

I. Questions of Clarification and Responses Provided

Craig Mitchell, TRCA's Flood Infrastructure & Hydrometrics Manager, and Rehana Rajabali, TRCA's Flood Risk Management Manager, gave a presentation on the G. Ross Lord Dam Emergency Preparedness Plan. Following the presentation, participants asked questions of clarification, and shared comments.

The questions and responses are summarized and categorized by the following themes below:

1. Capacity of the Dam and Dam Management
2. Source of Water and Impact of Development
3. Rosedale Golf Course
4. Channel Maintenance and Dredging
5. Area Vulnerability
6. Evacuation
7. Storm Sewers and Sinkholes

Responses from the TRCA staff, City of Toronto Office of Emergency Management, and/or TPS noted in *italics*. Please note that while headings in the following section are numbered, the numbers are for ease of reference only and are not intended to imply any order of importance.

1. Capacity of the Dam and Dam Management

- Can you give me the dam's capacity to handle an event like Hurricane Hazel? *It's important to differentiate between "safely passing" a storm versus "holding back" a storm. The dam can delay water and slow it down, but during the August 19, 2005 storm the water came very close to flowing over the top of the dam. At that time we did not have a need to open the gates, but if there had been any more water, we would have had to. For something like Hurricane Hazel we would like need to open the gates to safely pass the storm.*
- What residential zones would be impacted by a Hurricane Hazel-like storm? *If there is an event similar to Hurricane Hazel, Zone 2 in the Flood Inundation Maps will be the impacted area.*
- What impact do high water levels in the lake and in the Lower Don River have on your decisions regarding management of the dam? *They don't have much impact on our decisions. Our primary objective is to keep the dam safe. It takes 4 to 5 hours for water released from the dam to travel down to the Lower Don. The Lower Don floods regularly and there is not a lot you can do about that.*
- Does water from the Don River impact lake levels? *No. Water from the dam has no impact on lake levels.*
- How much water will go to areas below the dam? *It all depends on where the storm hits.*

2. Source of Water and Impact of Development

- Where does water going to the dam come from? *Any water that is in the green area above G. Ross Lord Dam is in the catchment area of G. Ross Lord Dam's reservoir. (See Attachment B. Presentation slides, slide 21 'TRCA Major Dams' for location of the catchment area).*
- Are things getting worse because of development/urbanization? *The dam is properly sized. When the dam was built it was designed with future development in mind. At that time, they looked at Official Plans and made assumptions on what that run off would look like in 50 years. The reservoir behind the dam acts as a big bowl – the water rushes in quickly and then the dam slowly releases it over time. As a result, the dam can pass the probable maximum flood because it is properly sized, and all the spillways were calculated appropriately. Development has more impact in areas that don't have a dam in place to control the flow.*
- How much impact do hard surface developments and permeable surfaces have on flood modelling? *Hard surfaces have more impact when storms bring less water (for example, during 2-year storms). But as the storm events get larger, the amount of hard surface has a diminishing impact. One reason Hurricane Hazel had the impact it did was because there had been a lot of rain in the days before the Hurricane and therefore the soil was saturated – which meant the ground had no more capacity to absorb additional water.*
- When you do your forecasting, does the model include the impact of storm sewers? *There are a lot of storm sewers between the Hoggs Hollow area and the dam. We always assume that all of these sewers are full and eventually draining into our rivers. Our streets also have an important role in conveying stormwater. That's why streets have curbs, to help manage the water*

3. Rosedale Golf Course

- Is the golf course a bottleneck or a backlog for TRCA? Does it exacerbate the flooding problem? *The golf course is low and wide. In terms of creating a bottleneck, I don't think that is the case here.*
- Have you estimated how much water the Rosedale golf course can hold? *No. Our hydraulic model does not consider the golf course a stormwater area.*

