Flood Risk and Associated Sump Pump Discharge Issues.

Background:

- Water levels in Lake Ontario as at January 11th 2020 were 40 centimeters (or more that 11 inches) above historic averages.
- Forecasts indicate that a new high-water record will likely be set with the spring run-off.
- Efforts to mitigate the impact, and reduce water levels, include opening downstream dams near Cornwall. This is however only a temporary measure as it has resulted in high down-stream water levels and potential flooding in the Montreal region. As well, the resultant high water level has prevented the opening of the St Lawrence Seaway to ship traffic. The anticipated reduction of the water flow through the dams may exacerbate flooding and water table problems faced by communities along Lake Ontario in the coming weeks/months.
- In-fill and redevelopment may also play a role in changing drainage patterns adversely affecting some existing homeowners. (You may recall Mr. Whitelaw's presentation to the Planning Committee on October 8th 2019 raising this issue).

Impact on Burlington Residents:

- Residents in waterfront, or near waterfront, properties and perhaps elsewhere, are experiencing the impact of record elevated water table levels.
- Some report water infiltration, for the first time, in their basements due to increased hydrostatic pressure. This is a peril not generally covered by Homeowner's insurance.
- Some residents with Sump Pumps in our area report that they have been discharging almost continuously this winter. Several home owners on Oak Crescent report Sump Pump discharge of more than 1500 litres or about 400 gallons, per hour at periods during January/February. This is a direct result of local conditions or an elevated water table threatening widespread basement flooding.

Issues:

- It is possible that elevated water table levels may persist as a result of climate change or other factors.
- Sump Pump discharge, at the levels being experienced by some, cannot be accommodated by traditional dry wells or the surface discharge of the water.
- During winter months the resulting water discharge often cannot reach street storm water drains as they are often blocked by snow or ice covered.
- Fortunately, this was a mild winter, otherwise there is considerable risk that above ground sump pump discharge lines would freeze resulting in water back-ups and basement floods.
- In winter, water has accumulated, ponding and freezing in large sheets on streets in certain locations, creating a safety hazard.
- In spring/summer, the discharge creates a nuisance of water saturated areas, impacting neighbouring properties, and making an ideal habitat for mosquitos to breed. In my

case, the nearest downstream storm sewer inlet is over 350 feet away on Goodram Drive, several houses down the road.

How have other Communities Addressed this Problem:

A limited review of material available on the internet reveals that most communities:

- Clearly distinguish between ground water and rain gutter run-off, and the discharge of sump pumps which protect basements.
- Ground water and rain gutter run-off are managed through dry wells or the natural process of allowing the surrounding land to absorb the water.
- Sump pump discharge is considered a unique problem due to the potential for winter ponding or freezing and the nuisance associated water accumulation in spring and summer.
- Toronto, London (Ontario) and Coburg, to name three, allow where considered necessary and appropriate, for the direct connection of sump pump discharge lines (only) directly to the storm sewer system.

Conclusions:

- Dealing with potential basement flooding issues is a problem that is likely not only to persist, but could get worse, either as a result of ongoing climate change or development changing drainage patterns.
- Not all residents seem to be impacted to the same degree. Depth of basement does not appear to be the sole determining factor (again recall Mr. Whitelaw's presentation).
- Even where homeowners have installed sump pumps, planned or unplanned power outages can have catastrophic consequences.
- It would seem appropriate for the City, perhaps in collaboration with Halton Region:
    - to investigate the potential impact of ongoing high water levels on residents and consider ways of further managing or mitigating this flood risk.
    - review how changes in drainage or local geological conditions might impact existing home owners particularly where permits are granted for tear-downs and redevelopment.

Potential Next Steps:

A first step might be to select a small area or community within the City and:

- Determine the extent of the problem and how it is impacting residents.
- Investigate the underlying source of the problem for residents affected.
- Consider a range of options for managing the risk and perhaps pilot test some potential solutions.

I'm confident you would find willing volunteers in our community should you wish to proceed.