

Subject: Flood Mitigation and Project Coordination Update**APPROVALS:****Jamie Doyle**_____
Director_____
Chief Administrative Officer**Recommended Motion:**

THAT the Flood Mitigation and Project Coordination Update report be accepted as information.

Summary:

This report is provided as an update to Council's resolutions requesting regular updates following the April 26, 2020 flood and is intended to share information on community resiliency, flood mitigation progress, and future river breakup preparedness.

Background:**Flood Mitigation Program**

The Flood Mitigation Program involves the implementation of permanent flood mitigation measures to reduce flood risk in Fort McMurray's Lower Townsite. The Flood Mitigation Program is divided into individual reaches, a visual overview of which is provided on *Attachment 1: Map of Flood Mitigation Program by Reach*.

Following the 2020 flood, Council passed multiple resolutions directing timely completion of neighbourhood-specific flood mitigation. These resolutions are noted on *Attachment 2: Flood Mitigation Program Planning Overview*, overlaid with the respective reaches and a status update on structural mitigation. In addition to the direction provided to complete structural work, the resolutions also speak to enhanced flood provisions and advocacy. Flood provisions will be presented publicly for Council consideration as part of the Land Use Bylaw re-write, which will be brought forward during the term of the 2021-2025 Council. An update on advocacy is presented in a latter section of this report.

Temporary Flood Mitigation

On September 15, 2020, Council directed Administration to prepare, execute, and communicate a plan to mitigate the impact of any potential flooding until the protective

infrastructure is complete. As such, the Municipality established a multi-disciplinary team to develop and implement a robust temporary flood mitigation plan. The plan was established to provide the highest level of protection for the Lower Townsite in preparation for river breakup. This set a new benchmark for the Municipality and is now a benchmark for prevention and mitigation strategies for jurisdictions across Canada. The plan included over 6 kilometers of temporary flood mitigation measures installed in the areas that were affected by the 2020 flood. These temporary flood protection measures included approximately:

- 3,500 meters of clay berms constructed in 2020 and 2021;
- 2,300 meters of triple dams;
- 400 meters of large sandbags walls;
- 100 meters of HESCO carts; and
- 75 pumps, 11 kilometers of hose, and 65 plugs installed to protect underground storm system from river backflow.

The Municipality is continuing to enhance plans based on the lessons learned from preparedness planning in 2021. Practicing the rapid deployment of flood mitigation barriers is one example. Recently, Public Works facilitated a Muscle Wall deployment exercise to rehearse setting up this mitigation measure.

Council also directed Administration to implement a sandbag program for residents and businesses. The Sandbag Program distributed over 25,000 sandbags to residents and businesses to prepare their private properties for river breakup. While many of the sandbags were not returned, it is expected they will help with individual preparedness plans for future use. Sandbags may be reused in future years; however, they must be stored inside or protected outside from the sun, rain, and snow to prevent damage.

The Municipality also engaged the Oil Sands Community Alliance to form the Flood Preparedness Task Force. The Task Force identified and discussed successes, challenges, and opportunities for flood mitigation and dewatering as they related to preparedness and response. Discussions regarding available resources supported preparedness planning and expertise was drawn from industry's lessons learned, procedures, policies, plans, and technical expertise to share information with the Municipality.

Underground Infrastructure

On May 27, 2020, Council directed Administration to bring forward a potential engineering solution, including all costs to implement, to prevent a repetition of the issue that caused the post-flood Boil Water Advisory. On December 15, 2020, Associated Engineering publicly shared a presentation and report on municipal infrastructure performance during the 2020 flood. The report made recommendations for improvements to support preparedness for future flood events. On April 13, 2021, an

update was provided on the implementation of these recommendations and future improvement plans.

A series of infrastructure improvements have been executed or are planned based on the outcomes of Associated Engineering report and an additional investigation that occurred as part of the temporary underground flood mitigation work.

In addition to improvements to existing infrastructure improvement within the Waterfront area, any new storm infrastructure planned for the Waterfront Park project will be isolated from the Lower Townsite storm system to ensure that the work completed will not contribute to any future flooding of the community.

Fort McMurray Water and Wastewater Treatment Plants

To further strengthen the Fort McMurray Water Treatment Plant against additional flood risks, a series of projects were undertaken and completed since the 2020 flood event to enhance storm/overflow outfall sluice gates, flap gates, control system automation, alarms, isolation valves, etc.

As part of the 2021 river breakup preparations, the Fort McMurray Wastewater Treatment Plant effluent line was further improved to address river water backing up in the system and overflowing to the surface.

