designed for the future climate and to better understand changes in river flow resulting from climate change.
- Reviewing City assets for risks and identifying mitigation actions to inform future planning. The implications of changing climate risks on the insurance premium for City assets is unknown at this time.

EPCOR Stormwater Integrated Resource Plan Secure Theme Update

The report in Attachment 2 provides an update on EPCOR's implementation efforts to minimize the risk to Edmontonians from urban flooding, as part of the Stormwater Integrated Resource Plan (SIRP). The SIRP strategy has five themes: slow, move, secure, protect and respond. The focus of EPCOR's report is the secure theme, which

is aimed toward securing individual properties in higher risk areas against sewer backups, inflow/infiltration, overland flooding and river flooding. EPCOR has identified 6,000 properties that have a higher flooding risk, and an additional 40,000 properties with a mid-high exposure risk. There are four investment themes that support the SIRP secure theme.

Secure theme 1 is Flood Proofing of Private Property. Since SIRP was approved, EPCOR has expanded the flood proofing resources available to homeowners, including hiring a manager and additional flood proofing inspectors that have completed a certified flood inspectors training program. EPCOR has updated the flood inspection report provided to homeowners to align with recommended content from the Intact Centre on Climate Adaptation, and is developing a software tool that will improve efficiency and tracking of completed inspections. EPCOR continues to fund the backwater valve subsidy program (\$800 per property) and has increased the level of community outreach on flood proofing homes. In 2020, EPCOR began proactively reaching out to high risk properties, but this approach was pulled back due to the COVID-19 health restrictions. EPCOR's focus for the remainder of 2021 and into 2022 will be outreach specific to the properties in the river valley neighbourhoods.

Secure theme 2 is Inflow/Infiltration Reduction. This theme is focused on reducing excess water that enters the sanitary sewer system (through holes/cracks, downspouts, foundation drains, manholes, etc.) and increases the risk of flooding to adjacent properties during storm events. EPCOR has implemented a capital program focused on identification and reduction of inflow/infiltration sources to the sanitary sewer network. Approximately 9,000 manholes and their connecting pipes have been identified as part of the capital program, with approximately 1,000 manholes per year planned for lining upgrades. EPCOR is developing community outreach to work with homeowners whose downspouts or foundation drains are connected to the sanitary network to reconfigure these to reduce flooding risks. EPCOR will assess the potential to implement an additional subsidy program to support these disconnects, and will recommend this as part of the 2024 Performance Based Regulation (PBR) renewal.

Secure theme 3 overviews River Flooding Risk Mitigation. River and ravine flood risk mitigation is a joint effort between the City and EPCOR. EPCOR's current focus is on reducing the risk of river water accessing the piped sewer network and reaching basements through these pathways. EPCOR has identified 31 river valley outfalls that could result in river water backing up into pipes and increasing risk to private property. EPCOR has identified a multiyear capital project (2021 to 2029) to reconfigure these outfall locations with an automatic gate to allow the outfall to be closed during a high river event. EPCOR has also completed a review of individual properties within Cloverdale, Riverdale and Rosssdale neighborhoods to the current Provincially designated flood elevations for different flood scenarios. EPCOR's review suggests that the majority of properties in these neighborhoods will not be significantly impacted through the piped sewer network as they have lot grading, main floors and window

wells that are above expected flood depths. EPCOR has identified they will work with properties at higher risk of piped sewer overflow by ensuring those properties have functional backwater valves. EPCOR has estimated that approximately 300 properties would see surface flooding on the road outside their property.

Lastly, Secure theme 4 is Maintenance and Upgrading of Ditches and Swales. EPCOR has developed a formal maintenance program for ditches and swales, including a focus on maintaining flow paths and proactive repairs of culverts that have failed. Since April 2020, EPCOR has inspected 1,700 of the 4,000 culverts, and in coordination with the City, has repaired 2.7km of ditches and culverts. In addition, a major capital project in northeast Edmonton at 17 Street and Aurum Road was completed in spring 2021.

In addition to EPCOR's work, the City has identified a river and ravine flooding resilience program as a key adaptation action in Climate Resilient Edmonton: Adaptation Strategy and Action Plan. A comprehensive community river flood assessment that takes into consideration changing climate risks, and identifies potential flood protection actions has not yet been undertaken by the City. Study and planning work will begin in 2022. River flooding risks are expected to increase due to climate change, and the provincial flood mapping update underway that the City has been engaged on may also highlight further flood risks and hazards to be factored into a community river and ravine flood resilience program.

Insurance Industry Discussion Update

EPCOR has been in discussions with insurance providers (Attachment 2) through various engagement activities with the Canadian Water Network, Insurance Bureau of Canada, Intact Centre on Climate Adaptation and the Institute for Catastrophic Loss Reduction. Through these discussions there has been agreement that flood proofing is a key component to reducing risk, and over the long term will result in reduction in premiums for the homeowners that are implementing those techniques compared to those who are not, however the details of those implications are currently unknown.

Most Property and Casualty (P&C) insurance providers now provide some form of overland flooding insurance as an option for property owners. The cost of insurance can vary based on the catastrophic risk models used by the insurers in assessing the risk levels in the community and individual risk level for specific property owners. EPCOR will continue to actively engage with the insurance community, including supporting the ongoing efforts of the Insurance Bureau of Canada in their efforts aligned with the Federal Task Force on Flood Insurance and Relocation.

EPCOR's SIRP implementation and the City of Edmonton's river flooding resilience initiatives are particularly relevant for properties located within the Provincially designated floodway and flood fringe areas as this has an impact on Disaster Relief

Funding eligibility. Effective 2021, the Government of Alberta has introduced the following changes to the Provincial Disaster Relief Eligibility:

- a 90:10 cost sharing agreement, meaning that local municipalities and private-sector applicants are responsible for 10 percent of eligible disaster costs;
- a \$500,000 funding cap per homeowner application; and
- a one-time limit on disaster financial assistance per property.

Implementation Considerations

Administration will continue to work to advance initiatives that support community flood resilience and resilience of City assets, as well work with EPCOR to ensure SIRD implementation aligns with Edmonton’s Climate Resilient goals and the city building outcomes and vision as outlined in The City Plan.

Corporate Outcomes and Performance Management

Corporate Outcome(s): Edmonton is an environmentally sustainable and resilient city			
Outcome(s)	Measure(s)	Result(s)	Target(s)
Ongoing monitoring and reporting of EPCOR utility services regulated by Council	Annual and periodic reporting of utility operations	TBD	Annual Progress Report - Water, Wastewater, Drainage (June) Annual Operational Plan (Q1) Mid Year Update Report (August)

Attachments

1. City of Edmonton Programming To Support Home Adaptation
2. EPCOR SIRD - August 2021 Secure Utility Committee Report and Appendices

Others Reviewing this Report

- D. Croft, Acting Deputy City Manager, Financial and Corporate Services
- H. Rai, Acting Chief Financial Officer
- C. Owen, Deputy City Manager, Communications and Engagement
- G. Cebryk, Deputy City Manager, City Operations
- A. Laughlin, Deputy City Manager, Integrated Infrastructure Services
- K. Fallis-Howell, Acting City Solicitor