Subject: Flood Mitigation and Community Resiliency Update - Draper	
APPROVALS:	Jamie Doyle
Director	Chief Administrative Officer

Recommended Motion:

THAT the Flood Mitigation and Community Resiliency Update – Draper report be accepted as information.

Summary:

On December 15, 2020, Council passed the following resolutions:

- THAT Administration determine the feasibility of a grant program for lot-by-lot individual flood mitigation solutions for properties in Draper where the underside of the main floor joists is below 250.9 m as the flood risk treatment for Draper and report back to Council: and
- THAT Administration limit development below 250.9 m and introduce enhanced flood provisions in the Land Use Bylaw for development above 250.9 m.

The following report is provided as an update on these resolutions.

Background:

Grant Program

Planning and Development is preparing a scope of work for property elevation surveys in Draper. Two (2) surveys are anticipated: the first survey will determine ground elevation immediately outside each residence and develop elevation contours for a radius of 20 m around each residence (exact radius distance subject to change). Properties found to be near, slightly below or well below 250.9 m will require a second survey to determine the elevation of the underside of the main floor joists. Properties found to be well above 250.9 m will not require further survey.

From the survey findings, Administration anticipates three (3) residence categories (categorization can be done after first survey):

1. Residence well above 250.9 m - confirm location and elevation of foundation drain (if applicable).

2. Residence near or slightly below 250.9 m - interior surveyor access needed to determine main floor elevation; further investigation of site grading is suggested. Residents to be encouraged to apply for backwater valve program.

3. Residence below 250.9 m - interior surveyor access needed to determine main floor elevation; contractor to determine feasibility of raising structure having regard to both height and condition/type of structure.

For category 2 (further investigation of site grading), it is suggested that grading plan preparation be outsourced due to the volume of work. Site grading will be to protect residences only, not any ancillary structure.

It should also be noted that site grading does not include the construction of berms around residences. Work is ongoing to determine the technical feasibility of berms around individual residences in Draper.

For funding of the above-noted work, Administration anticipates a model similar to Rural Water and Sewer Servicing (RWSS), with the key difference being that category 2 and category 3 will have different maximum amounts. Category 1 should be covered under the proposed backwater valve program.

Land Use Bylaw Provisions

Administration is developing an enhanced set of Land Use Bylaw (LUB) provisions for development in the flood hazard area. These new provisions may only apply to certain parts of the flood hazard area depending on what kind of development is expected to take place. These provisions are still in draft form and will focus on different ways to influence development whereby more than one provision may be applied to a given part of the flood hazard area.

The new LUB provisions are not expected to be retro-active and should apply to new development only. As these provisions are an important aspect of the LUB, they will be brought forward separately from the re-write that is currently underway. This will ensure that there is an opportunity for the community to provide feedback on this important work.

The proposed approach for flood provisions includes identifying categories, which are established based on potential flood impacts. Each category would be guided by policy statements that set the tone and would be integrated into the planning framework. This may include policies in the Municipal Development Plan, Area Redevelopment Plan and Area Structure Plans.

Based on policy direction, new LUB provisions would be created. These provisions would inform the approach to develop in each of the flood-susceptible areas. These can all be combined as necessary. The proposed categories (previously presented) are:

1. Status Quo - Additional provisions are not likely to be proposed for areas that are within the flood plain but that are deemed to be above the impacted area.

2. Limiting Density - This is intended to address the social implications of a flood by limiting the number of people who may be impacted by a future flood. This may include new maximums on the number of dwelling units allowed on a property, or upper limits on the total size of a building (commonly measured through "gross floor area").

3. Limiting Land Use - Provisions may be proposed which limit the presence of sensitive uses such as basement suites and storage of hazardous materials in commercial and/or industrial properties.

4. Flood Mitigation - Provisions proposed in this category would capture structural elements and employing materials that are resistant to flooding. There is an opportunity for this to be extended beyond the Land Use Bylaw to providing policy guidance to owners (i.e. recommending installation of spray insulation and water-resistant wiring).

5. Natural Area - For areas that are not protected by structural flood mitigation, these may benefit from having passive uses or be left in a natural state. This is envisioned to include areas on the side of the berm that are susceptible to flooding.

Alternatives:

Community-level structural flood mitigation is not considered technically feasible or cost-effective for Draper. As directed by Council, Administration is investigating lot-specific mitigation. Alternatives to lot-specific mitigation are identified below.

Temporary Mitigation

Inflatable dams or aggregate-filled bags are a potential option for temporary mitigation on individual private properties. These methods could be deployed and removed by residents themselves, with minimal assistance, to a height of 1.07 m. Beyond this height, most products require larger equipment and labour to deploy. The use of these systems may reduce the amount of damage incurred on private property, but it does not create a safe means of egress, so the need to evacuate during a flood would remain.

Temporary Mitigation

Preliminary cost estimates to supply Draper residents with temporary flood mitigation barriers that reach a height of 1.07 m range from $20,000 to $80,000 (for the average-sized home in Draper). The products included in this estimate are considered suitable for personal deployment by a homeowner.

Temporary mitigation higher than 1.07 m would require different product models, equipment to install, labour, and cost more.

Strategic Priorities:

Responsible Government

Attachments:

Flood Mitigation and Community Resiliency Update - Draper Presentation