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Report ES-04-24 Flood hazard impacts and mitigation assessment.

Mayor, Councillors, Staff, fellow Residents

When we received the notification last Thursday that a flood hazard impact and mitigation study would be discussed today, we understood the urgency to read the reports. Upon review, we see that a large part of this report focusses on the area of the Burlington Major Transit Station Area (MTSA) and downstream to downtown however the report also discusses the need for a City-wide Stormwater Master Plan. My name is Daintry Klein and I represent Millcroft Greenspace Alliance, a not-for-profit organization that advocates for livable sustainable communities and responsible development.

Top of mind is the impassioned delegation that we heard on November 4th from Matt Smith of Headon Forest neighbourhood in Burlington, describing how he and neighbours waded through rapidly flowing water, past submerged cars to protect their loved ones, their homes and their properties during the July 15/16, 2024 flood. These same residents were flooded in 2014. This incident was in addition to the significant flooding as a result of the berm break on the 407. Two known incidences of infrastructure failure or urban flooding that had nothing to do with flooding from a watercourse and just two of the reported 29 areas of flood inundation.

While we appreciate Matt coming forward publicly to request change, other experiences include a home where children's bedrooms were flooded to a height of 4 or 5 feet in a matter of minutes with the property being damaged by sludge. Another experience was of an above ground storage unit having its contents ruined by 4 feet of overland flow of muddy waters rendering the resident's entire personal belongings temporarily stored – useless. The flooding our City is experiencing is a different magnitude than an inch or so of rainwater that can be dried up in a few days with fans.

During and immediately following the July flood we heard Council members instructing residents to contact their insurance companies. Let's discuss the realities.

In the short term, flood victim's lives have been turned upside down as many currently live in temporary housing while they negotiate insurance claims if coverage was in place. The property and casualty insurers have sustained substantial losses due to climate change over the last several years making it difficult for these private companies to continue to offer coverage. It can be an expensive decision for property owners to make if coverage is even available.

On page 339 of today's agenda package, we see "Terminology" under "Background and Discussion". Of the two definitions provided, both relate to watercourses. We are wondering if it would be helpful to have some background terminology here, particularly given the high-density development areas being discussed, surrounding urban flooding and the impact of rapidly changing intensity, duration and frequency of precipitation on more commonly occurring hardened surfaces most likely on 100% lot coverage which can overwhelm infrastructure.

MGA has referred to the Public Safety Canada report of 2022, "Adapting to Rising Flood Risk, A Report by Canada's Task Force on Flood Insurance and Relocation," in a number of delegations to this City. This report examines the property insurance market and the Government of Canada's investigation into flood risk. There is extensive detail in the report about types of data and flood modelling that is currently considered in making risk assessments both by private insurers and now by the federal government. These complex details are used to calculate the potential liability of a much-needed national insurance program similar to offerings in other countries. In this report, HEC-RAS and two dimensional modelling are not even considered. HEC-RAS was developed in about 1950 by the Army Corps of Engineers and despite upgrades, the basis of the modelling just doesn't address the current situation. New modelling more accurately addresses the 97% risk of urban flooding. Data inputs such as underground structures like Queenston Shale and underground parking garages, soil types, topography, hardened surfaces vs greenspace and most importantly the increasing amounts of precipitation that can cause flooding long before it reaches the regulatory limits of watercourses considered by Conservation Halton.

When MGA reviewed the East Burlington Creeks study with our stormwater expert, a hydrogeologist and civil engineer, we discussed the disclaimer that the Creek study was for development and not insurance purposes. Let me reiterate – Public Safety Canada is assessing the need for insurance using complex modelling methods which are widely available through companies such as Katrisk and JB Design.

As we consider this report today, doesn't it make sense that an intensely developed area such as the MTSA and the downtown with known flooding concerns should draw on a more up to date modelling which considers hardened surfaces and underground parking garages? Should the City of Burlington share the same responsibility as Public Safety Canada?

We only have 10 minutes here but a few of the other concerning aspects of this report.

On page 339 of the agenda, "However the system was designed based on the standards at that time and not on the Regional Storm (Hurricane Hazel) design standard of today." This taken together with a comment in the Technical Memorandum dated June 26, 2024. "For the purposes of the current scope, no "climate resiliency" measures were considered. The focus was upon developing and assessing (at conceptual/preliminary level) potential alternatives which may either reduce or eliminate the upstream spills thereby reducing the floodplain limits in the area…"

We note that the City paid for a peer review by Matrix Solutions Inc to undertake a peer review related to the modelling methodology of the Phase 2 MTSA study. The conclusion from Matrix Solutions Inc. was that the Phase 2 modelling was completed with good engineering judgement and according to industry best standards. (agenda p. 342) We reviewed the website for Matrix Solutions to learn more.

Under the "Assessments" tab, we see "The need to consider climate risks and adaptive capacity **is becoming** more accepted as best management practices in the management of existing infrastructure assets and in the design of new infrastructure." The residents of the City of Burlington, whose properties have been subjected to two significant floods in a decade would like to know whether the terms of reference for the peer review stated current best practices or best practices that consider climate risks and adaptive capacity.

The City of Burlington declared a climate emergency on April 24, 2019 – "Recognizing the severity of a changing climate." We heard from the stormwater engineers representing the City at the Millcroft

Greens OLT hearing say that this is a rapidly emerging situation which will require updates to stormwater guidelines every five years. The residents of the City of Burlington are attempting to understand how this squares with a current study that is scoped with no climate resiliency measures.

To quote Matt Smith's delegation of November 4, 2024, trust results from the truth, reliability and accountability. Should the residents of the City of Burlington reasonably expect the City to seriously address public safety as outlined by the task force for the Federal Government and the Auditor General of Ontario's report Climate Change Adaptation: Reducing Urban Flood Risk.

It's about our lives and livelihoods.