4. Channel Maintenance and Dredging

- Will the river improvements extend beyond Rosedale? *No, we will not go beyond Rosedale because there is an easement in that channel, and that easement stops at the golf course.*
- Is the proposed annual dredging just for the man-made channel or would it include the river all the way to the pinch point at Knightswood bridge? *The dredging stops at the golf course because at that point it changes from an engineered channel to a natural channel. We dredge engineered channels to limit sediment build up, however natural sediment is a very small part of the overall capacity issues we face in large events like the ones we're talking about in emergency situations. The thinking has changed since the engineered channels were first built, and we now know that it's better to leave natural channels natural, because natural systems resolve their own issues with the movement of sediment. It is part of the natural process. Currently, we inspect and walk up the channel once or twice a year, but we're looking at increasing that to three or four times a year. We want to get those fallen trees before they start piling up. Also if we dredge more frequently, when we do dredge, it will be a smaller job.*
- Is there a number the community can call when residents notice build-up in the channel? *Yes. I'm the best person to call (Craig Mitchell, cmitchell@trca.on.ca, 647-212-2410).*
- What about the environmental impact of dredging? *It repeatedly strips the bank of any vegetation that is holding the sediments in place. In terms of dredging, we leave a 1 metre buffer zone on the top of the bank. We realize that there's a contradiction between conservation and coming into the channels with dredging machines to manage flooding, but unfortunately, flood risk overrides the protection of natural vegetation in this area. This is necessary to deal with the physical confines of Hoggs Hollow.*

5. Area Vulnerability

- Do you rank communities in terms of their flood vulnerability? Are we very high in the ranking? *Yes. Unfortunately, the Hoggs Hollow neighbourhood is certainly in the top 10. But the dam is doing its job in managing floods, so you don't tend to see the type of flooding some other communities see. The ranking of area vulnerability takes into account the impact and probability of flooding events.*
- Is Yonge and York Mills included in any of the catchments in the flood zone modelling? *Yes. Assuming that there are no debris jam on bridges and roads, Yonge and York Mills is in Zone 3 of the Flood Inundation Map. Zone 3 is the least likely event.*

6. Evacuation

- Regarding evacuation to higher ground, some residents on the south side of the valley would have to go up to higher ground. The problem is that there is a chain link fence around the golf course that is blocking the path. How do we deal with this? *One solution could be to install a gate in the fence. The community could also consider creating a*

FLOOD RISK MANAGEMENT

neighbourhood preparedness plan that outlines how to get to higher ground during an evacuation. The TRCA's flood zone map would be a good reference for this.

- *How much time do we have to evacuate due to a flood emergency? We do not specify how much time you have because we know there can be a delay in the dissemination of information. For example, if you don't turn on the TV or the radio, you may not receive the evacuation notice. The idea is to grab your loved ones, important belongings, etc., and evacuate immediately once notified. We have a flood duty officer monitoring the weather and stream gauges which provide us with updates every 15 minutes, so we will have some idea of how water levels are changing. At the same time it's important to remember that while there are some storms we know are coming (like hurricanes), thunderstorms are very hard to predict.*
- *Does the early warning notification to residents come with a time posted on it? Wireless communication has a time-stamp, but broadcast does not because it is on a repeat loop. The warning will also include a link to the TRCA website, which will have the flood maps.*
- *Is it possible to do an evacuation drill for this neighbourhood? That would help the neighbourhood be more prepared. The City of Toronto and Toronto Police Service wouldn't orchestrate a drill, but we would help the community if they wanted to take the lead on doing a drill.*
- *Maybe we could do a smaller scale drill practiced in a neighbourhood level to prepare as a group because there is always a lot of confusion in the event an evacuation occurs. Note: There was some interest and support for this expressed by other residents in the room.*

7. Storm Sewers and Sinkholes

- *Is there a relationship between flood management and sinkholes? Because we had a sinkhole at Yonge Street and William Carson Crescent. Sinkholes are related to groundwater. If it's after a flood event, then yes, there can be a relationship. However, at this time of year changes in temperature lead to freezing and thawing of the ground which can lead to watermain breaks. When a watermain breaks, the water that's normally in the pipe is released into the ground and washes away the soil, which can result in a sinkhole. Intense cold and warm spells stress the aging infrastructure.*
- *I remember that at one time there was a very large sinkhole on Finch Avenue, west of the dam. I remember that around 1965 Finch was rebuilt, which changed the topography in the area. Did the dam somehow contribute to the sinkhole? Finch Avenue was raised to help create the reservoir behind the dam. An old steel pipe, a culvert, was left in the ground and that pipe collapsed and washed away the dirt underneath the road, leading to the sinkhole. The sinkhole was due to old and aging infrastructure.*
- *Will the flood flow into the subway system? Yes. That is why the TTC is one of our stakeholders. However, it is least likely because the TTC subway system is in Zone 3. Keep in mind that if York Mills subway station is flooded, there would be impacts on the*

rest of the subway system too – for example, it is very likely that Union Station would already be flooded.

- So there is no subway access and operation in case of flooding? *No. The subway will not be operational.*