Backwater Valve Program

On September 15, 2020, Council directed Administration to bring forward a backflow preventer program for Council consideration within 90 days, and on December 15, 2020, the Sanitary Sewer Backwater Prevention Program Policy OPE-50 was approved to come into effect March 1, 2021. Funding of \$1.0 million was allocated to the Program from the Emerging Issues Reserve. Environmental Services continue to support residents with their backwater prevention applications and, to date, approximately \$470,000 of the \$1.0 million budget has been spent on the program with over 220 residents registering and receiving grant funding. As the program has been in effect for six (6) months, it is expected that additional funding will be required to fund the program in coming years. There is a planned promotion program to occur in early 2022, prior to the commencement of the overall river breakup readiness program.

Integrated Waterfront Park Planning and Revitalization

Strategic coordination of Downtown revitalization activities, permanent flood mitigation and Waterfront redevelopment is ongoing with the support of multiple municipal departments. Consideration for the interconnection of the projects, associated timelines, project planning, community engagement, and budget are included in regular discussions to support synchronization and alignment of cross-departmental projects.

Emergency Management

Approximately 150 representatives from various provincial agencies, emergency

management professionals, Indigenous groups, industry, utility providers, and the Municipality gathered virtually for a full-day river breakup tabletop exercise. The exercise focused on clarifying roles and processes, strengthening river breakup preparations, and ensuring a coordinated response. This was the first time an operational exercise of this scale was completed for river breakup.

In March 2021, the Municipality launched the Alertable app in the Region to provide municipal emergency notifications directly to Wood Buffalo residents' mobile devices. To date, there have been 1,435 subscribers.

In 2021, the Municipality introduced daily River Breakup Community Updates, which were distributed by e-mail to stakeholders and partners, as well as posted on the municipal website. Information and photos provided by the Alberta Environment and Parks River Forecasting Team informed these updates. The Forecasting Team arrives in Fort McMurray a few weeks prior to river breakup and performs flyovers on a regular basis to assess the progress of river breakup.

Insurance Advocacy

The Municipality engaged the Insurance Bureau of Canada to advocate on behalf of property and business owners. The insurance challenges experienced in the Municipality are not unique to the Region and require a collaborative, multi-disciplinary approach involving federal, provincial, and territorial government officials, the insurance industry, and stakeholders.

The Government of Canada recognizes the challenge of continued urbanization in high-risk flood areas and has directed the development of a new, low-cost national flood insurance program to protect homeowners at high risk of flooding and without adequate insurance protection. This includes a national action plan to assist homeowners with potential relocation for those at the highest risk of repeat flooding. The Federal Task Force on Flood Insurance and Relocation is expected to submit its final report by Spring 2022. More information on the Federal Task Force is available on the Public Safety Canada website.

Lac La Biche County recently passed a resolution to second the Municipality's motion for a National Flood Insurance Strategy and Community Resiliency Advocacy for presentation and for consideration amongst Alberta Urban Municipalities Association (AUMA) membership at the 2021 Fall AUMA Convention.

Ptarmigan Court

On June 8, 2021, Council passed two (2) resolutions related to Ptarmigan Court Flood Mitigation. The first motion extended the voluntary buyout deadline for properties in this neighbourhood to July 30, 2021. The second motion amended the Ptarmigan Court Residence Flood Mitigation Program Policy FIN-340 (Home Raising Program) with an application deadline of July 30, 2021.

The deadline for property owners to opt into the voluntary buyout or apply for the Home

Raising Program as part of flood mitigation closed on July 30, 2021. All property owners were contacted, and property owners’ decisions are summarized below:

Buyout Agreements	52
Application for Home Raising	3
Remain Status Quo	14
Total Properties	69

The 14 properties that will remain status quo include two (2) vacant lots and 12 developed properties. With consideration for the three (3) applications for properties to be included in the Home Raising Program, its projected that there will be 15 developed properties remaining in Ptarmigan Court.

Acquired properties are currently being maintained as municipal assets and additional information regarding the removal of acquired structures and ongoing land maintenance will be shared publicly when available. As previously noted, the Municipality is currently engaged with Wood Buffalo Housing Development Corporation to coordinate the relocation of suitable modular homes to support rural housing needs.

Draper

On December 15, 2020, Council directed Administration to determine the feasibility of a municipal grant program for lot-by-lot flood mitigation solutions for properties in Draper where the underside of the main floor joists is below 250.9 meters as the flood risk treatment.

Following the public update on the Draper Grant Program on June 17, 2021, survey data of the area was processed to generate a list of residences that are believed to have main floor elevations at or above 250.9 meters. Resolving questions which have stemmed from this initial review and gauging how to best balance requirements for program eligibility for such a diverse development area is underway. This includes the collection of more detailed survey information and the procurement of a contractor and/or structural engineer to assess residences that are considered candidates for raising. These assessments will support the development of a rough order of magnitude estimate with respect to the type, scale, feasibility, and expense of a potential grant program. The Municipality will also engage residents for their consent to enter their homes (if needed) to complete this task. As requested by Council, survey data assessment findings will be shared publicly prior to developing a potential grant program.

