



STORMWATER MANAGEMENT FACILITY SAFETY STRATEGY - 2018

Introduction

In keeping with EPCOR's commitment to safety, a Stormwater Management Facilities Safety Strategy has been developed by EPCOR Drainage Services for facilities owned by the drainage utility. In developing the strategy EPCOR examined local standards for new Stormwater Management Facilities, current operating and maintenance procedures and safety measures for the 202 Stormwater Management Facilities in the City of Edmonton.

The initial phase of the strategy consisted of:

- A jurisdictional review of existing Stormwater Management Facility standards and best practices,
- A gap analysis of the EPCOR Stormwater Management Facilities standards as they apply to best practices,
- An identification of improvements to the EPCOR Stormwater Management Facilities standards and signage,
- A review of operational response by Bylaw enforcement practices related to EPCOR, and
- A review of previous communications efforts and the development of a communication and education strategy focused on the safety risks at Stormwater Management Facilities.

The second phase includes:

- Site specific risk assessments at each Stormwater Management Facility that identifies the current risk profile, requirements to address risk, and prioritization of sites for implementation.
- Detailed actions related to specific recreation activities.
- On-going assessments as new facilities are transferred to EPCOR.

Background

The stormwater system is designed to direct stormwater through an interconnecting system of catch basins, pipes, and stormwater facilities that help control flooding and ultimately protect the public.

Stormwater Management Facilities have been built to manage the volume of runoff from heavy storms and snowmelt to prevent flooding, to reduce stormwater release rates, and to improve the quality of stormwater that is discharged into natural water bodies.

Initial Phase Findings and Actions

Jurisdictional Analysis

A review of the safety practices for Stormwater Facilities in five large Canadian cities (Toronto, Winnipeg, Regina, Saskatoon and Calgary) was completed. The current City of Edmonton Design and Construction Standards were then compared to these standards and opportunities

for improvements were identified. Design standards in Edmonton are generally consistent with other cities but incremental improvements have been identified related to: signage for safety, side slopes, maintenance access requirements, public information, recreational uses, access, fencing, depth of ponding, inlets and outlets, and outfall safety and aesthetics.

Existing operational response and Bylaw enforcement practices related to safety were also reviewed. Messaging on the signs has been improved to reflect the bylaw: activities such as skating sledding/tobogganing, boating, wheeled recreation activities and other open water activities are clearly restricted. A winter inspection program has also been developed and was implemented through the winter of 2017/2018.

Signage Improvements

Improvements have been identified to strengthen signage about activity near or on Stormwater Management Facilities. Improved signage will specifically address skating, sledding, wading, boating, and other water activities. New signage for all Stormwater Management Facilities has been developed and has been installed at 202. The new signs utilize a similar design from other jurisdictions with larger pictographs and stronger messaging about the dangers of Stormwater Management Facilities. Additionally, the amount of signage will be increased with signs located every 200 metres which mirrors the best practice by the City of Calgary. The installation of additional signage will be ongoing into 2019.

Newly Installed Signs



Public Education and Communication

An extensive public education strategy was implemented from November 2017 to March 2018 related to the winter safety risks of Stormwater Management Facilities. The campaign was designed to change the public's perception and attitudes towards these facilities by making them aware of the inherent danger of Stormwater Management Facilities. By utilizing persistent and layered messaging, the goal of the campaign was to initiate changes in previous

behavior. In the first year of the campaign, EPCOR saw a 37 percent decrease in reports of recreation use on Stormwater Management Facilities. An annual campaign is in development to help identify the dangers of Stormwater Facilities in all seasons. The campaign will be relaunched in November 2018 with a focus on community outreach and education.

Public Communication Examples



EPCOR also offers a Grade 5 education program about Stormwater Management Facilities which includes a field trip component. In 2018, the school program was enhanced to provide additional emphasis on the drainage functions of a Stormwater Management Facility and how to safely use the surrounding spaces. The program curriculum will also act as the foundation for an outreach program targeted at community leagues that are in proximity to Stormwater Management Facilities. In 2018 over 150 grade five classes took part in the program.