This matter is complex and requires the support of many stakeholders and government bodies to address challenges such as, but not limited to, contractor and/or structural engineer's recommendations to advise work on private property and requirements for lot-specific mitigation work as it relates to Alberta Environment and Parks or *Water Act* applications.

In addition to flood mitigation, the Land Use Bylaw and Area Structure Plan are also priorities for the community of Draper. These projects intersect, and each has the potential to impact progress of the others. As such, an online project page was developed to keep the residents of Draper informed and aware of progress on each project.

The development of a municipal grant program for lot-specific mitigation will take into consideration the complexities of the situation including technical components and the outstanding Land Use Bylaw and Area Structure Plan. The connectivity and complexity of these matters present an opportunity to engage in shared community planning to determine next steps and take a coordinated approach to combine all efforts regarding this community. Recommendations brought forward will take into consideration each of the above-mentioned priorities.

Next Steps

Although the Region experienced a thermal breakup in 2021, flooding caused by ice jams is impossible to predict and preparations must occur each spring. The Municipality experienced significant success implementing permanent measures, aligning resources, and communicating with residents in 2021. Future coordination and preparation remain a critical priority for the Municipality.

The Municipality is evaluating the emergency management activities following the 2020 ice jam flood (recovery), as well as mitigation and prevention, and preparedness for 2022 is underway to improve efficiencies, reduce inconveniences, and prepare for future years.

The 2020 flood significantly impacted residents throughout the Region. The steps being taken by the Municipality to complete permanent flood mitigation, address incomplete areas of the Flood Mitigation Program with temporary structural measures, improve underground infrastructure, and assist the most at-risk communities will reduce the risk of future flood damage and improve community resilience.

Budget/Financial Implications:

Permanent Mitigation

The Permanent Flood Mitigation Program has spent \$19.8 million to date and a further \$61.4 million is committed for future years to complete the program. An additional \$68.6 million was spent on the Clearwater Drive/Prairie Loop Boulevard project - most of this project serves as flood mitigation as well as a road. Likewise, \$51.0 million of the total cost of Saline Creek Drive can be considered a flood mitigation expenditure.

In 2021, \$13.8 million has been spent on mitigation to date. Of this, construction of permanent flood mitigation for Longboat Landing (Reach 7) accounts for \$2.4 million spent as of September 9, 2021. This reach is approximately 70 per cent complete with an expected completion date of October 15, 2021 barring seasonal deficiencies. The remaining mitigation costs in 2021 were investments to temporary surface and underground mitigation in preparation for River Breakup 2021 and can be re-purposed for future years.

Temporary Mitigation

The Temporary Flood Mitigation Program was a significant success. It provided, and will continue to provide, flood protection until the permanent Flood Mitigation Program is complete. The spend as of September 9, 2021 for the Temporary Flood Mitigation Program is approximately \$11.4 million and will be significantly less in future years as materials are reused and temporary mitigation is replaced by permanent flood protection.

The Municipality will again be offering the Sandbag Program to support individual preparedness planning leading up to River Breakup 2022, pending budget approval.

Backwater Valve Program

To date, approximately \$470,000 of the \$1.0 million budget has been spent on the program with over 200 residential property owners registering and receiving grant funding. As the program has been in effect for six (6) months, it is expected that additional funding will be required to financially support the program in future years.

Ptarmigan Court

The value of the 52 buyout agreements was \$10.2 million which includes the purchase of 35 developed lots and 17 vacant lots. Costs associated with the three (3) applications for the Home Raising Program are not yet known.

Financial Recovery

On September 15, 2020, Council directed the Planning and Development Department to, at the request of the applicant, process refunds for those applicants who paid permitting fees related to work done in the Mandatory Flood Evacuation Zone and purchased after the expiration of the Flood Recovery Response Bylaw No. 20/014 (August 31, 2020) and the enactment of the 2020 Flood Recovery Response (Extension No. 1) Bylaw No. 20/025.

Since that time, Planning and Development has processed over 7,000 permits related to flood recovery and refunded more than \$3.4 million in fees. Nearly all these permits were issued by Safety Codes, where staff not only reviewed applications, but conducted countless inspections free of charge to ensure residents and businesses could focus on the safe rehabilitation of impacted structures.

Strategic Priorities:

Responsible Government

Attachments:

1. Map of Flood Mitigation Program by Reach

2. Flood Mitigation Program Planning Overview

Presentation - Flood Mitigation and Project Coordination Update