Identified High Risk Sites

Five facilities have been identified as being on the same parcel of land as a playground or school. An immediate review of these facilities was conducted and mitigation measures were developed and are in the process of being implemented.

Second Phase Actions

Actions in the second phase include initiatives that have multi-year timeframes or have not been initiated. While deadlines are identified in the individual categories there will be an expectation of continuous monitoring, review and updates as standards change and more information becomes available through the operational program. Additionally, sites may require updates as adjacent community uses to open spaces change and as neighbourhoods mature.



STORMWATER MANAGEMENT FACILITY SAFETY STRATEGY - 2018

Site-by-site Risk Analysis

In the summer of 2018, EPCOR began a site-by-site risk analysis. It is anticipated that all 202 sites will be evaluated with a risk ranking report to be completed in 2019. Individual facility risk ranking will be generated along with aggregate City-wide statistics to identify frequent risk issues. Enhancements to facilities will be addressed in order based on risk.

Although the Stormwater Facilities currently meet industry-standards, proposed mitigation measures will improve public safety and awareness on a City-wide and individual basis.

Naturalization of the facilities will be a major technique utilized to create barriers to public access, however other options include rope fence, split rail fence or chain link fence. City of Edmonton 'Community Greening Coordinators' will be a key part of the process. The number of facilities completed each year will be determined in the annual capital plan.

Public engagement and education will continue to be utilized as a critical aspect in risk minimization. Adjustments will be made to the public engagement strategies depending on the identified risks at each facility. Modifications of the communications techniques will also be made to most effectively connect with a specific community based on noted activities and identified risks.

Changes to Standards

The jurisdictional review compared best practices from the municipalities identified above with the standards used to design the Stormwater Management Facilities in Edmonton. Overall, the practices used in Edmonton are similar to other jurisdictions.

A detailed review of the City of Edmonton's Design and Construction Standards, Section 16 was completed with a view to further enhancing public safety. There are a number of clauses that have been identified for amendment to further reduce risk to the public.

EPCOR will be working with the City of Edmonton create a greater focus on safety as it relates to Stormwater Management Facilities during the planning process and to strengthen Design and Construction Standards for Stormwater Management Facilities. EPCOR will engage the City, Developers, and engineers in this project.

Recreation Use

Several types of recreation have been recorded at Stormwater Management Facilities. EPCOR will undertake actions to address specific activities:

- Skating – Continue with the public education campaign, enhance the winter monitoring and follow established response process when skating activity is identified.



STORMWATER MANAGEMENT FACILITY SAFETY STRATEGY - 2018

- Sledding / Tobogganing – Incorporate sledding activity monitoring into reporting process and look for opportunities to naturalize slopes used for sledding.
- Open Water Activities / Boating – Messaging and signage to indicate boating is prohibited and activities near or on the water are also prohibited.
- Wheeled Recreation Activities - Update the Design and Construction Standards to include requirements that where boat launches are required for operational purposes they will be designed to discourage wheeled activities. Alter existing smooth boat launches with speed bumps to discourage wheeled activities.

Ongoing Education

As part of EPCOR's overall commitment to ensuring that residents are educated and informed about the operational nature of Stormwater Management Facilities, EPCOR has expanded its public engagement and communications. Public safety communication will continue with the goal of educating customers about the operational nature of these facilities and the associated risks. Additionally, expanded education programs will be delivered in collaboration with community leagues, at public events and other community opportunities as they are identified.

Public material is available on epcor.com about Stormwater Management Facilities. Materials target winter and spring/summer behaviours and risks and material will be rotated as the seasons change. Pages can be found directly off the home page at epcor.com.

Conclusion

The actions identified in this strategy will improve public safety and awareness around Stormwater Management Facilities through design, operational practices, public safety campaigns and education programs. EPCOR is committed to being a steward in the communities it operates in, and will endeavor to create safe spaces for all citizens. Improvements to education campaigns and operational procedures have already been implemented, with continued actions to come in 2018 and beyond.